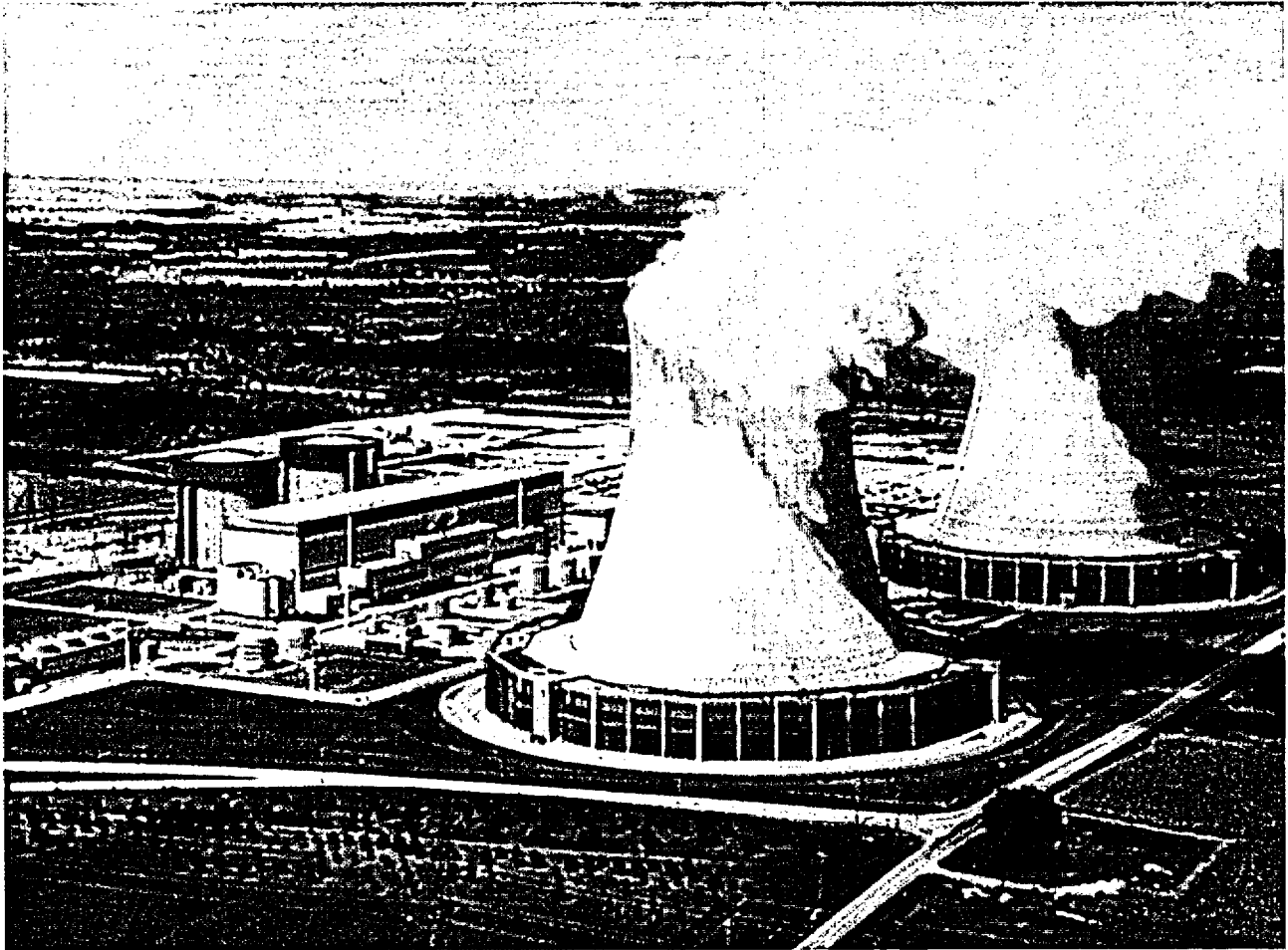


# 10 CFR 50.59

## Summary Report



**Exelon**<sup>SM</sup>  
Nuclear

Byron Station  
Calendar Years 2001 and 2002  
Docket Nos. STN 50-454 and STN 50-455  
License Nos. NPF-37 and NPF-66

**Byron Station**

**10 CFR 50.59 Summary Report**

**Calendar Years 2001 and 2002  
and**

**Summaries not previously submitted for Years  
1999 and 2000**

**NRC Docket Nos. STN 50-454 and STN 50-455**

**License Nos. NPF-37 and NPF-66**

Design Change Packages (DCP),  
Engineering Changes (EC)

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Safety Evaluation Summary Form

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Tracking No. 6G-99-0048 Revision 1  
Activity No. DCP 9900100 and DCR 990047

DESCRIPTION:

The proposed activities evaluated interferences that were to be removed and then restored to support maintenance on reactor coolant system cold leg loop stop isolation valve (LSIV) 1RC8002A. A containment floor beam flange was coped and then repaired, three cables were to cut and then spliced, and a new rigging beam was installed in the containment building to support the valve lifting activities. Additionally, the body to bonnet stud nuts were replaced with full nuts and hardened washers were added. This was done to accommodate a different stud tensioning method.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The modified bolting on the LSIV is structurally equivalent to the original design since the nut material is the same and the torque requirements establish an equivalent stud prestress load required to seal the joint. The change to the beam flange and the addition of a new rigging beam have been seismically qualified. The spliced cables and associated equipment will continue to perform their design function and do not have an effect on the consequences of an accident. No circuits are modified.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The purpose of the design change is to restore the affected equipment that was modified to accommodate maintenance activities. The equipment functional capabilities are not changed as a result of this modification. The new beam is of similar design to existing beams. The modified bolting on the LSIV is structurally equivalent to the original design. The cable splices are acceptable cable connection methods. There is no effect on other equipment and no new failure modes are created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The capability of the LSIV to open or close is not affected by these changes.

