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October 4, 1994

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
Report of Facility Changes, Tests and Experiments

In accordance with 10 CFR 50.59, the Annual Report of Facility Changes, Tests, and Experiments for the Beaver Valley Power Station, Unit No. 1, is attached. This report provides a brief description of each facility and procedure change and a summary of the safety evaluations. The annual report covers the period of January 23, 1993 through January 22, 1994.

Each change was evaluated to determine (1) if the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Updated Final Safety Analysis Report may be increased, or (2) if a possibility for an accident or malfunction of a different type than any evaluated previously in the Updated Final Safety Analysis Report may be created, or (3) if the margin of safety as defined in the basis for any technical specification is reduced. In each case, it was determined that the change did not involve an unreviewed safety question.

If you have any questions regarding this report, please contact Nelson R. Tonet, Manager, Nuclear Safety, at (412) 393-5210.

Sincerely,

George S. Thomas

Attachment

cc: Mr. L. W. Rossbach, Sr. Resident Inspector
Mr. T. T. Martin, NRC Region I Administrator
Mr. G. E. Edison, Project Manager

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CHANGE TITLE

1TOP-92-08, Rev. 2, Operations For Maintenance of PCV-1PG-117

CHANGE DESCRIPTION

The existing temporary operating procedure, 1TOP-92-08, was modified to place a temporary mechanical clamping device on valve 1BR-424, to maintain the valve in a throttled position. This valve is located in a 1 1/2 inch line that provides a flow path from the discharge of the primary water supply pumps (BR-P-10A and 10B) to the primary water storage tanks (BR-TK-6A and 6B) and an alternate minimum flow path from the discharge to the suction of the primary water supply pumps. This modification provides minimum flow protection for the primary water supply pumps during performance of the temporary operating procedure, since the normal minimum flow path is isolated. The alternate minimum flow path is also used to allow better flow control.

CHANGE TITLE

1TOP-93-03, TV-1SS-105A1 Closure, De-Energization And Energization

CHANGE DESCRIPTION

A new temporary operating procedure, 1TOP-93-03, was generated to stroke the reactor coolant system (RCS) hot leg sample header inside containment isolation trip valve (TV-1SS-105A1) and remove its fuse to verify the valve stays in the closed position. The valve currently has dual indication and cannot be inspected due to its location (inside Containment). Removing the fuse allows RCS cold leg sample header inside containment isolation trip valve (TV-1SS-102A1) to be cycled without opening valve TV-1SS-105A1. Both valves are controlled from the same control switch.

CHANGE TITLE

ES-1.3, Transfer To Cold Leg Recirculation (EOP)

CHANGE DESCRIPTION

A step was added to emergency operating procedure ES-1.3, to check the volume control tank level and determine if seal water heat exchanger relief valve RV-1CH-382B has lifted. If the relief valve lifts, it could create a leakage path outside containment. If a leakage path was identified it would be closed by procedure ES-1.3.

CHANGE TITLE

1TOP 93-10, Control Room Refrigeration Condenser Alternate Cooling Water Supply To Support River Water System Cleaning

CHANGE DESCRIPTION

This temporary operating procedure (TOP) governed temporary modifications to supply an alternate source of river water to cool the control room refrigeration condensers (VS-E-4A & B) during the ninth refueling outage River Water (RW) System chemical cleaning.

This TOP was required because the chemical cleaning flush used both normal supply and return RW lines. The TOP supplied one cooler with alternate supply and return paths for cooling water to maintain Control Room cooling.

CHANGE TITLE

1TOP-93-11, Temporary Air Hose For Bypassing Containment Instrument Air Receiver, 1A-TK-3

CHANGE DESCRIPTION

A new temporary operating procedure, 1TOP-93-11, was developed to provide a temporary instrument air source for the containment instrument air distribution header while a portion of the system is isolated and depressurized for maintenance and design change work.

CHANGE TITLE

1TOP-93-18, Temporary Supply To Containment Station Air Header

CHANGE DESCRIPTION

A new temporary procedure was developed to control the installation, use, and removal of temporary air hoses connected between the station air header in containment and the temporary construction air supply. The normal station air supply through the containment penetration must be isolated to permit work on the station air header to containment check valve (1SA-15).

CHANGE TITLE

1TOP-93-23, Placing Recirculation Spray Heat Exchangers Into Chemical Wet Layup

CHANGE DESCRIPTION

A new temporary procedure, 1TOP-93-23, was developed to provide guidance for placing the recirculation spray coolers (1RS-E-1A, B, C and D) into a chemical wet layup condition. A temporary pump and rig were installed to inject layup chemicals using a filtered water supply. Chemical layup is necessary to preserve the tubing of the coolers from fouling and microbiologic corrosion.

CHANGE TITLE

Fire Protection Hydropneumatic Tank Temporary Jumper

CHANGE DESCRIPTION

A temporary jumper was installed on the fire protection hydropneumatic tank (1FP-TK-1) to support maintenance and repair of the tank's pressure maintenance line.

CHANGE TITLE

OST 1.11.14, Safety Injection System Full Flow Test

CHANGE DESCRIPTION

A new minimum operating point curve has been developed for the low head safety injection pumps (1SI-P-1A, and 1B), based on a degradation level of 10% (consistent with ASME XI). This new curve was incorporated into the safety injection system full flow test (Operational Surveillance Test [OST] 1.11.14).

CHANGE TITLE

Revision to 1OM-7.3, Chemical and Volume Control System Valve List

CHANGE DESCRIPTION

The normal system arrangement for the chemical mixing tank inlet isolation valve (1CH-94) was changed from open to closed. This revision provides redundant isolation of the primary grade water supply, preventing the primary grade water from inadvertently entering the Reactor Coolant System.

CHANGE TITLE

1OM-47.4.E, Defeating Containment Air Lock Door Interlocks

CHANGE DESCRIPTION

A new procedure, 1OM-47.4.E, was developed to provide instructions for defeating either or both of the Personnel Air Lock or the Emergency Air Lock door interlocks to allow both doors to be opened at the same time during a maintenance outage. Both doors are opened to facilitate access when containment integrity is not required.

CHANGE TITLE

Fuel Reconstitution for Beaver Valley Power Station Unit 1

CHANGE DESCRIPTION

This change permits use of the New-Fuel Elevator for repair of irradiated fuel assemblies. Before the New-Fuel Elevator is used for this purpose, a mechanical stop is added to prevent raising the irradiated fuel assemblies too close to the surface.

Fuel reconstitution methods have changed from repairing fuel assemblies in an inverted (i.e., upside-down) position using 30 foot long tools, to reconstituting fuel assemblies while they remain in an upright position and using shorter, more accurate tools. The New-Fuel Elevator is used to raise an irradiated fuel assembly to a working distance which permits use of shorter tools.

CHANGE TITLE

Temporary Modification for Acoustical Failed Fuel Detector

CHANGE DESCRIPTION

As an experimental test, an acoustical failed nuclear fuel detector was temporarily installed on the manipulator crane (2FNR-CR-205). It is hoped that the acoustical monitor can be used as an aid in identifying leaking fuel assemblies during defueling.

CHANGE TITLE

Revision to 1OM-7.3, Chemical and Volume Control System Valve List

CHANGE DESCRIPTION

The normal system arrangements for root isolation valves (1CH-336, and 339) for reactor coolant pump 1C thermal barrier labyrinth seal differential pressure indicator (PDI-1CH-125) were changed from open to closed. Currently, root isolation valve (1CH-339) has a body to bonnet gasket leak and will not be repaired until the tenth refueling outage.

Closing the root isolation valves (1CH-336 and 339) will cause the body to bonnet gasket leak to stop, however, differential pressure indicator PDI-1CH-125 will be isolated. Isolating PDI-1CH-125 does not affect operation of the thermal barrier or portions of the Chemical and Volume Control System which provide emergency core cooling during design accidents.

CHANGE TITLE

UFSAR Chapter 11, "Radiation Protection," Section 5.4.9, Bioassay And Medical Programs

CHANGE DESCRIPTION

This safety evaluation was performed in support of UFSAR changes that update procedures and practices associated with the Internal Exposure Assessment & Bioassay Program at Beaver Valley Power Station. The changes were made to reflect implementation of the 10 CFR 20 revisions which became effective January 1, 1994. Changes conform to good health physics practices and are in compliance with the applicable Nuclear Regulatory Commission Safety Evaluation Report statements, Regulatory Guides 8.9 and 8.26, 10 CFR 20, and ANSI standards.

CHANGE TITLE

Health Physics Manual Chapter 1, "Health Physics Standards"

CHANGE DESCRIPTION

This safety evaluation was performed in support of changes to implement the revised 10 CFR 20 which became effective on January 1, 1994. Chapter 1 of the Health Physics Manual contains the policy, criteria, and guidance that comprise the standards for the Health Physics Program. Chapter 1 implements the administrative procedures of Unit 1 UFSAR, Section 11.5. implementation of these changes was mandated by the Nuclear Regulatory Commission.

CHANGE TITLE

Installation Of An Audio/Video CCTV System For The Ninth Refueling Outage Surveillance

CHANGE DESCRIPTION

This temporary modification installed a closed circuit television system in the Unit 1 Reactor Containment Building for the ninth refueling outage. Installation of the system involved the routing of IEEE rated cabling, breaching, and restoration of two fire stops and an electrical penetration. Twelve cameras were installed. The modification was made to support ALARA dose reduction for supervisory, radiological, support, and radworker personnel.

CHANGE TITLE

Waste Handling Building

CHANGE DESCRIPTION

The Waste Handling Building (WHB) is a shielded facility, constructed during the mid-1980's, for interim storage of compacted and solidified low-level radioactive waste (LLRW) from Beaver Valley Power Station (BVPS) Units 1 and 2. The building and associated equipment were designed to meet the applicable requirements of 10 CFR 50, 10 CFR 20, Regulatory Guides 1.21 and 8.8, Branch Technical Position ESTB 11-3, and Generic Letter 81-38.

The WHB design was not changed. However, since the date that the WHB was placed in service, there have been BVPS internal changes that required addressing. These changes are described below.

The first change affects the type of waste form that is to be stored in the facility. The WHB liner storage bay was designed primarily for the storage of carbon steel liners that contained evaporator bottoms solidified with cement. The present station practice of using demineralization, in lieu of evaporation, generates LLRW resins and filters which are transferred into liners and dewatered to meet the burial criteria. The UFSAR will be revised to list dewatered resins and filters among the items stored in the WHB.

The second change resulted from implementation of the revised 10 CFR 20, "Standards for Protection Against Radiation." The UFSAR description of the WHB will be updated to reflect the new radiation protection standards.

CHANGE TITLE

BVPS-CM 1-3.30, Reactor Plant Component Cooling

CHANGE DESCRIPTION

This change to the Chemistry Manual allowed the use of sodium molybdate as a corrosion inhibitor in the Reactor Plant Component Cooling Water (CCR) System. Sodium molybdate is used in Unit 2's Reactor Plant Component Cooling (CCP) System. The CCR System specifications for chromate, chloride, and fluoride were replaced with specifications for molybdate and oxygen. Due to environmental and personal safety hazards involved with handling and disposal of chromated water, the alternative corrosion inhibitor containing sodium molybdate was proposed and approved for use in the CCR System.

CHANGE TITLE

BVPS-CM 1-7.14, Chemical Feed System

CHANGE DESCRIPTION

This change allows the addition of ethanolamine and ammonium chloride to the secondary system. Ethanolamine is a pH-control additive, similar to morpholine. Ammonium chloride will be added as needed to maintain steam generator sodium to chloride molar ratio within EPRI Secondary Water Chemistry Guidelines, Revision 3.

