Jeffrey T. Gasser
Vice President

Southern Nuclear
Operating Company, Inc.
40 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201

Tel 205.992.7721
Fax 205.992.0403

SOUTHERN COMPANY
Energy to Serve Your World℠

May 14, 2003

NL-03-1047

Docket Nos.: 50-424
50-425

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Vogtle Electric Generating Plant
REPORT OF FACILITY CHANGES, TESTS & EXPERIMENTS

Ladies and Gentlemen:

In accordance with 10 CFR 50.59 (d) (2), Southern Nuclear Operating Company (SNC) hereby submits the Vogtle Electric Generating Plant (VEGP) Report of Facility Changes, Tests and Experiments. This report reflects changes through November 16, 2002, which is consistent with the current Revision 11 of the VEGP Updated Final Safety Analysis Report.

This letter contains no NRC commitments. If you have any questions, please advise.

Sincerely,

Jeffrey T. Gasser

JTG/tdh

Enclosure: Report of Facility Changes, Test and Experiments.

cc: Southern Nuclear Operating Company
Mr. J. D. Woodard, Executive Vice President
Mr. W. F. Kitchens, General Manager – Plant Vogtle
Mr. M. Sheibani, Engineering Supervisor – Plant Vogtle
Document Services RTYPE: CVC7000

U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Mr. F. Rinaldi, NRR Project Manager – Vogtle
Mr. J. Zeiler, Senior Resident Inspector – Vogtle

IE47

10 CFR 50.59 REPORT of FACILITY CHANGES, TESTS & EXPERIMENTS. MAY 5, 2001 THROUGH NOVEMBER 16, 2002

VOGTLE ELECTRIC GENERATING PLANT UNITS 1 & 2

Design Change Packages (DCPs)

SUBJECT: 97-VAN0043

DESCRIPTION: The fire protection alarm and detection system currently in operation at VEGP is a non-addressable detection system. This system (system 1813) has components, specifically in the front end, that are no longer manufactured by the vendor. Replacement components have become more costly and difficult to obtain in the past several years. Honeywell stated that some of the parts were obsolete and were available in limited numbers. Another concern has been the increase in maintenance and surveillance expenditures with respect to manpower requirements. The site identified minor problems they were experiencing with the Honeywell Sentara fire alarm computer. This prompted the upgrading of the fire alarm console. The fire protection alarm and detection system is non-safety related project class 62 E.

This change allowed for upgrading the existing Central Fire Alarm Terminal and the Fire Alarm Signal Computers (A-1813-U3-FAA/FAB/FAC) with Fire Alarm Computer XLS (A-1813-U3-XLSA/XLSB) and a PC based Graphical Operator Workstation and printer (A-1813-Q3-FAC) in the control room as a replacement for Honeywell Sentara System. This consisted of installing a UL 864 UOJZ listed Dell GXMT 5166 (166 Mhz Pentium Processor) and approved hardware; installing Honeywell XBS (also UL 864 and UOJZ approved and listed as a primary Fire workstation software); Microsoft Windows; Microsoft Excel and Micrographics Designer (for graphics design) on PC; and modifying existing DGP/M UX devices to accommodate new XLS Spanels. During implementation of the design change, the XLS cabinets was powered from existing circuit ANYM 107SA. This cable was analyzed for the additional load and determined to be acceptable. The PC, monitor, and printer in the control room will either be powered from new circuit ANYC125SA or from temporary power from a wall receptacle in the control room.

SAFETY EVALUATION: Changes were required to UFSAR section 9A to reflect the replacement of the Fire Alarm Console with a Fire Alarm PC Workstation. In addition, Section 9.5.1 and Figure 9.5.1-1 was revised to reference the new PC Workstation. These changes do not effect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 98-V1N0015

DESCRIPTION: Temporary instrumentation was installed and removed each outage to provide reactor coolant system (RCS) level indication. This instrumentation is essential when the RCS level is lowered to reduce inventory or midloop levels. This design change addressed the installation of permanently installed RCS midloop level instrumentation.

Secondly, the use of an alternative method of refilling the RCS may be used in the future. This alternative method involves the use of a vacuum at midloop conditions. A reactor coolant vacuum refill pump skid was purchased under REA 98-VAA618. This design change addressed permanent modifications to the plant to accommodate the use of this skid.

The proposed activity involved two parts. First, modifications were made to accommodate connection of a new reactor coolant vacuum refill pump skid. These connections included three vacuum hoses which are connected to the following: Pressurizer Vent Valve, and Pressurizer Spray Line Vent Valve, and a removable spool piece downstream of 1-1201-U4-234. Also, demineralized water is used for the vacuum pump's seal water. To accomplish this, a hose is connected between the reactor coolant vacuum skid and a demineralized water supply. The evacuated gases and non-condensibles are discharged into a normal purge exhaust receptacle. Next, any liquid discharged from the pump is routed through a drain hose to a radioactive drain. The pump required 480 VAC power.

Secondly, this design change addressed the installation of permanently installed RCS midloop level instrumentation. UFSAR section 5.4.7.2.3.7 describes the level monitoring system used during midloop or drain down operations. This instrumentation is operational during modes 5 and 6 as well as during defueled conditions. The design activity involved permanently mounting two differential pressure transmitters in containment, two level indicators in the main control room, and two loop power supplies in the computer room. A narrow range differential transmitter is tapped to the loop 1 hot leg and the top of the pressurizer. A second transmitter is tapped to the loop 4 hot leg and to the top of the pressurizer. This second transmitter provides a wide range signal. The loops are powered from different sources. Equivalent midloop level alarms replaced existing midloop level alarms. These alarms are only operational during RCS midloop or drain down conditions. Also the integrated plant computer (IPC) continues to be available for the operator to monitor and trend midloop level. When not required, the midloop level loops can be de-energized. By de-energizing the loops, the potential for a nuisance alarm or for the operator to be concerned with false or misleading data is eliminated. The modified level instrumentation scheme continues to comply with the requirements specified in Generic Letter 88-17 and NUREG-1410.

UFSAR section 5.4.7.2.3.7 also describes the sight glass. Since the sight glass uses tygon plastic tubing that could collapse under vacuum, part of the design activity involved replacing this tubing. If a vacuum is developed, vacuum resistant plastic tubing is used instead of the standard plastic tubing and the sight glass is vented to the pressurizer. The sight glass tubing was vented to containment pressure. There are no other impacts to the sight glass or its installation.

SAFETY EVALUATION: The proposed modifications affect the level and pressure instrumentation required during midloop or drain down conditions. In addition, the design change affected the connections associated with the reactor coolant vacuum refill pump skid. Both the new instrumentation and the reactor coolant vacuum refill pump are not safety-related. Also, the reactor coolant vacuum refill pump skid is temporarily located inside containment during modes 5 and 6 or during refueled conditions. This design change also removed 1PI-0402. Finally, the RCS midloop high level alarm is changed from 192' –5 ¾" to 192 – 6" (192.5'). UFSAR Section 5.4.7.2.3.7 describes midloop and drain down of the Reactor Coolant System (RCS).

The deletion of 1PI-0402 is shown on piping and instrumentation drawing (P&ID), 1X4DB113. Since this drawing is referenced in the UFSAR, this change constitutes a change to the plant as shown in the UFSAR. There are no other changes to any UFSAR figures or references. These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 98-V2N0016

DESCRIPTION: Temporary instrumentation was installed and removed each outage to provide reactor coolant system (RCS) level indication. This instrumentation was essential when the RCS level was lowered to reduce inventory or midloop levels. This DCP addressed the installation of permanently installed RCS midloop level instrumentation.

Secondly, the use of an alternative method of refilling the RCS may be used in the future. This alternative method involves the use of a vacuum at midloop conditions. A reactor coolant vacuum refill pump skid has been purchased under REA 98-VAA618. This design change addressed permanent modifications to the plant to accommodate the use of this skid.

The proposed activity involved two parts. First, modifications were made to accommodate connection of a new reactor coolant vacuum refill pump skid. These connections included three vacuum hoses which are connected to the following: Pressurizer Vent Valve, and Pressurizer Spray Line Vent Valve, and a removable spool piece downstream of 1-1201-U4-234. Also, demineralized water is used for the vacuum pump's seal water. To accomplish this, a hose is connected between the reactor coolant vacuum skid and a demineralized water supply. The evacuated gases and non-condensibles are discharged into a normal purge exhaust receptacle. Next, any liquid discharged from the pump is routed through a drain hose to a radioactive drain. The pump required 480 VAC power.