**PEPP-E FORM**



Safety Evaluation Summary Form

Tracking No. 6G-99-0136  
Activity No. DCP 9900360 and ER 9908830

DESCRIPTION:

The proposed activity will install a temporary flanged valve in place of drain valve 2FP153. The drain valve is normally closed and is only used for draining the header for maintenance. It is not used for any normal flushing activities. Therefore, the temporary flanged valve will perform the same function (i.e., isolation of the drain line) as valve 2FP153.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The installation of a temporary flanged valve in place of drain valve 2FP153 will not have any impact on the plant. The drain valve is normally closed and is only used for draining the header for maintenance. It is not used for any normal flushing activities. Therefore, the blind flange will perform the same function (i.e., isolation of the drain line) as valve 2FP153. The non-safety-related portion of the FP system is not assumed to mitigate the consequences of any accidents or transients. Since the FP system will still operate as designed, there is no potential increase in dose consequences.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

Replacing 2FP153 with a temporary flanged valve will not create the possibility of an accident or transient of a different type. The temporary flanged valve will provide isolation equivalent to 2FP153 and the remaining portion of the transformer deluge system will continue to operate and provide protection as designed.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

Replacing 2FP153 with a temporary flanged valve will not create the possibility of an accident or transient of a different type. The temporary flanged valve will provide isolation equivalent to 2FP153 and the remaining portion of the transformer deluge system will continue to operate and provide protection as designed.

**PEPP-E FORM**

Safety Evaluation Summary Form

Tracking No. 6H-99-0001  
Activity No. DCP 9302973 and DCP 9302975

DESCRIPTION:

The proposed design changes add a vibration monitoring system capable of performing on line vibration monitoring of the 1A and 1D reactor coolant pumps (RCPs). The system will provide local indication of RCP shaft vibration levels and will also have data storage to sample and store vibration data. This validation confirms the original evaluation performed for four RCP loops (A, B, C, and D) is applicable for the partial installation of this design change on two RCP loops.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed change does not affect control, instrumentation, or protection schemes and does not affect offsite power. The power requirement of the new equipment has been reviewed and determined to be within the capacity of the associated electrical buses. Fault coordination is maintained and the equipment is seismically mounted. The monitoring instrumentation does not affect the operation of the RCPs and does not adversely interact with any equipment required for accident mitigation. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed change does not affect control, instrumentation, or protection schemes and does not affect offsite power. The new equipment requirements for power have been reviewed and were determined to be within the capacity of the associated electrical buses. The equipment is seismically mounted and proper fault coordination is maintained. The monitoring instrumentation does not affect the operation of the RCPs and does not adversely interact with any equipment required for accident mitigation. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6H-99-0001  
Activity No. DCP 9302973 and DCP 9302975

The monitoring equipment has no adverse interactions with any Technical Specification required components. Therefore, The margin of safety, as defined in the basis for any Technical Specification, is not reduced.

**PEPP-E FORM**

Safety Evaluation Summary Form

Tracking No. 6H-99-0002  
Activity No. DCP 9800589 and DCP 9800590

DESCRIPTION:

The proposed design changes add a vibration monitoring system capable of performing on line vibration monitoring of the 1B and 1C reactor coolant pumps (RCPs). The system will provide local indication of RCP shaft vibration levels and will also have data storage to sample and store vibration data. This validation confirms the original evaluation performed for four RCP loops (A, B, C, and D) is applicable for the partial installation of this design change on two RCP loops.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed change does not affect control, instrumentation, or protection schemes and does not affect offsite power. The power requirement of the new equipment has been reviewed and determined to be within the capacity of the associated electrical buses. Fault coordination is maintained and the equipment is seismically mounted. The monitoring instrumentation does not affect the operation of the RCPs and does not adversely interact with any equipment required for accident mitigation. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed change does not affect control, instrumentation, or protection schemes and does not affect offsite power. The new equipment requirements for power have been reviewed and were determined to be within the capacity of the associated electrical buses. The equipment is seismically mounted and proper fault coordination is maintained. The monitoring instrumentation does not affect the operation of the RCPs and does not adversely interact with any equipment required for accident mitigation. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6H-99-0002  
Activity No. DCP 9800589 and DCP 9800590

The monitoring equipment has no adverse interactions with any Technical Specification required components. Therefore, The margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

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Tracking No. 6H-99-0006  
Activity No. DCP 9500378

DESCRIPTION:

The activity replaces the 1/3 hp pump motors for 1PR15P and 2PR15P with 1/2 hp motors as evaluated in Technical Evaluation 95-0096 and DCP 9500378. 1PR15P and 2PR15P were added to the Technical Evaluation and the DCP was revised to update the Affected Equipment List.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

This activity of replacing the motor for the pump does not affect the function (the capability of monitoring the radioactive particulate) of the process radiation (PR) monitors. It does not increase the probability of a radioactive release and will not increase the off-site dose. The function of the process radiation monitors is not impacted by this change.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

This activity will not create any new failure mode or adversely impact the PR system. The design document (electrical drawing 6E-0-4030PR02) shows both motors (1/3 hp and 1/2 hp) to be acceptable for the radiation monitors.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