CHANGE TITLE

1CMP-15FC-E-1A-1B-Flush-1M, Performing Flush On Reactor Plant Component Cooling Water Side of Fuel Pool Heat Exchangers

CHANGE DESCRIPTION

This is a new one time only procedure. The procedure was developed to flush the reactor plant component cooling water (CCR) side of the fuel pool heat exchangers prior to connecting them to the temporary Fuel Pool Cooling System for use during the ninth refueling outage.

The flush was necessary to reduce the level of chromates and minor contamination present on the CCR side of the heat exchangers and to prevent contamination of vendor equipment.

CHANGE TITLE

1/2PMP-3ORW-CR-COND-1E, Control Room Refrigeration Condenser River Water/Service Water Side Tube Cleaning

CHANGE DESCRIPTION

Revision one of this procedure added more options for temporary sources of water to supply tube cleaning equipment. The temporary water sources are from river water and service water system drain/test connection valves, some of which are not always available. The change added more drain/test connection valves as options to work around the unavailability of any one valve.

CHANGE TITLE

MWR 12913 Temporary Modification, Unit-1 Ventilation Equipment Room Temporary Water Supply For Hydroblaster Cleaning Equipment

CHANGE DESCRIPTION

This temporary modification provides a water supply for hydroblasting equipment used to clean river water (RW) system piping in the Control Room Ventilation Room during the ninth refueling outage.

The temporary modification was necessary because no normal supply of water for maintenance purposes is available within the control room pressure boundary, and running hoses through the boundary would have been more involved. The temporary water source was from an existing RW drain connection. The small hydroblaster was determined to have a negligible flow requirement relative to the RW system flow.

CHANGE TITLE

VS-C-3 Temporary Modification, VS-C-3 Temporary Replacement Air Compressor

CHANGE DESCRIPTION

This temporary modification installed a temporary compressor on the 768' level, of the Primary Auxiliary Building to perform the recharging functions of the control room pressurization air compressor VS-C-3.

This modification was necessary because VS-C-3 failed and replacement parts could not be procured.

CHANGE TITLE

Run AirCet Test On Valves TV-MS-105A & B

CHANGE DESCRIPTION

This temporary modification installed test equipment in the air lines to the feedwater pump inlet valves (TV-MS-105A & B) and on the valves themselves. The equipment was installed to test the performance of the valves while stroking the valves with steam pressure in the lines.

The safety evaluation was needed since the valves were considered operable during testing. The equipment was installed temporarily to run the test and was removed upon completion of the test.

CHANGE TITLE

Replacement of Recorder PR-RC-403 with Different Manufacturer's Recorder

CHANGE DESCRIPTION

This temporary modification replaced the Leeds & Northrup Model Mark M11 recorder with a Westinghouse Model 174502. The Leeds & Northrup recorder failed, could not be repaired, and an identical replacement was not available.

The new recorder is identical to many other recorders currently in use in the control room.

CHANGE TITLE

Temporary Installation of a Recorder to Monitor Meteorological Instrumentation

CHANGE DESCRIPTION

This temporary modification installed a temporary recorder in place of permanent plant equipment while the permanent recorder was sent out for repair.

CHANGE TITLE

Installation of Temporary Instrumentation to Support Safety Injection Accumulator Discharge Check Valves Full Stroke Test (1BVT 1.11.3)

CHANGE DESCRIPTION

This temporary modification modified installed instruments; and installed temporary instruments, tubing, and fittings necessary to monitor accumulator level and pressure, and reactor coolant system pressure during full stroke testing of safety injection accumulator discharge check valves.

CHANGE TITLE

Temporary Modification of Turning Gear (LO-M-5) Control Circuit

CHANGE DESCRIPTION

This temporary modification will install jumpers in the turbine turning gear control circuit to maintain the turning gear in service while calibrating the turning gear interlock pressure switches (PS-TB-161, -171, & -375). The pressure switches need to be replaced or repaired and calibrated while the turning gear remains in service.

CHANGE TITLE

Temporary Modification to Install Plugs in Valves MS-80, 81, and 82

CHANGE DESCRIPTION

This temporary modification installed temporary plugs in check valves MS-80, 81, and 82. These plugged valves served as containment integrity boundaries for the secondary side of each steam generator during refueling operations.

CHANGE TITLE

Temporary Modification to Install Experimental Tubes In VS-AC-11A

CHANGE DESCRIPTION

This temporary modification installed temporary sample tubes with thermocouples in the primary auxiliary building air conditioning units (VS-AC-11A). The temporary sample tubes were installed in place of failed cooling coils. The thermocouples provided temperature information to aid in identifying the reason for recurring cooling coil failures.

CHANGE TITLE

Temporary Modification to Install Red Rubber Gasket with Hose Clamps to Outside of Piping in the Auxiliary Building

CHANGE DESCRIPTION

This temporary modification installed a temporary rubber deflector to divert water coming from a pin hole leak in a river water system pipe (18"-WR-16-151-Q3) to the floor and nearby floor drains. The rubber deflector performed no safety related function.

CHANGE TITLE

Inservice Inspection Procedures For River Water Piping (1ISI-30-3-001, 002 and 005 through 012)

CHANGE DESCRIPTION

The procedures provided a method to hydrostatically test portions of the River Water System with the plant in Mode 5, Mode 6, or with fuel removed from the reactor vessel. The tests are performed in accordance with the 10 year inservice inspection hydrostatic testing described in ASME Section XI as required by plant Technical Specifications 3.4.10 and 4.0.5, and 10 CFR 50.55a.

One River Water System header and/or train remains operable while the opposite header/train is out of service for hydrostatic testing. The new procedures provide a source of water to the test pump using a temporary hose from the operating river water system header.

CHANGE TITLE

Containment Integrity During Station Blackout Events

CHANGE DESCRIPTION

The NRC Safety Evaluation Report for station blackout (SBO) events, dated November 23, 1990, identified certain containment isolation valves (CIVs) that would require closure capability to ensure appropriate containment integrity during an SBO event. The recirculation spray pump suction isolation valves (RSS-MOV-155A and B) are among the identified valves, but are maintained open for both normal and accident conditions because closing them would render the associated containment depressurization safety system unavailable in the event of a Containment Isolation Phase B signal during a loss of coolant accident.

The recirculation spray system is a closed loop system that takes suction from the containment sump and is not expected to be breached during an SBO event. In addition, the closure of these valves could raise concerns over the appropriateness of actions that could make safety

systems unavailable and create conflicts with our symptom based EOPs. Therefore, provisions to ensure closure capability of these valves during an SBO event, as described in the NRC Safety Evaluation Report for SBO events, will not be implemented.

NRC Station Blackout Team Inspection Report Numbers 50-334/93-80 and 50-412/93-80, dated October 28, 1993, documented that the actions taken to provide containment integrity during an SBO event (including those described above) were appropriate.

CHANGE TITLE

DCP-296, Rev. 2, Emergency Response Facility Monitoring Equipment

CHANGE DESCRIPTION

This design change involved the installation of a Plant Variable Computer System (PVS) in the Emergency Response Facility Building (ERF) and the Safety Parameters Display Computer System (SPDS) in the Control Room. Consoles from both computer systems were installed in the ERF, Control Room, and Alternate Technical Support Center. A Bypassed and Inoperable Status Indication Panel was installed in the Control Room which interfaces with the PVS Computer.

The PVS and SPDS provide display of critical plant variables. Inputs derived from the reactor protection circuits are isolated by means of isolation amplifiers or equivalent buffering circuits and have no effect on equipment or sensors that are in use for safety systems as described in BVPS Unit 1, UFSAR Section 7.5.

The computer display systems included in this modification are for process monitoring only and do not control any plant process.

CHANGE TITLE

DCP-366, Rev. 1, Emergency Response Facility Category I Interface Equipment

CHANGE DESCRIPTION

Various QA Category I instrumentation and equipment are monitored by the Plant Variable Computer System (PVS) and the Safety Parameter Display Computer System (SPDS). This modification provided the required isolation arrangements to monitor Category I inputs with the Category III SPDS and PVS.

This design change involved the installation of qualified isolation equipment between QA Category I instrumentation and equipment and QA Category III monitoring equipment. With proper isolation, the Category I instrumentation and equipment will not be degraded by any failure of the installed monitoring equipment beyond the isolator.

CHANGE TITLE

DCP-586, Replacement of PCB Capacitors in Cyberex UPS Units

CHANGE DESCRIPTION

In the 1970's, two Cyberex Uninterruptible Power Supply (UPS) Systems and two Cyberex Static Voltage Regulating Units were purchased. These components were designed to use capacitors made with Polychlorinated Byphenyls (PCB) as the dielectric and insulating fluid.

The Toxic Substances Control Act (TSCA) and subsequent implementation of TSCA regulations by the Environmental Protection Agency banned the production of PCB filled capacitors. Therefore, this design change involved the purchase and installation Class 1E, seismically and environmentally qualified replacement capacitors, which do not use PCB as the dielectric and insulation fluids.

The replacement capacitors function in the same manner as the original capacitors and do not degrade the operability of the vital buses.

CHANGE TITLE

DCP-623, Rev. 2, Fire Detection System - Switchyard

CHANGE DESCRIPTION

This design change installed a new local fire detection panel and loop of 16 ionization type smoke detectors in the Relay Building. The new panel is connected such that either a trouble or fire signal emanating from the panel causes Annunciator Window A11-87 on the Building Services Panel in the Unit 1 Control Room to go into alarm. Annunciator Window A11-87 has inputs that result in an alarm indication whenever one or more of the following switchyard transformer fire suppression deluge valves open:

2-4 Bus Tie Transformer
1-3 Bus Tie Transformer
Auto Transformer for J&L Steel
3A ERF Transformer
3B ERF Transformer

All three areas of the Relay Building (i.e., the original building, extension and vestibule area) have permanently installed smoke detection. Audible fire alarms and manual pull stations are appropriately located throughout the building.

This design change was developed utilizing the guidelines of NFPA 72 and NFPA 72E and requires prior approval by the American Nuclear Insurers (ANI). This design change provides fire signal annunciation in the Unit 1 Control Room, a Relay Building fire alarm, Switchyard Group 1 annunciation and local control panel alarm indication. Trouble signals result in Control Room annunciation and local fire panel indication.

This design change resolves a commitment to the ANI by installing automatic fire detection equipment in the Switchyard Relay Building that annunciates in a continuously manned location.

CHANGE TITLE

DCP-661, Rev. 1, Dewatering System for Solid Waste Liners

CHANGE DESCRIPTION

This design change modified the existing Solid Waste Disposal System to provide the following capabilities and equipment:

- Transfer spent resin from any one of the eleven (11) Group I, II or III plant process ion exchangers to a high integrity liner located in either the truck bay area or the liner storage area of the Solid Waste Disposal Building.
- Transfer spent resin from the Resin Waste Hold Tank (SW-TK-2) to a high integrity liner located in either the truck bay area or liner storage area of the Solid Waste Disposal Building.
- Dewater a high integrity liner to the Resin Waste Hold Tank (SW-TK-2) from either the truck bay area or liner storage area of the Solid Waste Disposal Building.
- Replaced the obsolete level indication (LIS-SW-202) for the Resin Waste Hold Tank (SW-TK-2) with a new ultrasonic level indication system.
- Installed a dewatering measuring tank to ensure that the high integrity liners have had a sufficient amount of liquid removed from them.
- Installed a reach rod on Valve SW-112 to reduce operator exposure during operation of this valve.