Secondly, this design change addressed the installation of permanently installed RCS midloop level instrumentation. UFSAR section 5.4.7.2.3.7 describes the level monitoring system used during midloop or drain down operations. This instrumentation is operational during modes 5 and 6 as well as during defueled conditions. The design activity involved permanently mounting two differential pressure transmitters in containment, two level indicators in the main control room, and two loop power supplies in the computer room. A narrow range differential transmitter is tapped to the loop 1 hot leg and the top of the pressurizer. A second transmitter is tapped to the loop 4 hot leg and to the top of the pressurizer. This second transmitter provides a wide range signal. The loops are powered from different sources. Equivalent midloop level alarms replaced existing midloop level alarms. These alarms are only operational during RCS midloop or drain down conditions. Also the integrated plant computer (IPC) continues to be available for the operator to monitor and trend midloop level. When not required, the midloop level loops can be de-energized. By de-energizing the loops, the potential for a nuisance alarm or for the operator to be concerned with false or misleading data is eliminated. The modified level instrumentation scheme continues to comply with the requirements specified in Generic Letter 88-17 and NUREG-1410.

UFSAR section 5.4.7.2.3.7 also describes the sight glass. Since the sight glass uses tygon plastic tubing that could collapse under vacuum, part of the design activity involved replacing this tubing. If a vacuum is developed, vacuum resistant plastic tubing is used instead of the standard plastic tubing and the sight glass is vented to the pressurizer. The sight glass tubing was vented to containment pressure. There are no other impacts to the sight glass or its installation.

SAFETY EVALUATION: The modifications affected the level and pressure instrumentation required during midloop or drain down conditions. In addition, the design change affected the connections associated with the reactor coolant vacuum refill pump skid. Both the new instrumentation and the reactor coolant vacuum refill pump are not safety-related. Also, the reactor coolant vacuum refill pump skid is temporarily located inside containment during modes 5 and 6 or during the defueled conditions. The design change also removed 2PI-0402. Finally, the RCS midloop high level alarm was changed to 192'-5 ¾" to 192'-6" (192.5'). UFSAR Section 5.4.7.2.3.7 describes midloop and drain down of the Reactor Coolant System (RCS).

The deletion of 2PI-0402 is shown on piping and instrumentation drawing (P&ID), 2X4DB113. Since this drawing is referenced in the UFSAR, this change constitutes a change to the plant as shown in the UFSAR. There are no other changes to any UFSAR figures or references.

2PI-0402 is used for local indication only and duplicates other control room indication. While this change does modify the plant as described in the UFSAR, it does not modify, add to, or remove a structure, system, or component (SSC) such that a design function as described in the Updated FSAR is adversely affected. These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 98-VAN0039

DESCRIPTION: The existing magnetic seismic control panel (A-2414-Q5-SIP) was upgraded with the Kinemetrics Altus Series Condor model and the data storage of the free-field seismic recorder located at the river intake (2000 ft from Containment) was changed from cassette type to a digital type (ETNA Digital Recorder). The seismic control system panel is located in the control room. The system is 2414 and the project classification of the cabinet is 62J. The instrumentation with the exception of the river intake structure is 61J. However, while the cabinet is classified as 62J, it is seismically equivalent to 61J. The upgraded free-field recorder contained a computer port connection in which information can be downloaded to a laptop computer. Also, a triaxial time-history accelerograph (AXT-19903) was moved from elevation 195' to elevation 202' to meet the requirements of Regulatory Guide 1.12 Rev. 2. This accelerograph is located inside Containment and its project classification is 61J. The other accelerographs and internals to the cabinet are project classification 61J.

Kinemetrics' seismic monitoring system adheres to Regulatory Guide 1.12 Rev. 2, 1.166 Rev. 0, and 1.167 Rev. 0. In revision 2 of Regulatory Guide 1.12, plants are allowed to eliminate seismic instruments mounted on equipment (AXR-19910) and on piping (AXR-19911, AXR-19912, and AXR-19913). The new Kinemetrics instrumentation eliminated the need for the triggers (AXSH-19922, 19923) and switches (AXSH-19920, 19921). Therefore, the switches and triggers were removed. Other components that were removed for the upgrade to digital are the tape playback unit (AXI-19929), peak recorders (AXR-19914), time history accelerographs (AXT-19904 and 19924), and seismic recorders (AXR-19928E through 19928J).

SAFETY EVALUATION: The existing seismic control panel was replaced with an upgraded system, the Kinemetrics Altus Series Condor, and the data storage of the free-field seismic recorder at River Intake was upgraded from magnetic cassette to digital recorder. The replacement equipment did not affect the seismic integrity of the panel. The upgraded free-field recorder contained a computer port connection in which information can be downloaded to a laptop computer. The digital internals provide more accurate reading of seismic events than the magnetic seismic system. Since the triggers and switches are internal to the Condor system, this eliminated the need for instruments mounted on piping and equipment. The system is listed in the Updated FSAR under sections 3.7.4 & Table 3.2.2-1. Also, section 1.9 was updated to reflect the adherence to new Regulatory Guides 1.12, Revision 2, 1.166 and 1.167. This replacement system functions in the same manner as the existing system. Technical Requirements Manual Table 13.3.2-1 was also revised. There are no changes to the Technical Specification Bases.

SUBJECT: 98-V1N0044

DESCRIPTION: The design change modified the control circuit for the steam dump valves so that if the voltage on both of the 13.8 KV buses supplying the circulating water pumps go to zero volts (dead bus) for more than 5.75 seconds, the steam dump valves are prevented from opening.

As soon as one of the bus voltages is restored and the associated circulating water pump breaker is closed, the steam dump valves can be opened.

SAFETY EVALUATION: The steam dump valves permissive as described in Table 7.7.1-1 of the UFSAR are affected by this change. The steam dump valves C9 permissive was modified to include 13.8 KV bus undervoltage relay contacts. This precluded steam dump valve operation when both circulating water pumps are unavailable due to deenergized 13.8 KV buses. These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 98-V2N0045

DESCRIPTION: The design change modified the control circuit for the steam dump valves so that if the voltage on both of the 13.8 KV buses supplying the circulating water pumps go to zero volts (dead bus) for more than 5.75 seconds, the steam dump valves are prevented from opening. As soon as one of the bus voltages is restored and the associated circulating water pump breaker is closed, the steam dump valves can be opened.

SAFETY EVALUATION: The steam dump valves permissive as described in section 7.7.1-1 of the UFSAR are affected by this change. The steam dump valves C9 permissive was modified to include 13.8 KV bus undervoltage relay contacts. This precluded steam dump valve operation when both circulating water pumps are unavailable due to deenergized 13.8 KV buses. These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 98-VAN0055

DESCRIPTION: This design change addressed the Radwaste Processing Facility (RPF) building, including lighting, HVAC, radiation monitoring system, and the components, systems and accessories provided inside the building for collecting, processing, packaging, and temporarily storing the radioactive waste generated as a result of normal operations at the VEGP. This design change also addressed the licensing document changes necessary to reflect that the radwaste processing functions of the Alternate Radwaste Building (ARB) are being transferred to the radwaste processing facility. This design change does not, however, address radwaste processing facility construction activities, i.e., temporary construction lighting, storage of construction materials, staging of construction equipment, etc. These activities are addressed by VEGP site procedures. This design change also included the Radwaste Processing Facility Interconnects & Piping which covered the preparatory work inside the Auxiliary Building, the ARB, the Radwaste Transfer Building, RTT, and Electrical Manhole ANE460KPM03 (MH3) required to interface with the Radwaste Processing Facility once the new Radwaste Processing Facility was constructed, and became operational and functional.

The new Radwaste Processing Facility was implemented by DCP 98-VAN0055. Transmittals to DCP 98-VAN0055 was performed using "sequenced" transmittals, each representing a discrete scope of work. Within each block of numbers, a DCPT numbering convention for transmittals was used. Each block of DCPT numbers represented a distinctly different scope of work and was numbered as follows:

DCP 98-VAN0055 Rev. 0 Seq. 1 was assigned DCPT 98-VAN0055 (001-099) for Radwaste Processing Facility Interconnects & Piping

DCP 98-VAN0055 Rev. 0 Seq. 2 was assigned DCPT 98-VAN0055 (101-199) for Radwaste Processing Facility Building Design

DCP 98-VAN0055 Rev. 0 Seq. 3 was assigned DCPT 98-VAN0055 (901-999) for Safeguard/Security Information

DCPT 98-VAN0055 (201-899)-Unused

REA 00-VAA0097-Radwaste Processing Facility Design

The new facility was designed in accordance with the requirements of Reg. Guide 1.143 and to the same material standards and applicable codes as the balance of VEGP except where noted in the Technical Provisions of Specification X1AR29 (Plant Vogtle Radwaste Processing Facility). The facility is located between the Solidification Building and Field Support Building. In functional demands, the RPF was to replace the activities of the existing ARB.