These PR monitors are not addressed in the Technical Specifications. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

## Safety Evaluation Summary Form

Tracking No. 6H-99-0127Activity No. DCP 9800624 and DCP 9800625DESCRIPTION:

The purpose of this design change was to replace the existing diesel generator exhaust stack rupture disks. The new rupture disks will have a burst pressure of 2.25 psig (minimum)/3.25 psig (maximum) at 40°F. The currently installed rupture disks (2.5 psig burst pressure at 650°F) have too high of a burst pressure based on their temperature dependence and the measured disk temperature following engine operation. The new burst pressure is sufficiently high that it will not spuriously burst during normal diesel operation and low enough that it will burst before engine performance is adversely affected by a blocked exhaust stack.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The diesel generator exhaust stack rupture disks cannot initiate any accidents listed in Chapter 15 of the UFSAR, tornadoes or loss of offsite power. The diesel generators provide emergency power to equipment required to mitigate the consequences of an accident. Installation of the new rupture disks will improve the reliability of the diesel generators to provide this function. The setpoint of the new rupture disks will ensure that diesel generator performance is not adversely affected should the exhaust stack become crimped.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The function of the diesel generator exhaust stack rupture disks is to provide an exhaust path for diesel generator exhaust should the normal exhaust path become blocked due to tornado missile or other event. The new burst pressure will allow this function to be performed. No new failure modes are created by this change. There are no new or changed interactions with other systems.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

Technical Specifications 3.8.1 and 3.8.2 provide requirements for the operability of the diesel generators. The new rupture disks will ensure that the diesels are capable of performing their design function should the exhaust stack become crimped.

**PEPP-E FORM**

## Safety Evaluation Summary Form

Tracking No. 6H-99-0226

Activity No. DCP 9900170DESCRIPTION:

The proposed activity temporarily installs two 8" pipe plugs in essential service water (SX) Train B makeup lines 0SX86BB-8" and 0SX10DB-8" at the SX cooling tower. This work activity (welding of valves and pipe) requires a leak free environment. Valves 0SX158B and 0SX157B may not provide total isolation.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The ability of the SX system to mitigate the consequences of any accident is not changed by performing work on a standby component. The SX Train B makeup lines will be out of service and the applicable Technical Specification action will be entered while the pipe plugs are installed. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

Lines 0SX86BB-8" and 0SX10DB-8" will be out of service along with valves 0SX158B and 0SX157B which will be out of service closed. The pipe plugs will prevent back leakage while work is performed on flow element OFE-SX281. The increase in weight of the pipe plugs on the piping system is considered negligible. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The applicable Technical Specification Limiting Condition for Operation Action Requirement for the Train B SX makeup system will be entered during the time the pipe plugs are installed. Therefore, therefore margin of safety, as defined in the basis for any Technical Specification, is not reduced.

**PEPP-E FORM**



## Safety Evaluation Summary Form

Tracking No. 6H-99-0244Activity No. DCP 9900175DESCRIPTION:

The proposed activity temporarily installs two 8" pipe plugs in essential service water (SX) Train A makeup lines 0SX86BA-8" and 0SX10DA-8" at the SX cooling tower. This work activity (welding of valves and pipe) requires a leak free environment. Valves 0SX158A and 0SX157A may not provide total isolation.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The ability of the SX system to mitigate the consequences of any accident is not changed by performing work on a standby component. The SX Train A makeup lines will be out of service and the applicable Technical Specification action will be entered while the pipe plugs are installed. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

Lines 0SX86BA-8" and 0SX10DA-8" will be out of service along with valves 0SX158A and 0SX157A which will be out of service closed. The pipe plugs will prevent back leakage while work is performed on flow element OFE-SX280. The increase in weight of the pipe plugs on the piping system is considered negligible. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The applicable Technical Specification Limiting Condition for Operation Action Requirement for the Train A SX makeup system will be entered during the time the pipe plugs are installed. Therefore, therefore margin of safety, as defined in the basis for any Technical Specification, is not reduced.

**PEPP-E FORM**

Safety Evaluation Summary Form

Tracking No. 6G-00-0022

Activity No.: DCP 9900291 (Unit 1) and DCP 9900292 (Unit 2)

DESCRIPTION:

These design changes drill a vent hole in the upstream wedge disc of motor operated valves 1CV8804A and 2CV8804A, the isolation valves between the "A" residual heat removal (RH) system heat exchangers and the chemical and volume control (CV) system charging pumps. The small hole in the upstream disc provides a vent path from the valve bonnet area to the RH system preventing potential pressure locking and binding of the valve. As a result of a design review conducted per the requirements of NRC Generic Letter 95-07, the valves were determined to be susceptible to pressure and thermally induced pressure locking. Pressure locking may occur when the RH system is operated in Mode 4 while shutdown cooling is operating with elevated RH system discharge pressure and temperatures. These valves could potentially remain pressure locked following entry into Mode 3 when the valves are required to be operable. The thermally induced pressure locking scenario postulates that hot water from the RH pump discharge piping migrates to the closed valve causing the water trapped in the valve bonnet to heat up. Heating of the water in the bonnet causes valve internal pressure to increase, creating a significant force between the seat and disc faces, potentially preventing the valves from opening. Pressure induced pressure locking postulates that the discharge pressure from the RH pump is trapped in the valve bonnet after the RH pump is secured and the RH system is isolated from the reactor coolant system (RCS) in preparations for Mode 3. In addition, this design change makes a "For Record" drawing change to Unit 1 drawing M-64 Sheet 4B to correctly show the location of a pipe class IB/IID break and piping subsystem 1AB624 boundary on line 1ABG1A, instead of on line 1CV99A.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

Drilling a hole in the upstream 1CV8804A and 2CV8804A valve discs will not increase the probability of a loss of coolant accident (LOCA) because the valves do not form part of the RCS pressure boundary. Valve operation or failure will not cause a LOCA. The consequences of a LOCA are not increased because the valves will still be able to be opened for emergency core cooling system operation in hot and cold leg recirculation modes.