These changes increase radiological safety by reducing the chance of a radioactive spill and by reducing operator exposure during resin transfer operations. Also, this design change improved the system by installing permanent piping to perform operations which previously used temporary hoses, and by replacing the obsolete level indication on SW-TK-2.

CHANGE TITLE

DCP-756, Rev. 1, Primary Grade Water Tank Modification

CHANGE DESCRIPTION

For this design change, the floating deck in each primary grade water storage tank was replaced with a floating membrane in order to maintain the oxygen content of the primary water below 0.10 ppm. In order to protect the floating membrane, additional tank modifications (such as removing internal piping or relocating instrument connections) were performed as necessary. An overflow line was added on each Primary Grade Water Tank in order to direct any overflow to the Fuel Handling Building Sump. A loop seal of four feet of water was located just outside the tank nozzle to prevent any direct contact of air with the water inventory in the tank. The tank's natural siphoning freeze protection was replaced with a forced pump flow arrangement. Freeze protection includes heat tracing of the loop seal.

CHANGE TITLE

DCP 868, Elimination of Meteorological Tower Recorders from the Unit 1 Control Room

CHANGE DESCRIPTION

This modification disconnected and removed four meteorological strip chart recorders (SDR-MT-200 201, 202, and XR-MT-600) and the panel they are mounted in (PNL-MET-RECD). The panel and recorders are located in the Unit 1 Control Room. The recorders became aged and difficult to keep in service.

With the installation of the Atmospheric Radioactive Effluent Release Assessment System (ARERAS), the operation of the chart recorders became unnecessary. The meteorological data are collected and processed by the ARERAS computer. The data can be displayed on computer terminals in the Control Room and Emergency Response Facility.

CHANGE TITLE

DCP-1055, Rev. 2, Condenser Air Inleakage Monitoring

CHANGE DESCRIPTION

This design change provides continuous on-line indication and recording of condenser air inleakage. To accomplish this, the following work was performed.

- The main condenser Steam Jet Air Ejector's (SJAE's) (CN-EJ-1A,B) 4 inch vent lines combine into a common 6 inch line. A flanged section was installed in the 6 inch line (AJA-3-151) upstream of the Condenser Air Ejector Radiation Monitor (RM-SV-100). The flanged section contains a flow element, flow transmitter and

associated isolation and bypass valves. The flow transmitter provides a signal to a local indicator and recorder.

- Condensation collection in the new flow transmitter is drained to the Turbine Building Floor Drain System. The SJAE gas-vapor stream is potentially radioactive due to potential primary-to-secondary leakage. Therefore, the drain was sealed by a loop seal to prevent the gas-vapor from leaking out the drain.

- The existing flow indicators (FI-AS-101A and B) were removed and the 2 inch lines associated with these indicators were modified to provide a means for testing the air flow in the 4 inch lines.

- The following lines were re-routed to accommodate the new flanged section in the 6 inch line:

  4" AJA-2-151 - The Vent Line from CN-EJ-1B
  1/2" AJA-20-151 - Sample Line for Local Sampling
  1/2" AJA-21-151 - Sample Line for Local Sampling
  3/4" AJA-22-151 - Sample Line for Local Sampling

This design change maintains the reliability and integrity of the Air Inleakage Monitoring System, and has no adverse effects on any equipment.

CHANGE TITLE

DCP-1213, Fuel Transfer System Gemco Resolver Unit

CHANGE DESCRIPTION

During the sixth refueling shutdown, upender winch proximity switch failures caused a critical path delay. A Gemco resolver and transducer were installed to replace the switches.

This design change provided a formal engineering review and inspection, and also provided the proper vehicle to initiate further corrections if deemed appropriate. Specific actions included the following: an inspection of the Gemco installation; a review of all documentation relative to this installation; a physical inspection of the conduit and the mounting of the Gemco equipment for Seismic Category II concerns; an updating of electrical drawings, foreign prints, and the Fuel Transfer System Technical Manuals; the assignment of mark numbers, where applicable; and the procurement of Gemco spare parts.

CHANGE TITLE

DCP-1239, VS-C-3 Replacement

CHANGE DESCRIPTION

The function of the control room pressurization air compressor (VS-C-3) is to take suction from the Primary Auxiliary Building room air and discharge it to the control area emergency air tanks. The original compressor was obsolete and had been out of service for at least a year due to the inability to acquire repair parts and components needed to fix it. This design change permanently installed a replacement unit of similar size and capacity. It also installed test connections for verifying air quality, provided a drain and sight gauge, and removed the existing obsolete unit and valve VS-161. A small tank was also utilized to collect minor amounts of condensate from the compressor.

CHANGE TITLE

DCP-1311, Inadvertent Actuation of SSPS Outputs

CHANGE DESCRIPTION

At present, some of the output relays of the Solid State Protection System (SSPS) can be activated by two signals, one being the logic of the SSPS and the other by means of a test panel. The test panel permits periodic testing of the Engineered Safety Features (ESF) actuation scheme for the Quench Spray (QS) pumps in compliance with Technical Specification Surveillance Requirement 4.6.2.1.

This modification prevents accidental activation of the pump start relay by moving the test switch to a location between the start relay and the field permissive of the pump discharge valve. The pump start relay will energize and start the pump only if the associated pump discharge valve [MOV-QS-101A or 101B] to the QS ring header is closed. The modification effectively isolates the field test permissive circuit from the start relay; therefore, it prevents accidental activation of the start relay should the circuit be grounded.

Both trains were modified as described above. The test interlock circuits for the pump discharge valves were modified in a similar way. The changes were restricted to the internal wiring of the Train A and B safeguards test cabinets. The functions of the QS System and the ESF System remain unchanged.

CHANGE TITLE

DCP-1394, Chemical Addition Tank Level Transmitters And Cable Separation

CHANGE DESCRIPTION

This design change replaced the obsolete Fischer-Porter level transmitters (LT-QS-101A, and 101B), on the Chemical Addition Tank (CAT) with Rosemount 1153 transmitters. The installation of Rosemount transmitters included a new flange and tubing for the sensing line, as the new units are mounted away from the tank. New conduit and power cable were installed to the heated enclosure.

The change permanently disabled the unnecessary low-low interlock on the Chemical Addition Pumps and on discharge valves (MOV-QS-104A and B). This interlock would stop the flow from the CAT on low-low level.

The change also constructed a heated enclosure for the new transmitters and sensing lines.

CHANGE TITLE

DCP-1423, Deletion of Auto-Start Signal For Auxiliary Feed Pump From Steam Driven Feed Pump

CHANGE DESCRIPTION

This design change removed the auto-start signal to both motor-driven Auxiliary Feedwater (AFW) pumps from the steam-driven AFW pump. This signal started the motor-driven feed pumps (FW-P-3A & 3B) if the steam-driven feed pump (FW-P-2) failed to achieve a discharge pressure of 500 psig in 10 seconds following a Train A or B start signal. This signal was removed because 1) it was not credited in any UFSAR accident analysis; and 2) removing it eliminated inadvertent actuations of the motor-driven pumps during maintenance and testing of the turbine-driven pump.

The signals which automatically start the steam-driven pump also trip the reactor, and thereby initiate events which start the motor-driven pumps without reliance on the low discharge pressure start signal. The low discharge pressure start signal was provided in the original design as a "defense in depth" measure.

CHANGE TITLE

DCP-1504, Steam Generator Wide Range Level Protection

CHANGE DESCRIPTION

This design change modified steam generator level display instrumentation. The change improved steam generator level instrumentation reliability to meet industry standards.

This design change provided isolation devices in the instrument loops and replaced the existing QA Category II recorder with three QA Category I recorders. The change also replaced the QA Category II level indicators and loop power supplies with QA Category I, Class 1E components, and removed level indicators in the Auxiliary Feedwater Pump Cubicle and replaced them with environmentally qualified cable splices.

This change provides assurance that a single failure at the recorder or the computer can not fail all three level channels.

CHANGE TITLE

DCP-1514, Rev. 1, Regulatory Guide 1.97 Limit Switch Upgrade Outside Of Containment

CHANGE DESCRIPTION

Revision 1 of this design change replaced three additional limit switches. The three limit switches are for the Main Steam Isolation Valve (MSIV) test circuits. Failures of the previously installed switches were attributed to high temperatures in the Main Steam Valve Area. Therefore, they were replaced by NAMCO high temperature limit switches.

CHANGE TITLE

DCP-1519, Cable Reroute To Achieve Color Separation

CHANGE DESCRIPTION

This design change cut and rerouted cables 1NNSBNC316, 1QSSBNC041, 1SPSNNC502, 1NNSANC452, 1EGPBNC406, and 1EGPBNC454 consistent with Updated Final Safety Analysis Report (UFSAR) Section 8.5. The as-installed condition deviated from the UFSAR description and this design change corrected the deficiency.

The safety related electrical system is divided into two redundant trains, orange and purple. This change rerouted NON-1E neutral cables associated with the colored trays of both trains. The rerouted cables are not safety related and are not required to function to mitigate an accident.

CHANGE TITLE

DCP-1521, Unit 1 Modifications for Heat Exchanger Performance Monitoring

CHANGE DESCRIPTION

NRC Generic Letter 89-13 requires each licensee to establish an acceptable surveillance monitoring program to ensure that safety-related heat exchangers that are cooled by Open Loop Cooling Water Systems (such as the River Water System) are not allowed to degrade excessively without being detected and corrective actions taken. This modification added thermowells, pressure taps, and Ultrasonic Flow Instruments (UFIs) to provide for performance monitoring of heat exchangers. These modifications have an insignificant effect on system flows and pressure drops.

This design change affected the River Water System (RWS), Reactor Plant Component Cooling Water System (CCR), and the Chemical and Volume Control System (CVCS).

CHANGE TITLE

DCP-1543, Removal Of The Unit 1 Auxiliary Boilers

CHANGE DESCRIPTION

This modification removed both Unit 1 auxiliary boilers to provide a location for new equipment needed for proper handling and storage of hazardous materials. The auxiliary boilers (QA Category 3) are not required at Unit 1; auxiliary steam can be supplied from either the Unit 1 Main Steam System (MSS) or from Unit 2 via the Unit 2 MSS or auxiliary boilers.

This modification removed and dispositioned both auxiliary boilers and associated equipment within the Boiler Room envelope. Piping was terminated and capped just outside the room envelope where possible. Electrical supplies were terminated in the Motor Control Centers (MCCs) and cables from the MCCs to the retired components were removed. Auxiliary boiler equipment located outside of the Boiler Room were electrically disconnected and retired in place. Conduit inside the room was scrapped, but conduit outside the room was retained for future use as required. Related control room alarms and displays were removed or relabeled as required. To allow access via a fork truck, the boiler concrete pads were removed, and the floor was resurfaced.

No safety systems are affected by the design change. No services supplied by the Auxiliary Steam System perform a safety related function except for valves [HYV-AS-101A & B]. In the event of a high energy line break outside containment, these trip valves isolate auxiliary steam to the Safeguards Area and the Auxiliary Building. This safety function was unaffected by this modification.