SAFETY EVALUATION: The FSAR discusses the ARB systems in Chapters 9 and 11. Reference to components and operational mode is made. The P&IDs for the systems and general arrangement for the ARB are referenced in Table 1.7.1-2. Since the components and configuration of the ARB (now the RPF) system are shown on the P & ID's, the design of this new facility was a change to the plant as described in the FSAR. The text and figures was updated as part of the final transmittal for this design change.

Lighting, telephone/page, and sound powered phone drawings are listed in the FSAR "Cross Reference of Engineering Drawings to UFSAR Discussion Section" Table 1.7.1-1, FSAR "System Operation Communication Stations" section 9.5.2.2.6, and FSAR lighting "System Description" section 9.5.3.2. Drawings 1X3DG021, 1X3DG032, and 1X3DG040 was revised to indicate the Radwaste Transfer Tunnel lighting power supply, telephone/page connection in the Radwaste Transfer Building, and the removal of the sound powered phone system connection in the Radwaste Transfer Building.

The following UFSAR sections were revised: 1.2.2, Table 1.7.1, 1.9, 2.3.5, 2.4.13, Table 3.2.2, 3.3.2, 3.7.B.1, Table 9.1.5, 9.3.3, Table 9.3.3, 9.3.4, 9.4.3, Table 9.4.3, 9.5.1, Table 9.5.1, 9.5.3, Table 9A, 9A.1.130, 10.4.8, 11.2.1, Table 11.2.1, 11.2.2, 11.2.3, Figure 11.2.3, 11.3.3, 11.4.1, 11.4.2, Table 11.4.2, 11.5.2, Table 11.5.2, Figure 11.5.2, Table 11.5.3, 12.2.1, 12.3.1, 12.3.2, 12.3.3, 12.3.4, Table 12.3.4, 12.4.2, 15.7.2.

These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 99-V1N0010

DESCRIPTION: The Fuel Transfer System (FTS) provides for moving fuel assemblies between the fuel building and the containment building. The assembly consists of a fuel transfer cart mounted on an electric motor driven underwater carriage and two fuel upenders. The transfer cart traverses the transfer tube by means of a pusher arm, which is driven by roller chains connected to a transverse drive mechanism (1-2203-S6-002-M001). The fuel container is pivoted at each end of the transfer tube by upending mechanisms that operate with hydraulic cylinders.

Movement of the transfer cart and the operation of the upenders is controlled from a pair of operating consoles, one (1-2203-P5-RE2) located on the operating floor of the fuel building and the other (1-2203-P5-RE1) located on the operating floor of the containment building. The modifications consisted of changes and upgrades that enhanced the operation of the system as follows:

- Electrical Controls: A new electrical control system was installed. This included replacement of the existing consoles with two new control consoles which incorporate programmable interlocks, a cable drive system with a new winch, position and load feedback, and removable proximity switches which provide indication of carriage position and orientation. Control was provided for the new equipment by a programmable logic controller (PLC). The PLC and the control software are similar to those currently used on the Refueling Machine.

- Auto Transfer: An automatic mode of operation was provided. This modification allowed Auto-Initiation of the Fuel Transfer System from the Refueling Machine and the Spent Fuel Handling Machine. A small junction box with an automatic transfer start and stop selector switch was provided for the Spent Fuel Handling Machine. The Refueling Machine control console was modified to add the automatic transfer start and stop selector switch. In addition to the auto transfer switch, an emergency-stop (E-Stop) push button switch was added at both the Refueling Machine and the Fuel Handling Machine. The installation of these switches required the addition or rework of electrical cabling between the junction box and the associated transfer system console.

- Carriage Positioning: A computerized positioning system with speed zone control was incorporated into the new transfer system. This positioning system used an absolute encoder to control the speed, direction, and stopping of the carriage.

- Drive System: The existing motor drives, chains, and sprockets were replaced by a cable drive system with a winch to allow an increase in speed and reliability. The system incorporated a load-sensing device to monitor carriage/cable loads.

- Upender operation: The upender switching control solenoid, on the hydraulic power unit (HPU) skid, was replaced with a different model solenoid.

- Network: A fiber optic cable and associated containment penetration feed-through was installed to connect the transfer machine consoles in the containment and the fuel building to provide communications between the two consoles. A spare port in containment penetration No. 69 was utilized for the new fiber optic feed-through assembly.

- This design change also downgraded the project class of the proximity limit switches associated with the fuel transfer system from 61J to 62J. These switches provide transfer cart position and gate vale position signals used for indication and control of the FTS.

SAFETY EVALUATION: The new control system for the FTS uses PLC's identical to those currently installed and in use in the Refueling Machine. These PLC's have proven reliable. The PLC's for the FTS are installed within a control panel on each side of the transfer canal. The PLC executes a control program that is configured with the same input as the original design for control permissives and interlocks. In addition, other enhancements to the system included increased speed of travel of the transfer cart, remote initiation and emergency stopping, and replacement of the upender control solenoid valve. The project safety classification for the fuel transfer control system is 62J. The control system performs no safety function associated with the safe shutdown of the plant or mitigation of design accidents.

The basic function of the Fuel Transfer System was unchanged, in that, it still provides for fuel movement between the Containment and the Fuel Building. Fuel movement is along the same path as before. The transfer cart and the latching mechanisms that interface with the fuel assembly are unchanged. The safety interlock functions provided by the PLC control system are equivalent to those provided by the existing relay logic control system.

UFSAR section 9.1.4 provides a functional and operational description as well as a description of the safety interlocks associated with the FTS. Due to the change from the relay logic to a PLC based logic control system, the description of some of the safety interlock features in UFSAR section 9.1.4 was revised. The UFSAR was also revised to show the addition of the fiber optic feed through module to the containment penetration. These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 99-V2N0011

DESCRIPTION: The Fuel Transfer System (FTS) provides for moving fuel assemblies between the fuel building and the containment building. The assembly consists of a fuel transfer cart mounted on an electric motor driven underwater carriage and two fuel upenders. The transfer cart traverses the transfer tube by means of a pusher arm, which is driven by roller chains connected to a transverse drive mechanism (1-2203-S6-002-M001). The fuel container is pivoted at each end of the transfer tube by upending mechanisms that operate with hydraulic cylinders. Movement of the transfer cart and the operation of the upenders is controlled from a pair of operating consoles, one (1-2203-P5-RE2) located on the operating floor of the fuel building and the other (1-2203-P5-RE1) located on the operating floor of the containment building. The modifications consisted of changes and upgrades that enhanced the operation of the system as follows:

- Electrical Controls: A new electrical control system was installed. This included replacement of the existing consoles with two new control consoles which incorporate programmable interlocks, a cable drive system with a new winch, position and load feedback, and removable proximity switches which provide indication of carriage position and orientation. Control was provided for the new equipment by a programmable logic controller (PLC). The PLC and the control software are similar to those currently used on the Refueling Machine.

- Auto Transfer: An automatic mode of operation was provided. This modification allowed Auto-Initiation of the Fuel Transfer System from the Refueling Machine and the Spent Fuel Handling Machine. A small junction box with an automatic transfer start and stop selector switch was provided for the Spent Fuel Handling Machine. The Refueling Machine control console was modified to add the automatic transfer start and stop selector switch. In addition to the auto transfer switch, an emergency-stop (E-Stop) push button switch was added at both the Refueling Machine and the Fuel Handling Machine. The installation of these switches required the addition or rework of electrical cabling between the junction box and the associated transfer system console.

- Carriage Positioning: A computerized positioning system with speed zone control was incorporated into the new transfer system. This positioning system used an absolute encoder to control the speed, direction, and stopping of the carriage.

- Drive System: The existing motor drives, chains, and sprockets were replaced by a cable drive system with a winch to allow an increase in speed and reliability. The system incorporated a load-sensing device to monitor carriage/cable loads.

- Upender operation: The upender switching control solenoid, on the hydraulic power unit (HPU) skid, was replaced with a different model solenoid.