Drilling the disc holes will help to ensure the valves will open and operate as required without pressure locking or binding. No boundary to radioactive release is adversely affected by this change. Therefore, the ability of the valves to mitigate the consequences of an accident is not adversely impacted. In addition, the design change will not adversely impact the operation or performance of the downstream CV pumps or the upstream RH pumps.

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Safety Evaluation Summary Form

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Tracking No. 6G-00-0022  
Activity No.: DCP 9900291 (Unit 1) and DCP 9900292 (Unit 2)

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

This 1CV8804A and 2CV8804A valve design change will not create the possibility of an accident or transient of a different type than previously evaluated because the function of the valves is not changed. In addition, drilling upstream disc holes will not create a new accident or transient scenario. The design change will not create the possibility of a different type of valve malfunction than any previously evaluated. The design change eliminates the potential for valve pressure locking or thermal binding. The function of the valve is not being changed and the ability of the valve to perform its intended function is not adversely affected. The valve disc change will not create the possibility of a different type of CV or RH system equipment malfunction.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

There are no Technical Specifications affected by this design change. Therefore, the margin of safety is not reduced.

Safety Evaluation Summary Form

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Tracking No. 6G-00-0031  
Activity No. DCP 9900237

DESCRIPTION:

This modification installs a permanent linestop fitting and a temporary linestop on heater drain (HD) line 2HD14AC-18" to provide drain cooler isolation. This HD line supplies water from flash tank 2C (2HD02TC) to the shell-side of low pressure drain cooler 21C (2CB01AC). Once repairs are completed to the drain cooler, the linestop fitting will be removed. The final plant configuration will include a linestop nozzle, completion plug, and a blind flange. The linestop is required for isolation of the drain cooler to support maintenance activities. A pipe support drawing is revised to reflect the as-built installation.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The probability of an accident is not expected to increase because the installation is qualified for the design pressures and is not expected to cause a loss of condenser vacuum. During the linestop installation, the condenser can be isolated via manual valves. The linestop equipment is designed to provide positive isolation of the drain cooler and to function as a boundary to prevent a loss of main condenser vacuum. The consequences of a malfunction of equipment important to safety are not affected by this change because systems required for safe shutdown following a turbine trip or loss of condenser vacuum are not affected and the consequences of the accidents remain the same.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

No different type accidents or transients can be created by this change. Failure of the linestop equipment could cause a plant trip due to loss of condenser vacuum. This would be similar to any piping failure or other type failures that could cause a loss of condenser vacuum. This malfunction is similar to a pipe break or leak in the same line which would have a similar affect.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

No Technical Specifications are affected by the change or temporary condition.

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6G-00-0057  
Activity No. DCP 9900372 (Unit 1) and DCP 9900373 (Unit 2)

DESCRIPTION:

The design changes will revise the existing main turbine electronic overspeed protection trip logic to eliminate single failure vulnerability in the protection scheme. The design changes will:

1. Install a new electronic overspeed system that will install additional sensors and provide a conventional 2 of 3 logic scheme. The system will have internal monitoring and diagnostic capabilities that will verify system performance and system trouble will be annunciated in the control room. The system will also be provided with redundant power supplies.
2. The system will have four installed speed probes, three of which will be used at any time. The fourth probe will be wired and checked for functionality in case of a failure of one of the other three probes. The intent of the design is to use the fourth probe to replace the failed probe when necessary during turbine operation.

The design changes will not change the protection scheme for the main turbine and the existing trip functions are being maintained. The effect of the design changes is to improve the reliability of the above trip functions by eliminating single failures which could either prevent a trip when required or result in an inadvertent trip.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The change in the turbine electrical overspeed system to have 2 of 3 speed probes (channels) vote reduces the probability of an inadvertent turbine trip from a single failure of a speed probe or power supply. The changes to the protection logic do not increase the probability of a turbine failure from occurring. None of the affected speed probes or electronics provide control functions which could affect turbine speed control or generator control functions. Therefore, the probability of an occurrence or the consequences of an accident or malfunction important to safety is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The changes in the overspeed system logic do not affect the protection function originally provided. The protection functions are used in response to abnormal conditions and have no affect on normal turbine operation. The changes do not

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Safety Evaluation Summary Form

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Tracking No. 6G-00-0057

Activity No. DCP 9900372 (Unit 1) and DCP 9900373 (Unit 2)

affect the other turbine control, alarm, and protection functions provided by the overspeed system. The remaining control and protection functions and means of tripping the turbine are not affected. Therefore, there are no changes in turbine operation that could result in new plant transients and no change to the response to turbine failures. The possibility of an accident or malfunction of a different type than any evaluated previously is unchanged.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

No Technical Specifications are affected by this proposed activity. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

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Tracking No. 6G-00-0066 Revision 1  
Activity No. DCP 9800530 (Unit 1) and DCP 9800531 (Unit 2)

DESCRIPTION:

These design changes reconfigured process radiation monitors 1PR27J and 2PR27J. The 1/2PR27J monitors monitor the steam jet air ejector exhaust (off gas) for radioactive noble gases. The following changes were made:

- a) Added a new vacuum pump inlet filter (replaced the original particulate filter).
- b) Reconfigured the sample skid piping so the sample pump and flow control pressure switches are downstream of the existing cooling coil and heater. The heater controller setpoint and heater outlet high temperature trip setpoint were lowered to accommodate having the pump after the heater.
- c) Replaced the existing sample vacuum pump with a pump that has stainless steel internals.
- d) Deleted the chiller unit temperature switch and motor operated valve.
- e) Replaced the float drain valve with a check valve and removed the skid condensate collection drain tank.