CHANGE TITLE

DCP-1550, Thermal Sleeve Addition At Steam Generator Feedwater Nozzle/Elbow Interface

CHANGE DESCRIPTION

The Unit 1 Steam Generator Feedwater nozzles and connecting elbows experienced local thermal stratification induced cyclic stresses, which reduced the life expectancy of the materials due to fatigue. Thermal stratification exists at this location primarily during plant start-up, hot standby operation and auxiliary feedwater operation, when a relatively slow flow of cooler feedwater is injected into the hot steam generator water volume. This phenomenon has caused fatigue cracking in the nozzle to elbow connections for all three steam generators at BV1. Elbows have been replaced during refueling outages 1, 6, and 7. The NRC addressed the problem under IE Bulletin 79-13. No mandatory root cause corrective actions have been imposed; although, recommendations have been presented which were to be considered on a plant specific basis.

in Licensee Event Report (LER) 88-012-00 dated July 1, 1988, DLC stated that it would review the addition of thermal sleeves to aid in the prevention of cracking. This design change replaced the existing three short radius elbows attached to the steam generator feedwater nozzles with replacement elbows having a thermal sleeve. The change was limited to the short radius elbows which attach to the steam generator feedwater nozzles and the nozzles themselves. This design change mitigates the cyclic thermal stresses by moderating the large variations in temperature of the fluid that comes in contact with the nozzle and elbow. The addition of thermal sleeves allows for continued use of the elbows for the life of the plant. The added thermal sleeves are similar to those utilized in Unit 2 as well as other PWR power plants.

CHANGE TITLE

DCP-1555, AMSAC Operating Bypass Control Room Indication

CHANGE DESCRIPTION

This design change provides control room indication to identify when ATWS Mitigating System Actuation Circuitry (AMSAC) is bypassed by the C-20 permissive, and installed internal jumpers within the AMSAC panel to improve logic voltage levels. The effect of the proposed change is to ensure the as-installed AMSAC is consistent with the annunciator design and with the vendors intended voltage level design.

CHANGE TITLE

DCP-1568, Safety Injection Reset Pushbutton

CHANGE DESCRIPTION

In order to provide reliable safety injection reset, this design change replaced the Westinghouse Type OT-2 pushbutton with a similar pushbutton that has a set of early closing contacts for the block function of the solid state protection system.

A problem with the auto safety injection reset and block function of the solid state protection system was identified. After an automatic safety injection is initiated, it should be possible (after a 75 second time delay) to reset the safety injection and block all future automatic safety injections until the reactor trip breakers are reclosed. The safety injection always reset, however the block did not always set. This problem was traced to the reset and block pushbutton.

CHANGE TITLE

DCP-1598, CO-8 to CO-11 Relay Replacement On 1E12 - 1F12 ACB Cubicles

CHANGE DESCRIPTION

A coordination problem existed with the CO-8 relays in air-operated circuit breaker cubicles 1E12 and 1F12 and refurbished General Electric AK air circuit breakers on large (300 HP) 480V motors on the N and P emergency bus. The General Electric RMS-9 replacement sensors for the 480V bus breakers did not duplicate the instantaneous trip taps of the original power sensors they replaced. This condition created the coordination problem in the case of the large 480V motors air circuit breakers and the high side 480V bus transformer supply breaker's CO-8 relays.

This design change replaced the 12 existing CO-8 relays with CO-11 type relays to obtain the necessary coordination on emergency bus large motors 8N3, 8N19, 8N20, 9P4, 9P17, and 9P18. The 4160/480V transformer overcurrent CO-8 relays replaced are 51-VE112, 51-VE1112, 51-VF112, and 51-VF1112 on all three phases. The CO-11 overcurrent relays with extremely inverse time range were needed to maintain emergency bus (N and P) coordination with the replacement RMS-9 sensor characteristics.

CHANGE TITLE

DCP-1600, Rev. 2, Seal Table Fitting Assembly Replacement

CHANGE DESCRIPTION

Revision 2 of this design change installed a new two-piece high pressure seal table fitting in all 50 tubes. This replacement fitting has a new design that reduces wear at the coupling when it is disconnected.

The incore flux detectors are protected and isolated from reactor coolant by the use of retractable flux thimbles. The flux thimbles are tubes that are closed at the leading end and serve as the pressure boundary between reactor coolant on the outside, and containment atmosphere on the inside of the tubes. The flux thimbles are pushed into the reactor core through conduits, which extend from the reactor vessel to the seal table. Mechanical seals are installed at the seal table between the thimbles and the conduits, thus completing the pressure boundary.

The mechanical seals installed at the seal table must be disconnected during each refueling outage to allow the flux thimble tubes to be withdrawn. Repeated disassembly and reassembly has made the seal at the fittings difficult to achieve. This design change added new fittings which contain an intermediate size tube stub and compression fitting between the guide tube and thimble tube fitting. The intermediate joint can then be disconnected during refueling instead of the guide tube connection.

CHANGE TITLE

DCP-1618, Replacement of ITE-27/59H Relays

CHANGE DESCRIPTION

The Emergency Diesel Generator (EDG) output breaker closing interlocks and field flash cut-off signals utilized the output from the ITE-27/59H undervoltage relays that were manufactured by ASEA Brown Boveri (ABB). These undervoltage relays are connected to the Potential Transformers (PTs) on the output of the EDGs. The output of these relays is wired in series with the permissive signals in the closing circuit of the generator output breakers. The relays provide a permissive signal when the generator output voltage reaches an acceptable level.

ABB issued a 10 CFR Part 21 Report concerning these relays which stated that they degrade over time due to the thermal stress on their printed circuit boards. The ABB report also stated that the most likely failure mode for these relays would be to falsely sense an undervoltage condition and, therefore, not provide the permissive signal, thus preventing closure of the EDG output breakers.

This design change replaced the existing single phase ITE-27/59H style relay with a three phase ABB-47H style relay and provides PT blown fuse supervision using a ABB-60Q style, Phase Unbalance Relay. If a PT fuse is blown, the relay does not provide the permissive

signal; therefore, the PT blown fuse supervision alerts operations of a possible diesel generator unavailability. The PT blown fuse supervision signal is provided to the existing diesel generator annunciator.

CHANGE TITLE

DCP-1620, EL-101, 102 and 103 Power Supply

CHANGE DESCRIPTION

The power supply for battery chargers EL-101, 102 and 103 was changed from LP-RG-4 to LP-RG-13. This change provides a more reliable power supply for the battery charges.

Power supply LP-RG-4 serves emergency lighting loads and various receptacles. The circuit is suspected to be overloaded by portable equipment plugged into the receptacles during plant outages. This caused the breaker to trip and loss of the power supply to battery chargers EL-101, 102 and 103.

CHANGE TITLE

DCP-1645, F-RH-605 Flow Loop Modification

CHANGE DESCRIPTION

At each refueling outage multiplier-divider units must be installed in Flow Loop F-RH-605 to linearize the indication of the loop for readability at low flow conditions (1000 GPM). This design change made this temporary modification permanent.

This change increases the loop's ability to function at low flow conditions, does not affect loop operation at higher flows, and eliminates the need to perform Corrective Maintenance Procedure 1-10RH-F605-11 every outage.

CHANGE TITLE

DCP-1647, Replacement Of Allis-Chalmers Valves

CHANGE DESCRIPTION

This design change replaced 3 manual valves with similar Allis-Chalmers manually operated butterfly valves. The valves are located in River Water System (RWS) lines to the Component Cooling Water System's (CCR) heat exchangers.

CHANGE TITLE

DCP-1672, Containment Instrument Air Quality Improvements

CHANGE DESCRIPTION

This design change installed a compressed air filter and dryer within the containment instrument air system immediately downstream of air receiver tank IA-TK-3. The modification included the following items:

- A membrane type compressed air dryer.
- Particulate and coalescing filters with automatic drain valves.
- An automatic bypass of the filter/dryer assembly actuated by a differential pressure switch.
- A manual transfer switch to ensure control power to the differential pressure switch and bypass solenoid.
- A dew point indicating device installed at elevation 752' in the Cable Vault area that will provide a digital readout of the system's pressure dew point. (The power source for the remote dew point device will be from panel PNL-AC-INST2).
- Relocate Station Air backup to the Containment Instrument Air tie-in from upstream of air receiver tank IA-TK-3, to downstream of the new membrane dryers.
- Control Room Annunciation and associated Sequence of Events Recording of the filter/dryer bypass position.

Periodic testing of the Containment Instrument Air System has shown that the air quality is outside the guidelines of ISA S7.3, "Quality Standard for Instrument Air". The air quality limits defined by this standard were committed to in response to the NRC Generic Letter 88-14, "Instrument Air Supply Problems Affecting Safety Related Equipment". This DCP was initiated to improve the air quality to the limits of the ISA standard.

CHANGE TITLE

DCP-1674, Rev. 1, Replacement of Relays 27-VA100, 27-VD100, 27-RN100 and 27-RN1100

CHANGE DESCRIPTION

This design change replaced the following relays:

27-VA100, 4160V Bus 1A, Undervoltage Relay
27-VD100, 4160V Bus 1D, Undervoltage Relay
27-RN100 and 27-RN1100, 480V Emergency Bus in Undervoltage Relays

The replaced relays were degrading over time due to thermal stress on their printed circuit boards. The vendor recommended corrective action was to replace the relays with new relays that are designed to withstand thermal stresses and eliminate spurious trips in the event of a loss of internal control power.

CHANGE TITLE

DCP-1719, Unit 1 Heat Exchanger Performance Monitoring

CHANGE DESCRIPTION

This design change added the equipment described below to permit heat exchanger performance monitoring:

Heat Exchanger	New Equipment
1. The Control Room Air Conditioning Units VS-E-4A and B.	Added flanged stainless steel spool pieces with transducers to the Booster Pump VS-P-3A and B suction lines. This equipment permits flow measurement.
2. The Diesel Jacket Water Coolers EE-E-1A and B.	Added Thermowells to the shell side inlet and outlet lines. This equipment permits shell side temperature measurement.
3. The Control Room Backup Cooling Coils VS-E-14A and B.	Added flanged stainless steel spool pieces with transducers to the River Water supply lines. This equipment permits flow measurement, and provides an access point to facilitate line cleaning.

The need for the additional monitoring capabilities described above were identified during the implementation of Unit 1's Heat Exchanger Performance Monitoring Program.

CHANGE TITLE

DCP-1758, Rev. 1, Enhancements to the Automated Work Request Program

CHANGE DESCRIPTION

This design change installed the necessary cable, conduit and wall sleeves to provide signals to two new printers: one in the Radiological Operations Radiation Work Permit Office, and one in the Maintenance Supervisors Area. These printers are connected to the Mainframe Controller in the Communications Room near the Storeroom.

A 25 pair telephone cable was installed from the Communications Room to the Maintenance Supervisor's Area for future telephone exchange expansion. The cable is routed with the printer cable.

This design change enhances the Automated Work Request Program.

CHANGE TITLE

DCP-1768, Cable Reroute to Achieve Color Separation

CHANGE DESCRIPTION

This design change cut and rerouted cables 1BRSANC063, 1BRSBNC063, 1BRSNNC020 and 1BRSNNC030, consistent with BV-1 UFSAR Section 8.5. The as-installed condition of these cables deviated from the UFSAR description. This design change corrected this deficiency.

The safety related electrical system is divided into two redundant trains, orange and purple. This change removed and rerouted neutral, NON-1E cables found in colored trays of both trains. The rerouted cables are not safety related and are not required to function to mitigate an accident.