- Network: A fiber optic cable and associated containment penetration feed-through was installed to connect the transfer machine consoles in the containment and the fuel building to provide communications between the two consoles. A spare port in containment penetration No. 69 was utilized for the new fiber optic feed-through assembly.

- This design change also downgraded the project class of the proximity limit switches associated with the fuel transfer system from 61J to 62J. These switches provide transfer cart position and gate vale position signals used for indication and control of the FTS.

SAFETY EVALUATION: The new control system for the FTS uses PLC's identical to those currently installed and in use in the Refueling Machine. These PLC's have proven reliable. The PLC's for the FTS are installed within a control panel on each side of the transfer canal. The PLC executes a control program that is configured with the same input as the original design for control permissives and interlocks. In addition, other enhancements to the system included increased speed of travel of the transfer cart, remote initiation and emergency stopping, and replacement of the upender control solenoid valve. The project safety classification for the fuel transfer control system is 62J. The control system performs no safety function associated with the safe shutdown of the plant or mitigation of design accidents.

The basic function of the Fuel Transfer System was unchanged, in that, it still provides for fuel movement between the Containment and the Fuel Building. Fuel movement is along the same path as before. The transfer cart and the latching mechanisms that interface with the fuel assembly are unchanged. The safety interlock functions provided by the PLC control system are equivalent to those provided by the existing relay logic control system.

UFSAR section 9.1.4 provides a functional and operational description as well as a description of the safety interlocks associated with the FTS. Due to the change from the relay logic to a PLC based logic control system, the description of some of the safety interlock features in UFSAR section 9.1.4 was revised. The UFSAR was also revised to show the addition of the fiber optic feed through module to the containment penetration. These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 99-VAN0040

DESCRIPTION: The Residual Heat Removal System (RHR) miniflow control valve (1/2FV-0610/-0611) had a potential to continuously cycle between the open and close position due to flow switch (1/2FIS-0610/-0611) setpoints and uncertainty. Specifically, a NRC Daily Event

Report was issued identifying this condition as a potential failure mode, during a postulated intermediate break loss of coolant accident. Westinghouse Electric Corporation issued a Nuclear Safety Advisory Letter (NSAL-98-002) addressing the subject. The potential failure was due to process instrumentation uncertainty and magnified by a potential post-seismic shift in the switch open and closes instrument setpoints. While Vogtle was susceptible to this condition, the probability of a combination of events that lead to this condition were relatively small. Specifically, the potential valve cycling occurs during a loss of coolant accident when Reactor Coolant System pressure asymptotes at a pressure just below the cut-in pressure of the RHR pumps. During this scenario, flow through the RHR lines is sufficient to cause the miniflow valve to close. When the miniflow valve closes, pump flow drops to a value less than the open setpoint for the miniflow valve. In response, the valve opens again and the flow increases above the close setpoint. This cycling continues until the Reactor Coolant System pressure changes. In a worse case situation, the cycling potentially continues until the miniflow valve fails. If the valve fails in a closed position, the RHR pump is subject to failure as well.

An evaluation of Plant Vogtle specific RHR minimum flow requirements, actual minimum flow system performance, and flow switch setpoint analysis was performed. With a targeted flow of 760 gpm, a replacement switch with larger setpoint span was proposed incorporating instrumentation uncertainties and post-seismic shift. This new switch and setpoints allow operation of the RHR minimum flow valve without valve cycling and potential failure.

The design change replaced the existing 0-67 in. W.C. (0-1500 gpm) switch with a new 0-133 in. W.C (0-2000 gpm) switch. The replacement switch was of the same manufacturer and model and should utilize existing mounting, tubing, and conduit provisions. Actual switch setpoints are: Minimum flow control valves (1/2FV-0610 and 0611) open when a RHR pump discharge flow is less than approximately 824 gpm at 350 °F, 780 gpm at 100 °F and close when the flow exceeds approximately 1944 gpm at 350 °F, 1841gpm at 100 °F.

SAFETY EVALUATION: The Residual Heat Removal (RHR) System was designed to transfer decay heat from the reactor coolant system and reduce the temperature of reactor coolant to a cold shutdown temperature at a controlled rate. System description and function, along with specific instrumentation setpoints, are given in the VEGP UFSAR; further RHR requirements are given in the VEGP Technical Specification (TS) Bases and Technical Requirements Manual (TRM). In order to avoid a potential RHR system minimum flow valve and RHR pump failure, a change in the minimum flow valve setpoint switch was required. This change required installation of a new switch that had a larger controllable switch setpoint span. Changes were made to UFSAR section 5.4.7.2.1, section 5.4.7.2.2.1, Table 5.4.7-3, Table 5.4.7-4, Figure 5.4.7-1, Table 6.3.2-3, and Table 6.3.2-5. These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 99-VAN0053

DESCRIPTION: The design change for units 1 and 2 of the Auxiliary Building added a 2-ton monorail on level "A" corridor rooms R-A30 (unit 1) & R-A69 (unit 2) for floor plug removal. A permanent lifting beam with handling lugs was also added in the Component Cooling Water (CCW) Train "A" pump room R-A05 for the removal of a floor plug.

This DCP provided a permanent system for floor plug removal of selected plugs. It did not impact the requirements for floor plug removal or the consequences of removing floor plugs, except that the addition of overhead heavy load handling systems (OHLHS) required the consideration of the effects of a load drop.

SAFETY EVALUATION:

The modification added monorails and a lifting beam in the Auxiliary Building in Units 1 and 2 to facilitate floor plug removal. However, the change did not adversely affect any design function as described in the UFSAR.

UFSAR Section 9.1.5.3.3 and Table 9.1.5-2 are affected by this change and was revised by the DCP. UFSAR table 9.1.5-2 was revised to document the heavy load analysis associated with lifting the floor plugs. The associated table referenced drawings 1X4DE503 (unit 1) and 2X4DE503 (unit 2) was also revised to indicate the load path analyzed. The basis for conformance/exclusion of an overhead handling system for which a load drop may result in damage to safety-related equipment is presented in UFSAR table 9.1.5-2. These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 99-V2N0059

DESCRIPTION: This design change installed a cable in the Diesel Fuel Oil Storage Tank Building to allow any of the transfer pumps to be powered from A-train or B-train sources. This facilitates the transfer of diesel fuel oil between A-train and B-train storage tanks when either A-train or B-train power is unavailable. The design change also allowed transfer of fuel oil from the A-train storage tank to the B-train day tank or from the B-train storage tank to the A-train day tank when either the A-train or B-train power is unavailable.

The design change used under emergency conditions only pursuant to 10CFR50.54X and not to be used during normal operation or when offsite power is available.

The cable is project class 12E and the modified A-train and B-train pull boxes are project class 11E.

SAFETY EVALUATION: FSAR Table 9.5.4-2 item no.1 was revised to include a statement that a permanently installed, de-terminated cable is available to facilitate the transfer process when A-train or B-train power is not available. These changes did not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 00-V1N0004

DESCRIPTION: The purpose of DCP 00-V1N0004 was to replace the built-up rotors (shrunk-on wheels and couplings) in the Unit 1 low-pressure turbine (LPA, LPB and LPC), with new monoblock rotors (integral wheels and couplings). The monoblock rotor design eliminated wheel bore crevices, which makes it less susceptible to failure. The susceptibility to stress corrosion cracking (SCC) was most pronounced in materials with yield strength above 105 ksi. The threshold of SCC susceptibility is in material with yield strengths in the range of 85 to 100ksi. The material (similar to ASTM A470 Class 6) used for the monoblock rotor, which has a yield strength in the range of 80 ksi, was selected to optimize load-carrying capability and resistance to SCC. Hence, the material yield strength is less than the SCC threshold and the stresses are reduced to provide maximum resistance to SCC.

General Electric (GE) supplied and installed the new monoblock rotors as specified. The LP turbine rotors are project class 424.