The new filter, new sample pump, and skid piping changes provide for better moisture removal and longer component life. The changes had no affect on the function of the radiation detector.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The change to the 1PR27J and 2PR27J monitors did not affect the steam generator tubes or flow through the steam generators. The change had no affect on the initiators of a steam generator tube rupture (SGTR). The function and setpoint of the off-gas radiation detector and the sample probe locations were not changed; therefore, the detector sensitivity was unchanged. Thus, operator identification of a SGTR and determination of which steam generator is ruptured was unchanged. The interlock with the off-gas bypass valves and filters was also unchanged. Therefore, the consequences of a SGTR were unchanged. The changes lowered the probability of sample pump and pressure switch failures due to water and ammonia in the off-gas sample. The net result of the design change was a decrease in the probability of occurrence of a malfunction of the off-gas

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Safety Evaluation Summary Form

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Tracking No. 6G-00-0066 Revision 1  
Activity No. DCP 9800530 (Unit 1) and DCP 9800531 (Unit 2)

radiation monitors. In the event of a failure of the 1PR27J or 2PR27J monitors, the other secondary system radiation monitors (steam generator blowdown and main steam), the computer leak rate program, and/or chemistry grab samples would be used to identify and mitigate a SGTR.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed design change modified the off-gas process radiation monitor. The monitor provides continuous indication of noble gas radioactivity levels in the off-gas exhaust. The changes did not interact with any safety-related systems or plant controls. The proposed changes did not create any new failures modes. Loss of sample flow, pressure boundary in-leakage, and skid component failures due to moisture or ammonia in the off-gas could occur in the previous design or the modified design.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

No Technical Specifications were affected. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.



Safety Evaluation Summary Form

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Tracking No. 6G-00-0072 Revision 1  
Activity No. DCPs 9900521 Revision 1 and DCP 9800531 Revision 0

DESCRIPTION:

The proposed activities added a check valve in the suction line for the OA and OB essential service water (SX) make-up pump diesel engines. The valve was installed downstream of the primary fuel strainer on the tubing to the fuel pump.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The changes to the OA and OB SX makeup pump diesel driver does not increase the probability of an accident because the SX makeup pump is not an initiator of any accident or transient. The capability of the SX makeup system to mitigate accidents or transients was not affected by this change because the modified fuel system will perform the same function as the original fuel system. The new check valve does not adversely affect fuel flow or seismic qualification of the engine and fuel oil tubing. The modified fuel system was functionally tested prior to returning the SX makeup pump to service to ensure adequate performance.

The new check valve could either fail to fully open or fail to close. If the new check valve fails to close, the condition will be no different than the previous condition with no check valve to prevent reverse flow of the oil. If the new check valve fails to open or only opens part way, fuel flow may be adversely affected and prevent the diesel from starting or from reaching full speed. The new check valve is designed for service in diesel fuel suction lines. The check valve has been seismically evaluated and will perform its function during and after a seismic event. Therefore, the probability of the check valve failing to fully open is considered very low. The increase in reliability of diesel starting due to maintaining prime with the new check valve offset the small risk of the check valve failing to fully open.

The consequences of a loss of a makeup pump are unchanged. A malfunction of a SX makeup pump is mitigated via the redundant SX makeup pump and/or the deepwell pumps.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The new check valve operates in the same manner as the existing fuel system check valves. The SX makeup pump is not the initiator of any accidents or transients. The change will not create any new failure modes because the new

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Tracking No. 6G-00-0072 Revision 1  
Activity No. DCPs 9900521 Revision 1 and DCP 9800531 Revision 0

check valve is the same as the existing check valve located in the suction line at the base tank.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The capability of the SX makeup system to mitigate accidents or transients was not affected by this change because the modified fuel system will perform the same function as the original fuel system. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

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Tracking No. 6G-00-0077  
Activity No. DCP 9900048 (Unit 1) and DCP 9900049 (Unit 2)

DESCRIPTION:

The proposed design changes removed the one foot high concrete curbs (steps) located at the grade level (870' elevation) entrance to the main steam isolation valve (MSIV) rooms. The design change installed a one foot high removable steel plate in lieu of the concrete curb.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

Probable maximum precipitation (PMP) (rain) is a natural phenomenon. The change in the design of the MSIV room entrance PMP flood barrier did not affect the probability of occurrence of a PMP. The steel barriers provide the same PMP flood protection as the concrete curbs. Removal of the steel barriers for maintenance activities will be administratively controlled under the Plant Barrier Impairment program. The probability of a malfunction of equipment important to safety located within the MSIV rooms is not increased because administrative controls are in place to assure that an adequate barrier (the removable steel barrier or equivalent compensatory measure) are in place to prevent rainwater from entering the MSIV rooms through the doors at grade level. The design change did not adversely affect any equipment important to safety; therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is unchanged.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The steel barriers provide the same PMP flood protection as the concrete curbs. The MSIV room curbs have no interactions with other systems, structures, or components. No new failure modes were created. Administrative controls will be used to maintain the PMP flood protection of the equipment in the MSIV rooms. Administrative controls are already used for other removable flood barriers within the plant.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

No Technical Specifications or Technical Specification margins were affected by this change.