CHANGE TITLE

DCP-1781, Resetting of Relief Valves in Component Cooling System

CHANGE DESCRIPTION

This design change involved resetting of relief valves in the Component Cooling System to their proper relief values; corrected for elevation change and back pressure, as applicable. The relief valves open to prevent overpressurization.

Relief Valves in the Component Cooling System were not set properly. The relief valves were reset at a lower pressure so that proper overpressure protection is provided.

CHANGE TITLE

DCP-1782, Recirculation Spray Cooler Replacement

CHANGE DESCRIPTION

This design change involved replacing two (2) Recirculation Spray Coolers (RS-E-1B and 1D) and other changes required to support this replacement. The tubes of the replacement coolers were manufactured from a new material, AL6XN. The modification will reduce maintenance activities and improves the reliability of safety related equipment. The replacement coolers are larger in capacity (more tubes) relative to the replaced units, and provide a greater margin for heat transfer capability.

The replaced cooler tubes, which were manufactured from Type 304L stainless steel, were showing increased degradation during recent inspections In addition, it was becoming increasingly difficult to remove and replace tubes.

CHANGE TITLE

DCP-1808, Rev. 2, Fuel Transfer System Upgrade

CHANGE DESCRIPTION

This design change installed an upgraded Fuel Transfer Drive System (FH-TS-1). The upgraded system is highly reliable as well as simple to operate and maintain.

The upgraded Fuel Transfer Drive System relies on a winch cable drive system which is mounted above water (on the Refueling Deck elevation). The winches (with associated cable and sheaves) are used to pull the refueling cart into the Fuel Building and back to the Reactor Containment as appropriate. All chain drive components were removed as they are no longer necessary.

The proximity limit switches (used to insure proper cart location) were replaced with an easily maintained Programmable Limit Switch located on the winch above the water level. The two control consoles (one in the RC Building and one in the Fuel Building) were replaced with new control consoles to support the upgrade. The Gemco programmable controller for the upender was relocated inside the new control consoles. Interlocks between the cart position, the up-ender position, the transfer tube Gate valve position, and the manipulator crane were maintained.

The containment instrument air supply to the reactor side control console was removed, since it is not required for the operation of the new cable driven fuel transfer system.

The containment instrument air supply header which supplied air to the original Reactor Cavity Seal Ring was removed. The existing seal ring does not require station instrument air for sealing.

CHANGE TITLE

DCP-1820, Rev. 1, In-Plant Computer Generic Annunciator

CHANGE DESCRIPTION

This design change provided Operations personnel with a method of selecting computer points from the Unit 1 In-Plant Computer (IPC) that activate Annunciator Window A4-47 when one or more of the selected points enter an alarm condition. The annunciator was connected using spare electrical cables routed between the IPC and the annunciator cabinets. A program was developed and integrated into the IPC which allows operators to assign computer points to the annunciator window and display these points when they alarm. The program monitors the points assigned and when any enter alarm, trigger the annunciator via the IPC Digital Output Contact. Reflash is accomplished by the computer.

DCP-1820 responds to the Reactor Coolant System (RCS) Temperature Monitoring portion of the NRC Generic Letter Number 88-17, "Loss of Decay Heat Removal". The remaining expeditious actions and programmed enhancements are addressed in other documents (e.g., DCP-1230 and Operations Procedure Changes).

OST 1.6.11, "Prerequisites for Entering a Reduced Inventory/Midloop Condition"; 1OM-10.4N, "RHR (Residual Heat Removal) Operation with RCS at Reduced Inventory/Midloop Condition"; AOP 1.10.1, "Residual Heat Removal System Loss"; AOP 1.10.2, "Loss of RHR While Operating at Reduced Inventory/Midloop Conditions"; and various Station Operating Logs (1.54.3, L5, "Surveillance Verification Log" sheets) will be revised to reflect this design change. These procedure and log changes will ensure that RCS temperature points are active during a reduced inventory condition. Also, Alarm Response procedures will be developed.

NRC Generic Letter Number 88-17, Expeditious Action Number 3, requires at least two, independent, continuous temperature indications. They should be representative of the core exit conditions whenever the RCS is in a midloop condition and the reactor vessel head is located on top of the reactor vessel. Temperature indications should be periodically checked and recorded by an operator or automatically and continuously monitored and alarmed. Programmed Enhancement Number 1, "Instrumentation," states that the alarms should provide visible and audible indications of abnormal conditions. In response to this Generic Letter, the IPC Generic Annunciator will provide visible and audible indications that will alert operators of an increase in RCS temperature; it can also be utilized to monitor other points.

CHANGE TITLE

DCP-1842, Modification to Annunciator A4-33

CHANGE DESCRIPTION

This modification deleted the "on manual" portion of the alarm circuit for Annunciator A4-33, PZR Back-Up Heater on Manual/Overcurrent Trip. This change defeats the continuous alarm condition that occurs when the plant is operating with the backup heaters energized.

At full power, the plant is operated with the back-up heaters energized in order to provide additional spray flow to the pressurizer.

CHANGE TITLE

DCP-1860, Diesel Generator Fuel Oil Transfer Pump Cross-Connect

CHANGE DESCRIPTION

The diesel generator fuel oil suction lines to the fuel oil transfer pumps (EE-P-1A, 1B, 1C, and 1D) were cross connected with a line having two normally closed valves. This change allows either train of pumps (EE-P-1A and 1B or EE-P-1C and 1D), to pump fuel oil from either tank (EE-TK-1A or 1B), so that each diesel can access both tanks. The lines are connected to a flanged spool piece which is grouted into the wall separating the two diesel generator rooms.

The UFSAR and NRC SER imply that this capability exists. This change brings the fuel supply system capability into agreement with these documents.

With the old configuration, if one diesel fails, the other diesel cannot access the fuel tank of the failed train. However, a temporary operating procedure addressed this situation.

CHANGE TITLE

DCP-1887, Solid State Protection System Isolation

CHANGE DESCRIPTION

Wiring changes were made to correct a problem identified by review of NRC Information Notice 91-11, Inadequate Physical Separation and Electrical Isolation of Non-Safety-Related Circuits from Reactor Protection System Circuits. The Solid State Protection System (SSPS) input relay cabinet field contacts for non-seismically qualified and non-safety related equipment were wired into the grounded side of the AC circuit. This change applied to reactor trip on turbine trip, reactor coolant pump breaker trip, and to reactor coolant pump bus undervoltage and underfrequency reactor trips. The turbine trip and pump breaker trips are anticipatory reactor trips for which no credit is taken in the Safety Analysis.

UFSAR Section 7.1.2.1 states that Instrument Systems comply with IEEE 279-1971. IEEE 279-1971, Section 4.7.2 requires isolation such that credible failures in the Control System shall not prevent the Protection System from meeting the design basis performance specifications. Suitable isolation was not provided between the non-safety related field contacts and the 120VAC Bus in the Solid State Protection System input cabinet. Postulated ground faults could cause either: (1) a blown fuse in the SSPS input relay cabinet, which would cause spurious reactor trip signals or engineered safety feature signals and the loss of one of two redundant logic power supplies, or (2) a tripped breaker in the vital bus distribution panel, which could deenergize the SSPS output cabinet.

CHANGE TITLE

DCP-1890, Replace ASCO Valves - SOV-CC-125 and SOV-CC-136

CHANGE DESCRIPTION

This change upgraded ASCO Solenoid Valves (SOVs) installed on safety related systems. Commercial Grade SOVs were replaced by Nuclear Grade SOVs. The new SOVs are able to function after a seismic event, withstand higher levels of radiation and use less power from the Class 1E System.

Solenoid valves SOV-CC-125 and SOV-CC-136 had leaks and could not be repaired. The replaced valve model is only available commercial grade and would have required nuclear grade dedication prior to use.

The affected valves are located in the Reactor Plant Component Cooling Water System (CCR). The valves close on a containment isolation phase A signal to isolate CCR from Category II portions of the system.

CHANGE TITLE

DCP-1892, Replacement of Emergency Feedwater Pipelines CHL-25, CHL-26 and Valves WT-325, 327, 328 and RV-WT-111

CHANGE DESCRIPTION

This design change replaced the discharge line between the Emergency Hypoclorinator Feed Pump (WT-P-10) and the Domestic Water Storage Tank (WT-TK-13). Relief valve RV-WT-111, check valve WT-327, and manual valves WT-325 and WT-328 in the discharge line were also replaced.

The discharge fluid from pump WT-P-10 contains a hypochlorite fluid, at an approximate 5% solution. This liquid solution is highly corrosive to metal piping.

A blockage existed in the discharge line between the Emergency Hypoclorinator Feed Pump and the Domestic Water Storage Tank. Replacement of the piping and the valves allows the system to operate as originally designed. Class 132, Saran lined steel piping was installed.

CHANGE TITLE

DCP-1903, Cutting and Capping of Feedwater Injection Lines to Steam Generator Blowdown Lines

CHANGE DESCRIPTION

This design change cut and capped feedwater injection to steam generator blowdown lines (1"WFPD-26-601, 1"WFPD-27-601 and 1"WFPD-28-601) in order to isolate leaky valves. The pipelines were previously retired in place.

This change also retired valve FW-671 in place. Valve FW-671 is located in the bypass line around pressure control valve PCV-FW-101 (previously retired in place). Valve PCV-FW-101 controlled pressure in the feedwater injection line to the Steam Generator Blowdown System.

CHANGE TITLE

DCP-1909, Revised Valve Supports for ES-5 through ES-8

CHANGE DESCRIPTION

The "top hat" component of the solenoids for trip valves TV-SS-105A1, and A2; and TV-SS-102A1, and A2 were replaced with a design equivalent component. (This was previously evaluated in Technical Evaluation Report 6949.) The new components are slightly shorter such that the existing support component could not be used. This change modified the support so that a seismic restraint on the solenoid operated valves (SOVs) could be installed; thus preserving the seismic qualification of the valve.

CHANGE TITLE

DCP-1916, Spent Fuel Pool Level Indicator

CHANGE DESCRIPTION

This design change modified the alarm circuitry for annunciator windows A6-2(10), Fuel Pool Pump 1A(1B) Discharge Pressure Low (PS-FC-102A and B); and A6-6(14), Purification Pump 4A(4B) Discharge Pressure Low (PS-FC-101A and B). With the unit at power (only one pump is operable in each system at power) at least one alarm for each system was normally lit. This design change eliminated the unnecessary, normally lit alarms from the main control boards to support the dark board concept.

The discharge pressure switches for each pump were wired in series to alert operators if flow is not being provided through the fuel pool cooling or fuel pool purification pumps. Pressure switches PS-FC-101A and B were wired in series for one alarm. Pressure switches PS-FC-102A and B were wired in series for another alarm.

CHANGE TITLE

DCP-1919, Rev. 1, Loop Stop Valve Disc Pressurization System

CHANGE DESCRIPTION

This minor design change shortened the length of lower disc pressurization tap piping for reactor coolant system loop stop valves (MOV-RC-590, 591, 592, 593 and 594) and replaced the blank flange on each tap line with a swagelok fitting.

Shortening the piping and replacing the flanges with swagelok fittings reduced the probability of pipe failure due to cyclic loads and provides connections that are more leak tight. Swagelok fittings are qualified for a higher pressure rating (up to 4300 PSI).