SAFETY EVALUATION: UFSAR sections 3.5.1.3 and 10.2 required revision. Although, turbine overspeed protection is discussed in UFSAR Section 16.3.8, it was not affected by this modification. The design change replaced the low-pressure turbine rotors for the Unit 1 low-pressure turbine. The design function of concern with respect to the low-pressure turbine rotors were the potential for generation of turbine missiles. The replacement rotors are of a monoblock design. The monoblock rotor was manufactured from a single forging featuring integral wheels and couplings. This design eliminated wheel bore crevices, which makes it less susceptible to failure from SCC. The monoblock design reduced the potential for failure due to brittle fracture, and the probability of turbine missile generation was reduced. Therefore, the replacement of the Unit 1 low-pressure turbine rotors did not adversely affect the design function as described in UFSAR sections 3.5.1.3 and 10.2. These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 00-VAN0005

DESCRIPTION: This design change added a new noble gas detector skid to provide improved Primary-to-Secondary leak detection capability. The detector skid inlet and outlets are located at the SJAE discharge header, upstream of the SPE discharge header. The skid is provided with non-1E power and the sample cooler is cooled from the Turbine Plant Closed Cooling Water System (TPCCW). A flow control valve is used to maintain the proper amount of TPCCW flow to the sample cooler. The TPCCW system is not safety related and has no safety design basis. Flow indication of the process stream is provided to the Integrated Plant Computer (IPC) (System 1627) through the installation of 2 flow transducers in the steam jet air ejector discharge lines. The noble gas detector is connected to the Process and Effluent Radiation Monitoring System (PERMS) (System 1609) through an Ethernet connection to the IPC network. Software is provided with the Local Display Processing Unit of the new Noble Gas detector and software was developed on the PERMS Communication Console and the IPC to process the flow and radiation data. Leakage indication in gallons per day (GPD) and change in the leakage rate in GPD per hour is calculated and provided to the Operations and Engineering staff through the IPC and PERMS computers.

For the SJAE Exhaust Filtration Unit and the SPE Exhaust Filtration Unit, control of the heater circuit was revised to operate the heater when adequate air flow exists rather than with air moisture content. The humidity control schemes in the systems are unnecessarily complex and are difficult to maintain. REA 98-VAA609 provided an adequate flow value for the SJAE filtration unit. Since adequate flow may not exist during all plant evolutions in the SJAE Exhaust Filtration Unit, the high moisture alarm associated with the unit was deleted. The local indication at the unit remains. To keep the units dry when not in service, service air is provided at a constant flow through the filtration units. To prevent the buildup of pressure, an exhaust path is provided as necessary.

SAFETY EVALUATION: To support this design change the following P&IDs were revised: 1/2X4DB182, 1/2X4DB229-3, 1/2X4DB154-2, and 1/2X4DB188. In addition, the UFSAR was revised as follows: Section 1.9.140.2, 5.2.5.2, Table 9.2.10-1, Table 9.4.4-1, 10.3.3, 11.5.2, Table 11.5.2.1, and Table 11.5.2-2.

The systems affected by these changes are not discussed in the Technical Requirements Manual or the Technical Specification Bases, therefore no changes are needed as a result of this design.

SUBJECT: 00-VAN0012

DESCRIPTION: This design replaced the ITT Barton feedwater flow differential transmitters which were located within the condensate and feedwater system (1305) with Rosemount Model 3051 differential transmitters. By changing the ITT Barton feedwater flow transmitter to the Rosemount Model 3051 differential transmitter, the accuracy and reliability of the feedwater flow transmitters was improved. The replacement improved the accuracy of the UQ-1118 inputs.

Some of the feedwater flow transmitters are in a radiologically controlled area. Eight of Transmitters (1/2FT0520, 21, 30 & 31) are located in a mild area. The remaining eight Transmitters (1/2FT0510, 11, 40 & 41) are located in a harsh area (radiation mild) but are not required to function for the High Energy Line Break (HELB) that causes the harsh area; therefore, they only need to function in mild conditions (UFSAR Table 7.5.2-1 sheet 5 of 14). They are located in the Auxiliary Building in rooms RA06 and RA99. Also, none of these transmitters are in the environmental qualification program.

SAFETY EVALUATION: The design change was to replace the ITT Barton feedwater flow transmitters with Rosemount Model 3051 differential transmitters. The feedwater flow transmitters are part of the ATWS Mitigation System Actuation Circuitry (AMSAC) and condensate and feedwater system. The condensate and feedwater flow system, AMSAC and P&ID's 1/2X4DB168-3 are described in the UFSAR. P&ID's 1/2x4DB168-3 was not revised in this medication. The design did not change any text, tables, or figures in the UFSAR. The equipment and systems (AMSAC, condensate, and feedwater) associated with the feed flow transmitters continued to perform its functions following this design change. Thus, the replacement of the instrumentation did not require revisions to the UFSAR. The functions of the feedflow transmitters are not the subject of the Technical Specification Bases or Technical Requirements Manual. Therefore, this level of detail was not describe and did not require a revision to the UFSAR, Technical Specification Bases or Technical Requirements Manual.

SUBJECT: 00-V1N0016

DESCRIPTION: This design change provided a pressure equalizing vent path from the bonnet cavity of the Residual Heat Removal (RHR) loop suction valves (1HV-8701A/B and 1HV-8702A/B) to the upstream side of the valves to prevent pressure buildup in the bonnet cavity and thereby prevent pressure locking of the valves. The valves were potentially susceptible to pressure locking as evaluated in REA's 99-VAA075, 99-VAA124, 00-VAA042, and 01-VAA060. The recommended solution to preclude these valves from a potential pressure-locking scenario was the addition of a pathway that will equalize the valve bonnet pressure with the upstream pressure.

The bonnet vent lines for both the "A" and "B" valves were insulated for personnel protection. The insulation was NUKON fiberglass type with stainless steel metal jacket. This insulation system was already used elsewhere in containment. The weight of the insulation system was accounted for in the piping stress evaluation. The new vent lines are outside the zone of influence (ZOI) of the postulated pipe break that is used to assess the potential for blockage of the Emergency Core Cooling System (ECCS) sump by insulation material. Therefore, the added insulation did not contribute to the insulation debris after the postulated pipe break.

The design change was implemented during a refueling outage while the reactor was defueled. The change did not adversely affect RHR System or Emergency Core Cooling System (ECCS) functionality because there was no change to either system's design capabilities. The addition of the bonnet vent lines provided a relief path for excess bonnet pressure so that the RHR loop suction valves remain capable of performing their design functions without being susceptible to pressure locking. The addition of the bonnet vent lines has no adverse affect on the operation of the RHR, Reactor Coolant System (RCS) or Safety Injection (SI) systems, or any other system. The piping and valves added by the DCP were designed to the same requirements as the system removed, including approved exceptions. No new failure mechanisms were created by this design change.

SAFETY EVALUATION: The change provided a pressure equalizing vent path from the bonnet cavity of the RHR loop suction valves to the upstream (RCS) side of the valves via the existing valve stem leakoff port to prevent pressure buildup in the bonnet cavity, thereby preventing pressure locking of these valves. The vent line is 1/2 inch NPS Schedule 160 stainless steel piping that attaches to the leakoff port of each valve and vents the bonnet to the upstream side of the valves.

The design functions and design capabilities of the RHR loop suction valves, the RHR system, and the ECCS were not affected by the change. The change ensured that the valves are capable of performing their design functions without being susceptible to pressure locking.

The RHR System is described in UFSAR Sections 5.4.7 and 6.3.2. A revision was required to UFSAR Section 5.4.7.2.2.3 because RHR valves having bonnet venting are described in that section.

The P&ID, 1X4DB122, was also revised to reflect the addition of the new bonnet vent lines. The P&ID is part of the UFSAR by reference but it is not included in the UFSAR. No design functions described in the UFSAR were adversely affected by the change. Only the "A" RHR loop suction valves (1HV-8701A and 1HV-8702A) are containment isolation valves per UFSAR Table 6.2.4-1 and Table 16.3-4. The pressure boundary for containment isolation is the downstream side of the disc of the "A" RHR loop suction valves. The valve bonnet in the Westinghouse flex-wedge gate valve design is part of the space between the upstream and downstream discs. Since the vent lines connect the bonnet of the "A" RHR loop suction valves to the upstream side, the vent lines will not prevent, interfere with, or bypass the containment isolation function of the "A" RHR loop suction valves, and the modification on the "B" RHR loop suction valves does not impact containment isolation.

The piping and globe valves added by the design change are designed to the same requirements as the replaced system. All systems and valves continue to function as designed. The change relieved any excess bonnet pressure so that the RHR loop suction valves are capable of performing their design functions without being susceptible to pressure locking conditions. The insulation added on the new vent lines did not contribute to the design basis ECCS containment sump blockage.

No new failure mechanisms were created by the addition of the vent piping. Because of the flow restrictors in the design, the loss of RCS inventory resulting from a postulated failure of either the vent lines or the "B" RHR valve bypass lines would remain within the capacity of the normal makeup system.