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Safety Evaluation Summary Form

Tracking No. 6G-00-0095  
Activity No. DCP 9900174

DESCRIPTION:

The proposed activity will replace cabinet 0PA02J, containing the seismic monitoring instrumentation, with a new 0PA02J cabinet containing equipment supplied, qualified, and tested by NLI under Specification 9900174.1000. The seismic hardware and software sub-components are from sub-vendor Refraction Technologies. The new equipment will interface with the existing field equipment associated with the 0PA02J.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The seismic monitoring instrumentation does not interface with any safety-related systems or system, structures, or components (SSCs) important to safety. Any potential interactions between the replacement equipment and other SSCs have been considered in the design process. The replacement system has been tested to demonstrate its acceptability in terms of conducted or radiated emissions (potential effect on adjacent plant equipment), as well as its susceptibility to EMI/RFI. The testing demonstrates that the replacement system would not affect equipment important to safety in the vicinity of 0PA02J. Considering the above, the probability of an occurrence or the consequences of an accident or malfunction of equipment important to safety is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The design change has considered the original design and functional requirements for the existing seismic monitoring instrumentation. Functional interactions with other SSCs will not change. This is the case for all operating modes and conditions. The change will increase system reliability and availability. The function of the seismic monitoring instrumentation is to collect data to determine the impact of a seismic event in order to assess the impact on equipment important to safety. However, the seismic monitoring instrumentation does not affect the operation or availability of equipment important to safety. The seismic monitoring instrumentation is not required for mitigation of any design basis events and does not interface with any safety-related systems or SSCs important to safety. No new failure modes have been created for any SSCs important to safety.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

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Tracking No. 6G-00-0095  
Activity No. DCP 9900174

Operability of the seismic monitoring instrumentation is addressed in Technical Requirements Manual Section 3.3.b which requires the instrumentation to be restored to operable status within 30 days. The seismic monitoring instrumentation is not required for mitigation of any design basis events and does not interface with any safety-related systems or SSCs important to safety. The margin of safety as defined in the basis for any Technical Specification is not reduced.

Safety Evaluation Summary Form

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Tracking No. 6G-00-0110  
Activity No. DCP 9900454 (Unit 1) and DCP 9900455 (Unit 2)

DESCRIPTION:

The proposed design changes install electrical components and programmable logic controller (PLC) software changes to the existing control system for the refueling machines (1FH01G and 2FH01G). The proposed changes are considered enhancement to the original design and were recommended by ComEd Fuel Handling operators, ComEd Engineering, and the vendor (Raytheon). The intent of the proposed changes is to enhance the reliability, operation, and control of the refueling machine.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed changes to the control system will not add any new type of electrical components or alter the existing mechanical or structural configuration of the machine. The proposed changes will enhance the existing control system by installing components and revising the PLC software program with the intention of added redundancy to selected control logic functions in order to provide additional assurance that a PLC or component failure will not result in undesirable machine operation. The consequences of a fuel handling accident or malfunction of the refuel machine do not increase because these changes do not result in either an increase in the source term for radioactive release or an increase of the amount of fuel that could be damaged.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The changes to the refuel machine do not alter the function or designed safety features of the refueling machine and do not create any new failure modes. The intent of this modification is to improve the reliability of the refuel machine by upgrading the controls. Existing safety features have been included/enhanced in the upgraded design. In the event the proposed control system fails, the control system will fail to a neutral or safe condition. The refueling machine is designed to allow manipulation of a fuel assembly to a safe condition in the event of an electrical control failure by manual operation of the bridge, trolley, and hoist using a handwheel on the motor shaft and manual pneumatic valves for the gripper, such that a stranded fuel assembly can be transferred to a safe storage location. The proposed changes will not create the possibility of an accident or malfunction different than those previously evaluated in the UFSAR.

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Tracking No. 6G-00-0110  
Activity No. DCP 9900454 (Unit 1) and DCP 9900455 (Unit 2)

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed change does not affect any Technical Specification. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

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Tracking No. 6G-00-0112  
Activity No. DCP 9900374 (Unit 1) and DCP 9900375 (Unit 2)

DESCRIPTION:

The proposed design changes provide fire protection (FP) water as an alternate cooling water source to the 1A and 2A centrifugal charging (CV) pump oil coolers 1/2CV02SA and the associated gearbox oil coolers 1/2CV03SA. A crosstie between the FP and essential service water (SX) pipes supplying cooling water to the oil coolers is provided. This consists of:

1. A 2" branch at a FP riser located in auxiliary building elevation 364' in the general area near the 1A/2A CV pump rooms. This will include two connection points (one to supply each Train A CV pump), each consisting of an isolation valve, quick disconnect, and a 1 1/2" hose and reel (similar to a fire hose). The hoses will be left connected to the disconnects on the FP line.
2. One tap on the SX line supplying the Train A CV pump lube oil cooler and the gear oil cooler. This will include isolation valves, quick disconnects, and "dust caps". The two disconnects will be normally covered by "dust caps" rated for water pressure up to 250 psig (greater than FP and SX design pressures). The isolation valves will be installed for isolation purposes to direct the flow through the desired flow path.