CHANGE TITLE

DCP-1925, Relocation of Instrument Air Supply Line for Auxiliary Feedwater Pumps Recirculation Flow Control Valves FCV-FW-102, FCV-FW-103A and 103B

CHANGE DESCRIPTION

The 3/4 inch instrument air branch supply line valve that controls air pressure to the auxiliary feedwater pump flow control valves FCV-FW-102, 103A, and 103B, was relocated so that it is upstream of valve IA-85-6. This change allows continued operation of the auxiliary feedwater recirculation Flow Control Valves (FCVs) under conditions when Emergency Operating Procedure OM1.53A.1, Procedure E-2, "Faulted Steam Generator Isolation," requires isolation of the instrument air supply line to the main steam isolation valves (by closing valve IA-85-6).

CHANGE TITLE

DCP-1928, Replace Valve RC-68 With A Soft Seat Disc Valve

CHANGE DESCRIPTION

Valve RC-68, in Containment penetration number 49, is a check valve that passes nitrogen to the Pressurizer Relief Tank. This valve, RC-68 leaked excessively during Type "C" testing and required extensive rework, in a radiological environment, to restore acceptable leak tightness.

This design change replaced valve RC-68 with a valve that has a soft seat seal disc. The new disc provides enhanced leak tightness during Containment type "C" leakage testing.

CHANGE TITLE

DCP-1929, Refueling Water Storage Tank Temperature Loop Modification

CHANGE DESCRIPTION

This design change reduced the range of instrument loop TQS-100A and TQS-100B from 0-150°F to 30-80°F. This change increased the accuracy of the temperature loop to help operators comply with Technical Specification 3.2.1.8.

CHANGE TITLE

DCP-1934, Fuel Pool Transfer Canal Weir Gate Air Supply Modification

CHANGE DESCRIPTION

This design change relocated the transfer canal weir gate air supply check valve (IA-130-36) to a location downstream of the existing system quick disconnect.

The change ensures that a loss of air supply to the weir gate bladder does not occur as was the case described in incident report IR-1-91-034. The new location of the check valve is in a more protected environment.

Relocation of the check valve to a more protected location and also protecting all of the sensitive connections downstream of the check valve reduces the chances of the weir gate bladder depressurizing and having an inadvertent loss of fuel pool inventory.

CHANGE TITLE

DCP-1945, Addition of Spectacle Flanges in Recirculation Spray Lines

CHANGE DESCRIPTION

This minor design change modified the recirculation spray system piping downstream of the heat exchangers by adding spectacle flanges and test connections in the risers to the spray rings, thus providing an isolation point for each heat exchanger. These flanges are conveniently located in the risers just above the 767'-10" platform where they are readily accessible to Maintenance/Testing personnel.

The recirculation spray heat exchangers had no isolation point downstream of the heat exchangers outlet. It became apparent during the performance of Recirculation Spray Heat Exchanger Leak Detection Test 1BVT 1.13.4 that an isolation point on the outlet side of the heat exchangers would assist in troubleshooting and locating leaks during testing.

CHANGE TITLE

DCP-1954 Turbine Control System TRIAC Removal and BCIV Jumper Addition

CHANGE DESCRIPTION

This design change disconnected the TRIACS that were wired in parallel with the output relays of the Turbine Electro-Hydraulic (EH) Control System and installed an electrical jumper to block the close intercept valve function on a 90 percent loss-of-load without the output breaker opening.

The changes were made to prevent failures of unnecessary components and functions that could cause a plant trip. Licensee Event Report 91-005 documents a Unit 2 plant trip caused by the failure of a Turbine EH Control System TRIAC.

Removal of the TRIACS does not change the circuit operation, but reduces the speed at which the circuit is closed when the relay is energized.

CHANGE TITLE

DCP-1961, Fuel Pool Level Indicator

CHANGE DESCRIPTION

A local indicator was installed in the spent fuel pool. Operations and Refueling personnel will use this indicator to trend spent fuel pool level.

CHANGE TITLE

DCP-1969, Removal of Differential Level Indicators LIDS-CW-101A1, B1, C1 and D1

CHANGE DESCRIPTION

This design change removed the unused, out of service, traveling water screen differential level indicators (narrow range) LIDS-CW-101A1, B1, C1 and D1. These indicators were not electrically connected.

Traveling water screen differential level indicators LIDS-CW-101A2, B2, C2 and D2 will continue to be used to monitor this differential level and provide an alarm. There is no effect on the performance of the traveling water screen level indication.

CHANGE TITLE

DCP-1973, Circuit Modification to Annunciator A2-31

CHANGE DESCRIPTION

This modification eliminated the continuously lit alarm associated with annunciator A2-31, Nitrogen Supply Header Pressure Low, by changing the state of the alarm. This was accomplished by inverting the logic of the corresponding multiple input card.

This modification supports the dark board concept of NUREG-0700, Guidelines for Control Room Design; and permits continuation of the current operating practice, which is to keep the nitrogen supply normally isolated.

CHANGE TITLE

DCP-1974, Redesign Condensate Pipe Support H-111A

CHANGE DESCRIPTION

When the original pipe support bolts failed, a temporary modification installed wood cribbing to support the condensate pump suction piping. This design change provided a permanent replacement for the original pipe support.

CHANGE TITLE

DCP-1982, Demineralized Water To Containment During Refueling Outages

CHANGE DESCRIPTION

This design change modified the Boron Recovery System by installing a Tee connection with a blank flange on the demineralized water and primary grade water headers. The headers can now be cross-connected during refueling outage to supply demineralized water to Containment.

The change facilitates refueling outage activities by providing a moderate supply of demineralized water to Containment. Demineralized water is needed to support steam generator eddy current testing, incore thimble cleaning and reactor cavity decontamination.

CHANGE TITLE

DCP-1983, Main Steam Pipe Support Modifications

CHANGE DESCRIPTION

The main steam piping was evaluated for an inadvertent Main Steam Isolation Valve (MSIV) closure. The pressure transient resulting from the valve closure was not previously considered as a design condition and was reported in Incident Report IR-1-93-14. Upon reanalysis of the piping system, it was determined that the revised loading resulting from this transient exceeded the design capacity of several pipe supports. Where the expected effects created excessive support stresses, above Updated Final Safety Analysis Report (UFSAR) design basis criteria limits, the supports were modified as required to be consistent with the new loading. Additionally, rupture restraint pipe gaps and constant/variable spring cold settings were field verified and modified as required. Transducers were also installed to monitor pipe movement.

CHANGE TITLE

DCP-1985, Seal Water Return Line Rerate

CHANGE DESCRIPTION

During a medium size loss of coolant accident (LOCA) resulting in a two to eight inch break, a potential leakage path exists from the Containment Sump to the Auxiliary Building and beyond after transfer to recirculation mode has occurred. When the transfer to recirculation occurs, the water source for safety injection flow is transferred from the Refueling Water Storage Tank to the Containment Sump. With the Containment Sump as the source of water, the Unit 1 low head safety injection (LHSI) pumps are not pumping to the Reactor Coolant System (RCS) because RCS pressure is above their shutoff head, but these pumps are supplying sump water to the suction of the High Head Safety Injection (HHSI)/Charging Pumps. This flow is small compared to the pumps overall capacity and thus the resultant pressure will be at the high end of the pump curve, approximately 175 psig.

The high pressure will be exerted upon check valve CH-18; directly by the LHSI pump, and indirectly by the HHSI/Charging Pump miniflow path. This pressure is also exerted upon the Seal Water Heat Exchanger (CH-E-1) and its associated relief valve (RV-CH-382B). The relief valve had a setpoint of 150 psig corresponding to the 150 psig design pressure of the heat exchanger. This high pressure would have caused the relief valve to relieve Containment Sump water to the Volume Control Tank, (CH-TK-2) and beyond until the RCS pressure decreased sufficiently to allow the relief valve to reseat. (Reference IR-1-93-017 and LER 9304).

To eliminate the potential leakage path, this design change increased the design pressure of the Seal Water Heat Exchanger (CH-E-1) tube side, and a portion of the seal water return line. Also, the change increased the setpoint of relief valve RV-CH-382B commensurate with the new design pressure.

CHANGE TITLE

DCP-1986, Spare Source Range Detectors installation

CHANGE DESCRIPTION

This minor design change installed two spare backup source range detectors, one each into the space provided by unused excore instrumentation wells in the neutron shield tank.

These detectors will remain disconnected from the existing source range detector circuits until one of the permanent plant detectors fails, at which time the permanent detector may be disconnected and its corresponding spare may be connected to the circuit at the containment penetration. The spare detectors will be used only for refueling and will not be used for plant startup. These spare detectors are identical to the other installed detectors.

CHANGE TITLE

DCP-1995, Communications For RadCon Trailers

CHANGE DESCRIPTION

This minor design change removed temporary PAX telephone cables and a temporary Unit 1 Page Party cable which were installed between the guardhouse and the RadCon trailer via manhole 2EMH13 and various ducts. A 25 pair telephone cable (3 pairs provide phone lines to the Radcon trailers - the remaining 22 may be used for temporary outage phones) and Unit 1 and Unit 2 page party cables were permanently installed from the outage trailer complex to a new terminal box located on the Unit 2 Service Water Valve Pit Structure via an existing 4 inch underground conduit. The terminal box houses terminal strips for the telephones and the Unit 1 and Unit 2 page party systems for use in the RadCon trailers. The PAX telephone system and the Page Party systems are designed for this type of expansion.

CHANGE TITLE

DCP-2003, AirCet Fittings For Unit 1 Category II Valves

CHANGE DESCRIPTION

This change involved the addition of instrument test ports to allow air operated valve testing using AirCet test equipment to test various air operated valves in the Heater Drains and Feedwater Systems.

CHANGE TITLE

DCP-2005, Installation Of Improved Header End Caps On Reactor Plant Component Cooling Water (CCR) Header 24"-CC-5, And River Water Headers 30"-WR-17, 24"-WR-8/9 Associated With The Component Cooling Water Heat Exchangers (CC-E-1A, B and C)

CHANGE DESCRIPTION

The end closures of three headers on the Component Cooling Water (CCR) and River Water (WR) Systems (currently one-half inch thick carbon steel plates) were replaced with curved carbo steel (Class 151) end caps in order to comply with the provisions of the originally specified design codes (ANSI B.31.1 [1967] and ASME Section VIII [1968]). The outlet header (30"-WR-17) for the River Water (tube) side of the CCR heat exchangers (CC-E-1A, B and C) received a cap equivalent to at least a 1.26 inch thick plate, while that for the river water inlet header (24"-WR-8/9) was replaced with a cap at least equal to a 1 inch plate. The outlet header for the CCR (shell) side of the same heat exchangers (24"-CC-5) was replaced with an end cap that has pressure retaining characteristics equivalent to those of a 1.1 inch or thicker flat plate.

CHANGE TITLE

DCP-2013, Correct Pump State Displays On Computers

CHANGE DESCRIPTION

The Safety Parameter Display Computer System (SPDS), Plant Variable Computer (PVC) and the Sequence of Events Computer indicated that the pumps identified below are "ON" or "RUNNING" when their circuit breakers are racked out. This design change made the necessary wiring changes and computer software changes to provide the correct pump state at all times.

The pumps involved are the quench spray chemical injection pumps (1QS-P-4A, B, C and D), residual heat removal pumps (1RH-P-1A and B), low head safety injection pumps (1SI-P-1A and B), and outside recirculation spray pumps (1RS-P-2A and B). The wiring changes were made in the circuit breaker cubicles for the respective pumps.

CHANGE TITLE

DCP-2015, Repair/Modification Of The Unit 1 Reactor Containment Building Equipment Hatch Missile Shield

CHANGE DESCRIPTION

The method of connecting a portion of the Equipment Hatch Missile Shield (Assembly V) was changed. It was originally attached on the bottom to Assembly IV using a seat angle connection. It is now attached on the top to Assembly III using connection plates.