These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 00-V2N0017

DESCRIPTION: This DCP provided a pressure equalizing vent path from the bonnet cavity of the Residual Heat Removal (RHR) loop suction valves (2HV-8701A/B and 2HV-8702A/B) to the upstream side of the valves to prevent pressure buildup in the bonnet cavity and thereby prevent pressure locking of the valves. The valves were potentially susceptible to pressure locking as evaluated in REA's 99-VAA075, 99-VAA124, 00-VAA042 and 01-VAA060. The recommended solution to preclude these valves from a potential pressure-locking scenario was the addition of a pathway that will equalize the valve bonnet pressure with the upstream pressure.

The bonnet vent lines for both the "A" and "B" valves was insulated for personnel protection. The insulation was NUKON fiberglass type with stainless steel metal jacket. This insulation system was already used elsewhere in containment. The weight of the insulation system was accounted for in the piping stress evaluation. The new vent lines are outside the zone of influence (ZOI) of the postulated pipe break that is used to assess the potential for blockage of the ECCS sump by insulation material. Therefore, the added insulation did not contribute to the insulation debris after the postulated pipe break.

The DCP was implemented during a refueling outage while the reactor was de-fueled. The change did not adversely affect RHR System or Emergency Core Cooling System (ECCS) functionality because there was no change to either system's design capabilities. The addition of the bonnet vent lines provided a relief path for excess bonnet pressure so that the RHR loop suction valves remain capable of performing their design functions without being susceptible to pressure locking. The addition of the bonnet vent lines has no adverse affect on the operation of the RHR, Reactor Coolant System (RCS) or Safety Injection (SI) systems, or any other system. The piping and valves added by the DCP were designed to the same requirements as the system removed, including approved exceptions. No new failure mechanisms were created by this design change.

SAFETY EVALUATION: The change provided a pressure equalizing vent path from the bonnet cavity of the RHR loop suction valves to the upstream (RCS) side of the valves via the existing valve stem leakoff port to prevent pressure buildup in the bonnet cavity, thereby preventing pressure locking of these valves. The vent line is 1/2 inch NPS Schedule 160 stainless steel piping that attaches to the leakoff port of each valve and vents the bonnet to the upstream side of the valves.

The design functions and design capabilities of the RHR loop suction valves, the RHR system, and the ECCS were not affected by the change. The change ensured that the valves are capable of performing their design functions without being susceptible to pressure locking.

The RHR System is described in UFSAR Sections 5.4.7 and 6.3.2. A revision was required to UFSAR Section 5.4.7.2.2.3 because RHR valves having bonnet venting are described in that section.

The P&ID, 2X4DB122, was also revised to reflect the addition of the new bonnet vent lines. The P&ID is part of the UFSAR by reference but it is not included in the UFSAR. No design functions described in the UFSAR were adversely affected by the change. Only the "A" RHR loop suction valves (2HV-8701A and 2HV-8702A) are containment isolation valves per UFSAR Table 6.2.4-1 and Table 16.3-4. The pressure boundary for containment isolation is the downstream side of the disc of the "A" RHR loop suction valves. The valve bonnet in the Westinghouse flex-wedge gate valve design is part of the space between the upstream and downstream discs. Since the vent lines connect the bonnet of the "A" RHR loop suction valves to the upstream side, the vent lines will not prevent, interfere with, or bypass the containment isolation function of the "A" RHR loop suction valves, and the modification on the "B" RHR loop suction valves does not impact containment isolation.

The piping and globe valves added by the design change are designed to the same requirements as the replaced system. All systems and valves continue to function as designed. The change relieved any excess bonnet pressure so that the RHR loop suction valves are capable of performing their design functions without being susceptible to pressure locking conditions. The insulation added on the new vent lines did not contribute to the design basis ECCS containment sump blockage.

No new failure mechanisms were created by the addition of the vent piping. Because of the flow restrictors in the design, the loss of RCS inventory resulting from a postulated failure of either the vent lines or the "B" RHR valve bypass lines would remain within the capacity of the normal makeup system.

These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 00-V1N0025

DESCRIPTION: During past outages, the plant has experienced problems with reliable communication between the signalman and the polar crane operator in the cab. This design change installed a wireless radio control interface on the containment building polar crane. This allows the operator to control the crane from outside the cab while being in closer proximity to the load being handled. With the operator in closer proximity to the load, the inherent delays in using a signalman was eliminated and the safety and speed of operation was enhanced.

The radio control system was provided by Whiting Services Inc., the original manufacturer of the crane. The old system for remote operation, the pendant control system, was difficult to operate and was not practical to use and was retired-in-place. This modification involved the installation of a new radio control panel on the polar crane which communicates with the portable radio control transceiver used by the operator. The radio control panel was mounted on the polar crane and interface with the control system by reusing existing wiring of the abandoned (retired-in-place) pendent control. The control panel for the radio control system was designed and mounted to the polar crane per Seismic Category 2/1 requirements.

SAFETY EVALUATION: The polar crane is part of the Overhead Heavy Load Handling System (OHLHS) described in UFSAR section 9.1.5. UFSAR section 9.1.5.2.3 which describes the function of the pendant controlled operation of the polar crane was impacted due to this modification. The UFSAR was modified to show the retiring in place of the pendant and use of the new radio control for operation of the polar crane.

The postulated load drop accidents associated with the polar crane are described in UFSAR section 9.1.5. The replacement of the pendant control with a radio control mode of operation did not increase the probability of occurrence of any of these analyzed accidents.

There are several design aspects that ensured the safety and reliability of the radio control system. The first design feature is the coordination of frequencies used at the plant site for radio communications. This coordination of frequencies precludes the possibility of inadvertent noise on the polar crane control frequency being caused by other radio equipment in use at the site. Additionally, the radio control unit utilizes an encoded signal that requires a continuous "handshaking" to maintain operation. The communication between the transmitter and receiver must be continuous and it must include the proper code to permit the crane power to be maintained "on". Loss of this "permissive" signal will shut down the crane main line contactor which removes all power to the motor drives. The transmitter must then send a "start" code to again turn on power and maintain the permissive code to keep it on. Any noise due to electromagnetic interference or radio frequency interference (EMI/RFI) would disrupt the transmission of this code and would shut the crane down, not just stop motion, by setting all brakes and removing all drive power. Also, each individual motion (hoist up, hoist down, trolley forward...etc) must on its own have a continuous coded signal not only to initiate movement, but also to maintain it. Loss of signal or improper code sequence will stop the motion.

This modification did not affect the structural integrity or design of the polar crane. The mechanical and safety interlocks for cab operation of the polar crane were not affected. The safe load handling precaution and limitations procedures described in the UFSAR are adhered to by plant personnel.

In order to preclude the possibility of the new radio transceiver causing noise on other sensitive equipment, exclusion distances were determined per calculation X5CEMI0003. These exclusion distances are administratively controlled and adhered to as required for other portable transceivers currently in use at the plant. One possible adverse affect that could be postulated as a result of this activity is an uncontrolled or unanticipated movement due to EMI/RFI noise on the frequency being used by the new polar crane radio control. However, as discussed above several safeguards have been designed into the radio control system that would preclude this possibility. Also, this design has been widely used in numerous industrial environments without incidents of spurious operation. Based on the design safeguards and the operating experience of the radio control system this change did not adversely affect the design function of the polar crane or any SSC as described in the UFSAR. These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 00-V2N0026

DESCRIPTION: During past outages, the plant has experienced problems with reliable communication between the signalman and the polar crane operator in the cab. This design change installed a wireless radio control interface on the containment building polar crane. This allows the operator to control the crane from outside the cab while being in closer proximity to the load being handled. With the operator in closer proximity to the load, the inherent delays in using a signalman was eliminated and the safety and speed of operation was enhanced.

The radio control system was provided by Whiting Services Inc., the original manufacturer of the crane. The old system for remote operation, the pendant control system, was difficult to operate and was not practical to use and was retired-in-place. This modification involved the installation of a new radio control panel on the polar crane which communicates with the portable radio control transceiver used by the operator. The radio control panel was mounted on the polar crane and interface with the control system by reusing existing wiring of the abandoned (retired-in-place) pendent control. The control panel for the radio control system was designed and mounted to the polar crane per Seismic Category 2/1 requirements.

SAFETY EVALUATION: The polar crane is part of the Overhead Heavy Load Handling System (OHLHS) described in UFSAR section 9.1.5. UFSAR section 9.1.5.2.3 which describes the function of the pendant controlled operation of the polar crane was impacted due to this modification. The UFSAR was modified to show the retiring in place of the pendant and use of the new radio control for operation of the polar crane.