This connection would be used during a complete loss of SX (beyond design basis) to allow continued operation of the Train A CV pump. The CV pump could then continue providing seal injection to the reactor coolant pump (RCP) seals, thereby preventing a loss of coolant leak from the seals. This will improve the Core Damage Frequency (CDF) for the plant.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed activity does not change any initiating conditions or events associated with any accident or transient. Also, the affected components do not initiate or affect the initial conditions of any accidents or transients. The alternate cooling source would be used during a loss of all SX which is beyond design basis. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.



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Tracking No. 6G-00-0112  
Activity No. DCP 9900374 (Unit 1) and DCP 9900375 (Unit 2)

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The changes implemented under the design changes do not have an adverse impact on the reliability of the CV, SX, or FP systems and do not adversely impact the reliability of any interfacing system. On the contrary, the design changes will enable the continued operation of the 1A/2A CV pump to provide the required injection flow to the RCP seals if all SX becomes unavailable. A crosstie between the FP and SX systems does not challenge the FP system because the required amount of water to both oil coolers of each pump is only 40 gpm. This is far less than the capability of the FP line. Additionally, the stipulation of having a fire in conjunction with the loss of all SX is not required because the loss of all SX scenario is not a design basis accident or transient. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

CV pump operability requires the pumps be cooled by SX. The added components have no affect on this requirement when not in use. The alternate cooling supply would be used during a loss of all SX. The CV pump is not operable during a loss of all SX (a condition beyond the design basis). Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

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Tracking No. 6G-00-0117  
Activity No. DCP 9900378 (Unit 1) and DCP 9900379 (Unit 2)

DESCRIPTION:

The proposed design changes replace the 1FW079A-D and 2FW079A-D check valves with an improved model. The change will have no effect on system operation since the valve function will be unchanged.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The probability of a loss of feedwater flow is not increased since the chance of the new check valves failing in the closed position is no greater than for the existing valves. The new valves will continue to be included in the station check valve program and will receive periodic diagnostic testing to ensure proper operation is maintained. The probability of a feedwater line break is not increased because the piping system was evaluated for the valve replacement and all stress levels are acceptable. New welds added by these modifications have been identified and will be added to the ISI program. The ANSI pressure class of new equipment is consistent with the existing design. The new valve has flanged connections instead of welded connections. All flange stress levels are acceptable.

The feedwater system in general and the FW079 check valves in particular will respond to accidents in the same manner as before the change. Systems required to safely shutdown the reactor and mitigate accident consequences will continue to function properly. The new valves will not cause new or increased pressure transients that could damage the feedwater system piping or other components. The replacement check valves will not impact the function of other systems or components. The FW regulating valves will compensate for the decreased pressure drop across the new valves by operating in a slightly more closed throttling position.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The function of the replacement check valves is unchanged from the current valves. No new pressure transients or more severe pressure transients are expected because of the new valve design. Failure modes are unchanged. The spring assist closure of nozzle style check valves allows the new valves to begin to close or finish closing before the flow velocity can significantly increase in the reverse direction. This tends to reduce the possibility of the valve slamming shut.

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Tracking No. 6G-00-0117  
Activity No. DCP 9900378 (Unit 1) and DCP 9900379 (Unit 2)

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

These modifications have no impact on the bases of any Technical Specification. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

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Tracking No. 6G-00-0118 Revision 1  
Activity No. DCP 9900384 (Unit 1) and DCP 9900385 (Unit 2)

DESCRIPTION:

The proposed activity changes the existing turbine anti-motoring trip logic to eliminate single failure vulnerability in the protection scheme. The design changes will install two additional pressure switches to each of the following:

1. anti-motoring pressure switch
2. low auto stop oil (ASO) trip signals for the main turbine protection scheme
3. turbine latch signal to the turbine reheat controller
4. ASO pressure switch used to provide a turbine latch signal to turbine reheat controller.

The new pressure switches will be combined with the existing pressure switch to provide a 2 of 3 trip scheme instead of a 1 out of 1 trip.

In addition, the turbine latch signal to the turbine digital electro-hydraulic control will be revised. The logic for this trip signal will be changed to 1 of 2 (to maintain the turbine latch), instead of a 1 of 1 logic scheme.

This will not change the protection logic for the main turbine and the existing trip functions are being maintained. The effect of the design changes is to improve the reliability of the above trip functions by eliminating single failures which could either prevent a trip when required or result in an inadvertent trip.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The change in the pressure switch logic to 2 of 3 reduces the probability of inadvertent turbine trips from a single failure of a pressure switch. The change in turbine latch signal logic to 1 out of 2 (to maintain the turbine latch), does not affect the input to the controllers. The latch signals do not provide a protective function and are used to initiate controller response following a turbine trip. The latch signals are not a controlling variable used in response to normal transients. The change in the latch signal input logic does not change the controller response to a loss of latch signal. The changes to the protection logic do not increase the probability of a turbine failure from occurring. None of the affected pressure switches provide control functions which could affect turbine speed control or

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Tracking No. 6G-00-0118 Revision 1  
Activity No. DCP 9900384 (Unit 1) and DCP 9900385 (Unit 2)

generator control functions. Therefore, the probability of an occurrence or the consequences of an accident or malfunction important to safety is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The change in the ASO and anti-motoring pressure switch logic does not affect the protection function originally provided. The protection functions are used in response to abnormal conditions and have no affect on normal turbine operation. The changes do not affect the other turbine control, alarm and protection functions provided by the pressure switches. The remaining control and protection functions and means of tripping the turbine are not affected. Therefore, there are no changes in turbine operation that could result in new plant transients and no change to the response to turbine failures. The possibility of an accident or malfunction of a different type than any evaluated previously is unchanged.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