During disassembly of the Missile Shield, the embedded anchors on the seat angle (used to support Assembly V) were damaged beyond repair. Therefore an alternate method of support was required.

CHANGE TITLE

DCP-2016, Minor Modification To Remove Prefilters VS-FL-10 and VS-FL-13 From Containment Iodine Filtration System

CHANGE DESCRIPTION

This minor modification removed prefilters VS-FL-10 and VS-FL-13 from the Containment Iodine Removal System. The Iodine Filtration system is used at the discretion of the plant operator to remove small quantities of airborne radioactivity that may be released from the RCS system during normal plant operation. The function of the prefilters is to remove large particulates to prevent excessive pressure drop build-up on the HEPA and charcoal filters.

NRC Bulletin 93-2, Debris Plugging of Emergency Core Cooling Suction Strainers, dated May 11, 1993, identified a concern about fibrous material plugging the emergency core cooling suction strainers. The prefilters (VS-FL-10 & 13) of the Containment Iodine Removal System were identified as a contributor to this problem. NRC Bulletin 93-2 required all units that were shut down to complete the actions of the bulletin (removal of prefilters) prior to restart.

CHANGE TITLE

DCP-2018, Minor Modification To Remove Flanges And Replace With Swagelok Fittings On Valve CH-391

CHANGE DESCRIPTION

This minor modification removed the flanges on valve CH-391 and replaced them with Swagelok fittings. Valve CH-391 (regenerative heat exchanger line high point vent valve) is located upstream of valve RV-CH-383 (regenerative heat exchanger tube side relief valve).

The welds in and around the area of relief valve RV-CH-383 and valve CH-391 have experienced a history of weld cracking. The weld near the inlet to valve CH-391 developed a crack. The replacement of the flanges with Swagelok fittings will reduce the probability of pipe failure due to a reduction in cyclic loads and provides a better leak-tight connection compared to the blind flange connection.

CHANGE TITLE

DCP-2019, Minor Design Change To Replace Two Benchboard Wires Inadvertently Removed Under DCP-42

CHANGE DESCRIPTION

This change replaced two wires inadvertently removed (by Design Change Package 42) between selector synchronization switches. The synchronization works but there was a voltage feedback. If the voltage circuits are wired incorrectly, the generator could be parallel with the system 180° out of phase.

Trouble shooting found erroneous voltage readings on the Collier position. Replacement of the two wires (C314-2A1 and 2B1) was recommended.

CHANGE TITLE

DCP-2026, Condensate Drain Lines For 1VS-AC-11A and 1VS-AC-11B

CHANGE DESCRIPTION

This design change installed condensate drain lines from the auxiliary building area ventilation system air handling units (1VS-AC-11A and B) to service building drains. The old drain lines are routed to auxiliary building drains.

The new drain lines consist of two inch PVC pipe extending from the drain header of 1VS-AC-11A and B in the Auxiliary Building to wall penetration PAB-752-060 where it is connected to three feet of two inch carbon steel pipe. On the Service Building side of the penetration, two inch PVC pipe is connected to the carbon steel pipe. The PVC pipe is routed to service building drains.

The new drain lines route condensate to service building drains which are radiologically clean. This routing reduces liquid waste and does not create a radiological concern.

CHANGE TITLE

DCP-2047, Unit 1 AMSAC Timer Seal-In Modification

CHANGE DESCRIPTION

The Unit 1 Anticipated Transient Without Scram Mitigation System Actuation Circuitry (AMSAC) timer seal-in function associated with the turbine first stage pressure logics was not installed per the original design requirements. This change upgraded AMSAC's control logic software to include the timer seal-in function as required by the original design.

Also, as part of this change, the AMSAC database was revised to reflect the actual turbine impulse pressure and load condition performance characteristics. This change permits AMSAC to satisfy the turbine load versus time delay design requirements for variable plant conditions. Software code changes were necessary to satisfy the original design requirements of AMSAC, and the software database changes were necessary to reflect actual turbine load performance.

CHANGE TITLE

TER-763, Evaluation To Document Removal Of Relief Valve RV-DG-100 Per MWR 790487 And EM 60157

CHANGE DESCRIPTION

Relief Valve RV-DG-100 was removed per Maintenance Work Request 790487 based on an evaluation documented as the response to Engineering Memorandum 60157. This Technical Evaluation Report updated all appropriate plant documents to reflect the removal of this relief valve.

The relief valve was located on the nitrogen inlet line to Primary Drains Transfer Tank No. 2 (DG-TK-2). It was originally intended to provide overpressure protection to the tank and the nitrogen line.

The relief valve was removed because it was leaking. A review was performed and it was determined this relief valve was not required for overpressure protection.

CHANGE TITLE

TER-6553, Response To SSFE Observation EDS-ME-027, "Plant Drawing Deficiencies - Mechanical"

CHANGE DESCRIPTION

This Technical Evaluation Report (TER) revised: 1) flow diagrams, Valve Operating Number Diagrams (VONDs), and Isometric drawings (ISOs) for the Emergency Diesel Generator System, 2) Flow Diagram, VOND and related Appendix R figures for the CO_2 and Halon Fire Protection Systems, 3) Fire Protection Arrangement Drawings (RBs) and related Appendix R Figures and 4) Emergency Switchgear and Normal Switchgear Ventilation RB Drawings.

This TER was written to respond to Safety System Functional Evaluation (SSFE) Observation EDS-ME-027, which identified inconsistencies among the emergency diesel generator flow diagrams, VONDs and ISOs; Fire Protection Arrangement RB drawings and Appendix R Figures; CO_2 and Halon Flow Diagrams and VONDs; and switchgear area RB drawings and vendor technical information drawings.

CHANGE TITLE

TER-6913, Rev. 1, Reactor Plant Sample System Valves With Differing Operating Manual Valve List And Master Equipment List QA Categories

CHANGE DESCRIPTION

This change corrected discrepancies between Unit 1 Updated Final Safety Analysis Report (UFSAR) figures and maintains consistent pipe class breaks for the Reactor Plant Sample System piping. The UFSAR figures (4-2 and 9.6-1) were changed to correct discrepancies noted during a review of the reactor plant sample system valves with differing Operating Manual Valve List and Master Equipment List QA Categories.

CHANGE TITLE

TER-7249, UFSAR Change Page 9.2-4

CHANGE DESCRIPTION

Updated Final Safety Analysis Report (UFSAR) Section 9.2 is being updated to reflect actual plant conditions. The UFSAR change was neglected during final records update of Design Change Package (DCP) 36. This is an administrative change to reflect an approved design change.

DCP 36, which was installed in 1977, deleted the auto-open signal for motor operated valves MOV-PG-115A and B. These valves are located in the fill lines for the primary grade water

storage tanks.

CHANGE TITLE

TER-7251, Adding Three LMC Containment Isolation Valves (SS-650, 651 and 652) To The Appropriate Drawings

CHANGE DESCRIPTION

Three Leakage Monitoring Connection (LMC) containment isolation valves (SS-650, 651, and 652) were not displayed on station drawings. The drawings showed the T-connection but not the manual isolation valves. These valves are used for containment isolation and meet the system's material, pressure, and other design requirements. The valves were added to the appropriate drawings.

CHANGE TITLE

TER-7404, UFSAR Change To Delete PH, Boron, Conductivity and Chloride In-Line Monitors In The PAS System

CHANGE DESCRIPTION

This Technical Evaluation Report revised Updated Final Safety Analysis Report Section 9.6 and Figure 9.6-4. The Boron and the Chloride in-line monitors in the Post Accident Sampling System (PASS) were inoperable for an extended period, and have now been retired "in-place". In addition, the PH and the Conductivity In-Line monitors have been deleted from the UFSAR Section 9.6 description of PASS capabilities. The affected monitors are not required by NUREG 0737, or Regulatory Guide 1.97.

CHANGE TITLE

TER 7470, To Revise UFSAR Figure 10.3-5 to Show a Safety Class Break at Valves FW-59 and FW-61

CHANGE DESCRIPTION

This Technical Evaluation Report revised Updated Final Safety Analysis Report Figure 10.3-5 to show a Q3 to non-Q safety class break at valves FW-59 and FW-61. The piping was previously shown as pipe class Q3.

The chemical addition tank (FW-TK-2) two-way valve (1FW-59) is installed in the auxiliary feed pumps' common recirculation line to the primary plant demineralized water storage tank. The two-way valve is used to select normal recirculation or recirculation through the chemical addition tank. Check valve FW-61 is downstream of the chemical addition tank to prevent

reverse flow to the tank.

CHANGE TITLE

TER 7471, To Revise UFSAR Figure 10.3-1 to Show a Safety Class Break at Valves MS-200, MS-202 and MS-204.

CHANGE DESCRIPTION

This Technical Evaluation Report (TER) revised Updated Final Safety Analysis Report Figure 10.3-1 to show a Q2 to non-Q piping system safety class break at valves MS-200, MS-202 and MS-204. These valves are steam generator vent isolation valves. Previously, the pipe class of the vent lines was not shown.

CHANGE TITLE

TER 7580, QA Category Changes and Updating Drawing Discrepancies (CVCS Piping)

CHANGE DESCRIPTION

This TER changed the QA Category of several Chemical and Volume Control System (CVCS) pipelines which are isolated from safety-related equipment. The pipelines were changed from QA Category I to QA Category II, and new Q-breaks were assigned. In addition, several non-Q pipelines were assigned new line numbers.

CHANGE TITLE

TER 7698, Motor Gear Set Ratio Change for MOV-QS-101A

CHANGE DESCRIPTION

The motor pinion and worm shaft gear of the Limitorque motor operator for valve MOV-QS-101A were changed per a Vendor Approved Part Change, which changes the overall unit gear ratio. This overall unit ratio change increases the valve stroke time from 53.97 to 61.12 seconds (an increase of 7.15 seconds). Since the new parts were approved by the OEM vendor, the parts themselves were not evaluated per this Safety Evaluation because they meet or exceed the original design specifications.

MOV-QS-101A is the "A" Train Quench Spray Pump Discharge Valve. This valve is a containment isolation valve, is required to stroke open with a maximum stroke time of 75 seconds, and supplies water to the "A" Train 360° quench spray header nozzles in the event of a Containment Isolation Phase B signal. Due to potential degraded voltage conditions coincident with MOV-QS-101A being called to service, the torque output capability needed to be increased. This increase was accomplished by changing the overall unit ratio.

CHANGE TITLE

TER 7825, Reconciliation of Containment Depressurization System VOND, Flow Diagram and UFSAR Figures

CHANGE DESCRIPTION

The Valve Operating Number Diagram (VOND), Flow Diagram, and Updated Final Safety Report (UFSAR) figures listed below differed with respect to the normal position of certain Quench Spray System valves.

VOND RM-413-1, Containment Depressurization System
Flow Diagram RM-35A, Containment Depressurization System
UFSAR Figure 6.4-1, Containment Depressurization System
UFSAR Figure 15-10, Containment Depressurization System

The drawings were changed to eliminate the inconsistencies. This Technical Evaluation Report (TER) was prepared to reconcile the drawings. No physical changes resulted from this TER.