The postulated load drop accidents associated with the polar crane are described in UFSAR section 9.1.5. The replacement of the pendant control with a radio control mode of operation did not increase the probability of occurrence of any of these analyzed accidents.

There are several design aspects that ensured the safety and reliability of the radio control system. The first design feature is the coordination of frequencies used at the plant site for radio communications. This coordination of frequencies precludes the possibility of inadvertent noise on the polar crane control frequency being caused by other radio equipment in use at the site. Additionally, the radio control unit utilizes an encoded signal that requires a continuous "handshaking" to maintain operation. The communication between the transmitter and receiver must be continuous and it must include the proper code to permit the crane power to be maintained "on". Loss of this "permissive" signal will shut down the crane main line contactor which removes all power to the motor drives. The transmitter must then send a "start" code to again turn on power and maintain the permissive code to keep it on. Any noise due to electromagnetic interference or radio frequency interference (EMI/RFI) would disrupt the transmission of this code and would shut the crane down, not just stop motion, by setting all brakes and removing all drive power. Also, each individual motion (hoist up, hoist down, trolley forward...etc) must on its own have a continuous coded signal not only to initiate movement, but also to maintain it. Loss of signal or improper code sequence will stop the motion.

This modification did not affect the structural integrity or design of the polar crane. The mechanical and safety interlocks for cab operation of the polar crane were not affected. The safe load handling precaution and limitations procedures described in the UFSAR are adhered to by plant personnel.

In order to preclude the possibility of the new radio transceiver causing noise on other sensitive equipment, exclusion distances were determined per calculation X5CEMI0003. These exclusion distances are administratively controlled and adhered to as required for other portable transceivers currently in use at the plant. One possible adverse affect that could be postulated as a result of this activity is an uncontrolled or unanticipated movement due to EMI/RFI noise on the frequency being used by the new polar crane radio control. However, as discussed above several safeguards have been designed into the radio control system that would preclude this possibility. Also, this design has been widely used in numerous industrial environments without incidents of spurious operation. Based on the design safeguards and the operating experience of the radio control system this change did not adversely affect the design function of the polar crane or any SSC as described in the UFSAR. These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 00-V1N0029

DESCRIPTION: VEGP performs the Solid-State Protection System (SSPS) and Reactor Trip Breaker (RTB) Operability Test Surveillance at least once every 31 days on a staggered basis so that each train is tested at least once every 62 days. During the performance of the surveillance, electricians are required to verify the status of the cell switch and 52b (auxiliary) contact for both the main and bypass reactor trip breakers.

To perform this evolution, a cabinet door on the rear of reactor trip switchgear must be opened to facilitate access to the terminal blocks. These terminal blocks are utilized to verify the position (open or closed) of the cell switch and 52b contacts. The electrician measures resistance between Terminals 1 and 4 and also between Terminals 2 and 3 of both Terminal Block 4 and Terminal Block 5. Should Terminals 1 and 2 be shorted together during this evolution, either a Turbine Trip of Feedwater Isolation would result depending at which terminal block the terminals had been shorted together.

In an effort to reduce the risks associated with performing these cell switch and auxiliary contact resistance readings, the test points from the terminal blocks was brought out to test panels (one test panel per train). Each terminal block conductor is wired to a selector switch. The switch output goes to test jacks located beneath the switch. The switch is used to select between either Terminals 1 and 4 or Terminals 2 and 3. Resistors are used in the test circuits to assist in preventing inadvertent actuation during testing. The test panels are Project Class 11J and are located in a mild environment, on Level B of the Control Building.

SAFETY EVALUATION: Features for testing the reactor trip breakers are described in UFSAR section 7.2.2.2.3.J.4. A description of the test panels was added to this section.
These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 00-V2N0036

DESCRIPTION: A limit on the average temperature (Tavg) portion of the Over Temperature Delta Temperature (OTDT) reactor trip function was added to the reactor trip system. This limit or "clamp" addressed design issues related to fuel rod cladding stress under transient conditions.

The limit was applied on the Tavg difference signal by a new control card installed in the 7300 process protection system racks. The card was set such that the temperature contribution was limited (clamped) to a value 3 degrees lower than the reference temperature for the associated loop. The changes involved revised the OTDT instrument loop hardware and/or wiring in each protection cabinet (2-1604-Q5-PS1, PS2, PS3, and PS4, project class 11J) to provide the required clamping capability.

A Nuclear Summing Amplifier (NSA) Group 2 7300 system card was chosen to perform the clamping function. This card has the capability to sum up to four inputs and provides high and low clamping of the output. Only one channel on the card is used in this application.

The OTDT reactor trip function circuit was modified to add a limit or clamp to the Tavg portion of the trip function by adding a summing amplifier to the circuit. This design change will also modify the settings (breakpoints and slopes) for the axial flux difference (AFD) modifier, f_1(AFD), term in the trip function. In conjunction with these changes to the trip function, the OTDT setpoint in TS Table 3.3.1-1 and the Bases B3.3.1 was changed. The AFD limits in the COLR will also be changed.

SAFETY EVALUATION: UFSAR section 7.2.1.1.2 (Reactor Trips), B.1. (Over Temperature ΔT Trip) was revised to describe the clamping function in the OTDT equation. A new sentence was added as follows: "For Tavg < T°avg, the value of (T°avg – Tavg) is clamped to limit the increase in the setpoint during cool down transients." The Technical Specification Table 3.3.1-1 and Bases B3.3.1 was also affected by this change.

SUBJECT: 00-VAN0040

DESCRIPTION: This design change provided the tube-cable routing between tube-cable hubs for a portion of the fiber optic cable backbone infrastructure in the followings buildings. Unit 1 and 2 Control Building, Unit 1 and 2 Turbine Building, Unit 1 and 2 Auxiliary Building, Unit 1 and 2 Fuel Handling Building, Field Support Building, and Radwaste Processing Facility. The interconnection of the tube-cable hubs supported the installation of a Wireless Local Area Network (WLAN) and other fiber optic networks at VEGP.

SAFETY EVALUATION: The tube-cables installed are flame-retardant in accordance with IEEE 383-1974 standard referenced in UFSAR 9.5.1.3.B. Section 9A of UFSAR was revised. The penetrations that are breached during installations of these tube-cables were resealed in accordance with approved penetration seal designs. Each hollow tube in the tube-cable was capped with an airtight endcap rated at 200 psi and stored in an enclosure suitable for the location humidity level. When fiber optic bundles are blown through the tubes, a busing was placed on the bundle, and a tube coupling placed over the individual tube, fiber optic bundle, and fiber optic bushing. The other end of the tube coupling mated with a piece of transparent tubing, and the transparent tubing was capped with a 200 psi rated endcap and stored in an enclosure suitable for its environment. Once the endcap was removed from the tube-cable housing the fiber optic cable, a pressurized fiber optic fan-out component with a pressure rating sufficient to maintain pressure and water boundaries was used with a fiber optic connector at each fiber buffer. Along with the self-extinguishing characteristics of the tube-cable, these processes will prevent the propagation of fire, water, and/or air. Therefore, this modification did not adversely affect a design function as described in the Updated FSAR for a structure, system or component (SSC). These changes do not affect the requirements of the Technical Requirements Manual or the Technical Specification Bases.

SUBJECT: 99-VAM046

DESCRIPTION: This MDC added a portable "Tubular Ultrafiltration (TUF)" skid in the Alternate Radwaste Building (ARB) for processing liquid radioactive waste. This system replaced the Impell Micro-filtration skid. The new system includes three skids; a tank skid, a membrane (filter) skid and a chemical cleaning skid. It is equipped with a local and remote control panel and is controlled from the ARB control room.

SAFETY EVALUATION: The system meets the design requirements of Design Criteria (DC) 1901a which includes Reg. Guide 1.143 criteria for fabrication, testing and material qualification, and is classified consistent with the project classification 427 for liquid radwaste processing systems. As a portable skid, it meets the requirements of (Effluent Treatment System Branch) ETSB-11.3 paragraph 4 per DC-1901a. Included within the design criteria is the exception to the materials requirements of Reg. Guide 1.143 for the use of non-metallic hoses. The system is designed as portable or mobile and the VEGP position for the design criteria exception to Reg. Guide 1.143 is included in UFSAR section 1.9.143.1. This MDC represented a change to the facility as described in UFSAR sections 1.2, 1.9, 3.3, 3.7, 9A, 9.1, 9.3, 9.4, 11.2, 11.4, 12.2 and 12.3. License document change requests were submitted. The MDC did not impact the Technical Specification Bases or the Technical Requirements Manual. This change did not involve any unreviewed environmental question as described by section 3.1 of the Environmental Protection Plan.