CHANGE TITLE

TER 7841, Master Equipment List - QA Classification for Reactor Coolant Pump Motors

CHANGE DESCRIPTION

The Quality Assurance (QA) classification of the Unit 1 reactor coolant pump motors was changed from Category II to Category I. There are no expected effects of this change beyond increased procurement and inspection requirements. The requirements should be identical to the Unit 2 RCP motors which are classified QA Category I. The motors are now considered safety related, consistent with the Westinghouse assumption which takes credit for pump coastdown.

CHANGE TITLE

TER 7973, Rev. 0, Reconciliation of Containment Vacuum and Leakage Monitoring System VOND, Flow Diagram and UFSAR Figures

CHANGE DESCRIPTION

The Valve Operating Number Diagram (VOND), Flow Diagram, and Updated Final Safety Report (UFSAR) figures listed below differed with respect to the normal position of Containment Vacuum and Leakage Monitoring System valves.

VOND RM-412-1, Containment Vacuum and Leakage Monitoring
Flow Diagram RM-36A, Containment Vacuum and Leakage Monitoring
UFSAR Figure 5.4-3, Containment Vacuum and Leakage Monitoring System
UFSAR Figure 15-6, Containment Vacuum and Leakage Monitoring System

The drawings were changed to eliminate the inconsistencies. This Technical Evaluation Report (TER) was prepared to reconcile the drawings. No physical changes resulted from this TER.

CHANGE TITLE

TER 8026, Deletion of Evaporator Bottoms Conductivity Loop (CC-BR-101)

CHANGE DESCRIPTION

This change completely removed all out of service parts of the Evaporator Bottoms Conductivity Loop (CC-BR-101). This included removing the Conductivity Probe (CC-BR-101), modules (CY-BR-101) and (CY-BR-101A), Recorder (CR-BR-101), and high and high-high alarm modules (CAH-BR-101) and (CAHH-BR-101). In addition, the annunciator points and inputs to the sequence of events recorder were eliminated.

CHANGE TITLE

TER 8037, Reconciliation of Fuel Pool Cooling and Purification System VOND, Flow Diagram, and UFSAR Figures

CHANGE DESCRIPTION

The Valve Operating Number Diagram (VOND), Flow Diagram, and Updated Final Safety Analysis Report (UFSAR) figures listed below differed with respect to the normal position of certain Fuel Pool Cooling and Purification System valves:

VOND RM-420-1, Fuel Pool Cooling and Purification System
Flow Diagram RM-31A, Fuel Pool Cooling and Purification System
UFSAR Figure 9.5-1, Fuel Pool Cooling and Purification System
UFSAR Figure 15-7, Fuel Pool Cooling System

The drawings were changed to eliminate the inconsistencies. This Technical Evaluation Report (TER) was prepared to reconcile the drawings. No physical changes resulted from this TER.

CHANGE TITLE

TER 8049, Delete Steam Generator Blowdown Sample Line Pressure Reducing Valves PCV-SS-117A1, B1, and C1

CHANGE DESCRIPTION

Pressure reducing valves PCV-SS-117A1, B1, and C1 were no longer used to reduce steam generator blowdown sample pressure. Pressure reduction is accomplished by more reliable downstream valves HCV-SS-177, 178 and 179. This change removed valves PCV-SS-117A1, B1, and C1 and replaced them with lengths of 3/8 inch tubing.

CHANGE TITLE

TER 8177, QA Category Change of Nitrogen Supply Piping and QA Category Upgrade of Valves

CHANGE DESCRIPTION

The purpose of this Technical Evaluation Report (TER) is to establish a pipe class break on the Nitrogen Supply lines for two of the pressurizer power operated relief valves. There are several Nitrogen supply pipelines that are over-classified on the Master Equipment List as being Quality Assurance (QA) Category I instead of QA Category II. The following pipe lines were changed from QA Category I to Category II: GN-38, GN-39, GN-40, GN-41, GN-42, GN-43, GN-44 and GN-45.

This TER upgraded the following components from QA Category II to QA Category I: check valves RC-600, 601; and flow control valves FCV-RC-455C1, C2, D1 and D2. These upgrades appear after the Nitrogen supply class break and are needed to ensure operability of solenoid operated valves SOV-RC-455C1, C2, D1 and D2, which are QA Category I and in the Environmental Qualification Progr[illegible].

The Master Equipment List and Flow Diagram 8700-RM-41B (UFSAR Figure 6.3-2) designated the piping as safety-related (Q3). The Nitrogen Supply piping and its components are not safety related or QA Category I components. The components associated with this piping are all presently classified as QA Category II on the MEL. A class break was provided to show the non-safety related and safety related portions of the system.

CHANGE TITLE

TER 8493, Reconciliation of Post DBA Hydrogen Control System VONDS, Flow Diagrams and UFSAR Figures

CHANGE DESCRIPTION

The Valve Operating Number Diagram (VOND), Flow Diagram and Updated Final Safety Analysis Report (UFSAR) Figures listed below differ with respect to the normal position of certain Post DBA Hydrogen Control System valves.

VOND RM-446-1, Post DBA Hydrogen Control System
Flow Diagram RM-52A, Post DBA Hydrogen Control System
UFSAR Figure 6.5-1, Post DBA Hydrogen Control System
UFSAR Figure 15-4, Post DBA Hydrogen Control System

VOND RM-446-2, Post DBA Hydrogen Analyzer System
Flow Diagram RM-52B, Post DBA Hydrogen Analyzer System
UFSAR Figure 6.5-4, Flow Diagram Post DBA Hydrogen Analyzer System

The drawings are being changed to eliminate inconsistencies. This Technical Evaluation Report (TER) was prepared to reconcile the drawings. No physical changes will result from this TER.

CHANGE TITLE

Deletion of Dewpoint Measurement from Meteorological Tower

CHANGE DESCRIPTION

This procedure change revised the Updated Final Safety Analysis Report (UFSAR) to eliminate reference to the ongoing collection of on-site dewpoint temperature data. The dewpoint temperature instrumentation was retired in place.

This procedure was changed because the meteorological tower dewpoint sensors were out of service and could not be repaired. Since the NRC's Final Environmental Statements indicate that the effects of cooling tower operation with respect to area environmental impact have been shown to be inconsequential, the need for continued collection of dewpoint temperature information is unnecessary.

CHANGE TITLE

30 Percent Steam Generator Tube Plugging Analysis Program - Engineering And Licensing Report

CHANGE DESCRIPTION

This analysis change includes the following: (a) a maximum tube plugging level of 30 percent in any one steam generator or the plugging level that results in the reduction of the Reactor Coolant System (RCS) loop flow rate to the thermal design flow (TDF) limit; (b) a reduction in the TDF from 88,500 gpm per loop to 87,200 gpm per loop (261,600 gpm total); and (c) the incorporation of loop flow asymmetry of up to 5 percent in the analyses and evaluations in which RCS flow rates are important. The analysis assumes that the thimble plugs in the reactor internals are removed.

The reduced total TDF value of 261,600 gpm (reduced by 1.5 percent) required a Technical Specification change. The reduced TDF value was incorporated by Technical Specification Amendment 172.

Based on the power capability parameters identified below, the current design transients remain bounding for increased steam generator tube plugging levels up to either the 30 percent or the revised TDF limit. This conclusion is valid only to the minimum steam condition of 760 psia and 512.30°F due to component design considerations.

Revised loads have been calculated for the RCP motors. The new loads have increased due to both revised performance estimates (RCS temperatures) and the effects of the proposed tube plugging. WCAP-13707 Section 5.3.2 addresses this concern and concludes that it does not impact the safety-related function of the motors.

This report documents the analyses and evaluations needed to verify that Unit 1 is functionally and structurally capable of continued reliable and safe operation with the change.

The previous justification (WCAP-12966 dated June 1991) for 20 percent tube plugging was outdated based on the number of steam generator tubes plugged during the ninth refueling outage. The reduction in the TDF and the incorporation of loop flow asymmetry provide analysis margin which allow a tube plugging limit of up to 30 percent.

CHANGE TITLE

Revise Setting of 27-VE2100, 27-VF2100, 27-RN2100 and 27-RP2100 Degraded Grid Relays

CHANGE DESCRIPTION

The setpoint for the 4160V and 480V Emergency Bus Degraded Grid Undervoltage Relays were changed from 90 percent to 94 percent to account for voltage drop and setpoint inaccuracy. The relay reset value is approximately 3 percent above the operate value and was changed from 93 percent to 97 percent of nominal voltage (4160V and 480V).

The setpoints were changed to account for voltage drop and setpoint inaccuracy in the degraded grid setpoint.

CHANGE TITLE

Reduced Auxiliary Feedwater Pump Capacity Change

CHANGE DESCRIPTION

A new Auxiliary Feedwater System (AFW) analysis for loss of normal Feedwater and Feedwater pipe rupture events, with and without offsite power, has been completed. The results of this analysis were incorporated into the Updated Final Safety Analysis Report. AFW is assumed functional for the superheated mass/energy outside containment calculations, and for specific non-LOCA accidents. For each event, due to single failure assumptions, only one (1) motor driven (and no steam driven) AFW pump is assumed to be available to mitigate the consequences of the event. The minimum assumed flow was 350 gpm; the change justifies a flow of 315 gpm.

The new analysis established additional margin for events which assume only one (1) motor-driven AFW pump to mitigate accident effects.

CHANGE TITLE

Transient Stability Analysis (Deletion of Voltage Drop Information and Loading Table Information From UFSAR)

CHANGE DESCRIPTION

The Electrical Distribution System Functional Inspection (EDSFI) resulted in testing and analyses to demonstrate acceptability. As part of this review, additional information was developed with respect to the loading of the diesel generator sequencer. The transient analysis program was used to analyze the transient loading capabilities of the EDGs and the major motor loads. This analysis provides input to the continuing transient analysis program.

UFSAR Table 8.5-1, "Maximum Loading of Diesel Generator No. 1"; Figures 8.5-3, 4, 5 and 6, which depict the Diesel Generator transient voltage, frequency and loading levels during sequential loading; and statements regarding the maximum voltage drop and frequency deviation between load steps were deleted.

Design change administrative procedures and the procedure for the Management of AC and DC Bus Loads and Calculations ensure that the impact of any changes to Emergency Diesel Generator loading is evaluated to show that the Emergency Diesel Generators continue to meet acceptance limits for steady state and transient loading conditions. The evaluation of the steady state loading is performed in Calculation 8700-E-48, "Diesel Generator Load Study," to demonstrate Diesel Generator loading is less than the Regulatory Guide 1.9 criteria. The

evaluation of the transient response of the Emergency Diesel Generator is performed in Calculation 8700-E-241, "Transient Analysis of EDGs," to demonstrate that the Diesel Generators meet the intent of Regulatory Guide 1.9, Selection, Design, and Qualification of Diesel Generator Units Used as Standby (Onsite) Electric Power Systems at Nuclear Power Plants, which is to start and accelerate to rated speed the connected loads in the required sequence within the time intervals established by the accident analyses.

The changes were found to be acceptable, based on the finding that an unreviewed safety question could only be created if the Emergency Diesel Generators were not capable of starting and accelerating to rated speed all the connected loads in the required sequence, and within the minimum time intervals established by the accident analyses. Since design change procedures and electrical calculation administrative procedures ensure the Emergency Diesel Generators are capable of performing as required above, and satisfy the intent of recommendations fond in Regulatory Guide 1.9 (Regulatory Guide 1.9 is referenced in the UFSAR), no unreviewed safety question will be created.

A 10 CFR 50.59 evaluation will be performed for all future design changes that affect the Emergency Diesel Generator loading or transient response.