SUBJECT: 00-V2M045

DESCRIPTION: The available feedwater temperature loops in the 7300 system process control rack were used to provide additional indications of the feedwater temperatures to the Integrated Plant Computer (IPC). These additional computer inputs provide a diverse indication on the computer for trending feedwater temperatures, thereby aiding in early identification of instrument drift. This change involved the internal wiring in the 7300 system process control cabinets, including the addition of a computer interface board and routing pre-existing pre-fabricated cables to the computer input/output (I/O) cabinet.

SAFETY EVALUATION: This modification resulted in changes to the following documents: 2X6AU01-882, 2X6AU01-883, 2X6AU01-884, 2X6AU01-885, 2X6AU01-661, 2X5DM223 Sheet 4 of 7, 2X5DM223 Sheet 7 of 7, 2X5DV098, 2X5DV099, 2X5DV100, 2X5DV101, and 2X4DB168-3. As mentioned, the P&ID (2X4DV168-3) was changed. This drawing is referenced in the UFSAR; therefore a change to the plant as described in the UFSAR is implied. This change does not represent a function change to the plant with respect to the feedwater system as described in UFSAR 7.1.2.1.6, 7.2.2, 10.4.7.2.1, 10.4.9.2.1, 15.0, 15.1, 18.1.2.4, and Table 1.7.1-1. Nor does this change impact the IPC as described in UFSAR 7.1, 7.5.3.6, 7.5.5.1, 7.7.1, 7.7.2, 8.3, 14.2.8, 15.4.9-3, and 18.2. There was no impact to Technical Specification Bases as reviewed in sections B3.1.3, B3.1.4, B3.2.1, B3.2.2, B3.2.3, B3.3.1, B3.3.8, and B3.8.1. This change does not affect the Technical Requirements Manual or section 3.1 of the Environmental Protection Plan.

Minor Design Changes (MDCs)

SUBJECT: 00-VAM050

DESCRIPTION: A supplemental treatment system, reverse osmosis, was placed in-line at the Demineralized Water Plant between the carbon filters (A-1409-D4-001-F01, 02) and the cation exchangers (A-1409-D4-001-D01, 02). Line A-1409-502-6" was modified to include two tees and three isolation valves. The inlet and outlet lines for the supplemental treatment system were routed such that 6" connection flanges are readily accessible just outside the north wall of the water treatment building.

SAFETY EVALUATION: The Demineralized Water Make-up System is addressed in UFSAR 9.2.3. The equipment that was being utilized for raw water demineralization was described in detail in UFSAR 9.2.3. Therefore, UFSAR 9.2.3 required an update. P&ID AX4DB177 was affected by this modification. Technical Specification Bases and the Technical Requirements Manual were not affected by this modification. This change did not involve an unreviewed environmental question as described by section 3.1 of the Environmental Protection Plan.

SUBJECT: 00-VAM062

DESCRIPTION: The low temperature alarm setpoint for the emergency diesel generator jacket water and lube oil was changed from 140 degrees F to 135 degrees F. The setpoint was lowered to prevent or reduce the frequency of occurrence of the low jacket water temperature and low lube oil temperature alarms that would start when the engine was in standby.

SAFETY EVALUATION: UFSAR section 9.5.5 listed 140 degrees F as the low temperature alarm setpoint for the diesel generator jacket water. UFSAR section 9.5.7 listed 140 degrees F as the low temperature alarm setpoint for the diesel generator lube oil. Therefore, UFSAR sections 9.5.5 and 9.5.7 were revised to read 135 degrees F instead of 140 degrees F. UFSAR sections 8.3 and 9.5.4 through 9.5.8 were reviewed, but did not require revising. The low temperature alarm setpoint for either jacket water or lube oil is not described in the Technical Specification Bases B3.8 or Technical Requirements Manual 13.8.3. No changes were required to the Environmental Protection Plan.

SUBJECT: 02-V1M016

DESCRIPTION: This design change lifted the leads for thermocouple 1TE-10034 signal to the plant safety monitoring system (PSMS) cabinet and the data point will be considered "BAD". Maintenance troubleshooting could not determine why the thermocouple failed to produce a signal. This change eliminated the potential to degrade the accuracy of the average core quadrant temperature calculation should another thermocouple fail.

Design Specification 406A62, Revision 2, "PSMS Core Exit Thermocouple and Reactor Coolant System Sub-cooling Algorithm Specification", states that if six or more thermocouples are valid, the highest and the lowest thermocouple temperature values are removed and the average value is calculated from the temperature values of the remaining thermocouples in the quadrant. Should the leads for 1TE-10034 not be lifted, the temperature measured by this thermocouple could be significantly lower than the actual core temperature for a rapid increase in core temperature and could be significantly higher than the actual core temperature for a rapid decrease in core temperature. In this case, the reading from 1TE-10084 would be removed from the calculation. However, if a thermocouple (other than 1TE-10084) is assumed fail during the fuel cycle without being detected, it is possible that 1TE-10084 could be used in the calculated quadrant average temperature. This would degrade the accuracy of the calculated quadrant value. This is not a desirable option since the maximum core quadrant average value is used in the Reactor Coolant System sub-cooling calculation.

SAFETY EVALUATION: 1TE-10084 is listed as a Fire Event Safe Shutdown System/Components per UFSAR Table 9.5.1-1 and 9A.1.111.H. Because this is the only "B" Train component of the "B" Train thermocouples designated as a Fire Event Safe Shutdown System component, it did not have any adverse affects on the Fire Event Safe Shutdown System or function. LDCR 2002029 added a note to the UFSAR to show the input signals to 1TE-10034 as deleted but may be reconnected in the future. Technical Specification section 3.3.3 describes the requirements for "Core Exit Thermocouple (CET)", and section 3.3.4 describes the Remote Shutdown System Instrumentation and Controls. Elimination of 1TE-10034 still meets the requirements of the reviewed Technical Specifications. This design change did not require any changes to the Technical Specification or Environmental Protection Plan.

SUBJECT: 02-V2M045

DESCRIPTION: This design change provided computer indication of the Pressurizer relief line temperature downstream of power operated relief valve (PORV) 2PV-0455A. This was accomplished by utilizing existing spare conductors and internal jumper wire to modify instrument loop T-449 in cabinet 2-1618-Q5-PCI to add signal wiring through a circuit board to the Integrated Plant Computer (IPC) in I/O cabinet 2-1618-C5-04A.

SAFETY EVALUATION: The addition of the computer indication for this design change required a representation change to P&ID 2X4DB112, which is referenced in the UFSAR. UFSAR sections 7.2.1.1.6, 7.3.1.2.2.6, Table 7.5.2-1 and 15.5, 15.6 were reviewed for impact. This change provided improved monitoring capabilities for PORV 2PV-0455A tailpipe temperature. This change did not impact Technical Specification limiting conditions or surveillance requirements associated with PORV controls or functions as reviewed in sections 3.4.41 and 3.4.11. The computer system modifications did not impact the Technical Specifications for the computer related functions as reviewed in sections 3.1.4, 3.2.1, 3.2.2, 3.2.3, 3.3.1, 3.3.8 and their associated Bases. This design change did not require any changes to Technical Specifications or Environmental Protection Plan.

SUBJECT: 02-V2M054

DESCRIPTION: This design change restored the Spent Fuel Assembly Handling Tool to its original configuration. Westinghouse personnel re-installed the orientation guide pin and stop lug on the Unit 2 tool. MDC 99-V2M052 modified the tool to allow flexibility to retrieve and move spent fuel assemblies with broke top nozzle springs which has been corrected by Westinghouse and is no longer a issue. Therefore, the modification to remove the stop lug and guide pin from the Spent Fuel Assembly Handling Tool is no longer necessary.

SAFETY EVALUATION: UFSAR sections 9.142, 9.1.4.3 and 15.7.4 were reviewed for impact. Technical Specifications section 3.9 was reviewed for impact. This design change did not require any changes to the UFSAR, Technical Specification or Environmental Protection Plan.

10 CFR 50.59 REPORT of TESTS & EXPERIMENTS MAY 5, 2001 THROUGH NOVEMBER 16, 2002

VOGTLE ELECTRIC GENERATING PLANT UNITS 1 & 2

NOTE: There are no Tests & Experiments to be reported for this period.