These modifications have no impact on the bases of any Technical Specification. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

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Tracking No. 6G-00-0121 Revision 1  
Activity No. DCP 9900510

DESCRIPTION:

This modification replaces the existing PSA mechanical snubber Figure 306 size 1/2" for support 1CC36030S with LISEGA hydraulic snubber 301856 RF2. The LISEGA hydraulic snubber is better suited for an application where a cyclic failure of mechanical snubber is prevalent. The effect of this modification is to decrease the rate of snubber failures for support 1CC36030S. The PSA mechanical snubber Figure 306 for pipe support 1CC36030S has repeatedly failed its functional testing due to the cyclic piping vibration. For every snubber failing its functional testing, the snubber testing population needs to be expanded by an additional 10% of the snubber population. A snubber failure is also an operability concern if the capability of a snubber to perform its intended function without being degraded cannot be demonstrated. The LISEGA hydraulic snubber is better suited in applications where cyclic vibration is a major concern. The LISEGA hydraulic snubber has fewer mechanical parts that could be worn down by the cyclic vibration.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The snubber components are passive during normal plant operation to prevent thermal stress failure and do not interact with any system, structure, or component (SSC) other than supporting structures. The snubbers function during an earthquake to prevent pipe failure from the dynamic effects associated with the earthquake or any of the accidents or transients identified in the safety analysis. The snubbers could potentially cause an accident if they lock up during normal plant operation and cause a thermal stress failure. The probability of this kind of failure is not increased because the LISEGA hydraulic snubber works as well as the PSA mechanical snubber. The industry experience to date has shown that the LISEGA hydraulic snubbers perform well in service and are considered reliable. The PSA mechanical snubbers, under certain applications, have been prone to failing their functional lock up test, and hence the reason for this change out. Therefore, the proposed activity does not increase the probability of occurrence of any accident or transient. The proposed activity interchanges the standard support component from one type to another with the same function. The snubber will continue to perform its intended function after the replacement. The radiation release resulting from any of the accidents or transients is not affected. No new release path is created by the proposed activity.

The failure modes for the LISEGA snubber are the same as the PSA mechanical snubber. No new interaction is created and no new failure mode is introduced to

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Activity No. DCP 9900510

other SSCs. The snubber component experiences no system interaction other than restraining the attached piping during dynamic events. Therefore, the proposed activity does not adversely affect the equipment failures or malfunctions. If anything, the replacement of existing PSA mechanical snubbers with LISEGA hydraulic snubbers improves the reliability of the pipe support and ensures that the attached piping and equipment are protected from being damaged during dynamic events. The proposed activity improves the reliability of the existing snubber support by changing out the PSA mechanical snubber with a LISEGA hydraulic snubber that exhibits better resistance to vibration. The snubber replacement for support 1CC36030S does not increase the probability of an occurrence of a malfunction of equipment important to safety.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed change has no affect on the design, operation, and operating parameters of the affected piping systems. The reliability of snubber support 1CC36030S will be improved by the replacement. The snubber could lock up if the hydraulic fluid becomes degraded and more viscous from the long term exposure to the high temperature and radiation environment. This is a new failure mode specific to hydraulic snubbers but the effect is the same and therefore this change is acceptable. Therefore, the proposed activity does not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

This design change has no impact on the bases of any Technical Specification. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

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Tracking No. 6G-00-0130 Revision 1  
Activity No. DCP 9800195 (Unit 1) and DCP 9800196 (Unit 2)

DESCRIPTION:

These proposed design changes will replace the existing source range monitor (SRM) and intermediate range monitor (IRM) drawers in the main control room (MCR) with SRM/IRM drawers manufactured by Gamma-Metrics. The existing Westinghouse source range and intermediate range detectors will be abandoned in place. The existing Gamma-Metrics fission chamber detectors used for the post accident neutron monitoring system will be used with the new Gamma-Metrics system. This upgrade will install new improved amplifier assemblies, two source range and two intermediate range signal processing assemblies, two shutdown margin monitors, and optical isolators. The new IRM system is capable of calibration and indication in units of "% Rated Thermal Power (RTP)", whereas the existing monitors indicate in units of current measured in "amperes". The Technical Specification Bases and the Technical Requirements Manual (TRM) will be changed to provide equivalent scaling to restate setpoints from units of detector current measured in "amperes" to units of "% RTP". The proposed change will install two new twisted shielded #16 cables (5-1PR each) between the optical isolator located in the auxiliary building and the Gamma-Metrics drawers in the MCR. The existing cables between the detector and amplifier assemblies for post accident monitoring will be used with the Gamma-Metrics SRM/IRM system.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The installation of the Gamma-Metrics source range and intermediate range monitors will not change the function, operation, or capability of the source range or intermediate range monitors to perform their required functions as described in the UFSAR. The detectors which will provide the input to the new Gamma-Metrics signal processing assemblies in the MCR are already used for the post accident neutron monitoring system and have not experienced the same problems that the existing Westinghouse source range detectors are experiencing. The Gamma-Metrics system is qualified environmentally and seismically in accordance with IEEE-323 and IEEE-344, respectively. Additionally, there is no effect on any of the accident analyses in UFSAR Chapter 15 because the intermediate and source range monitors and associated trips and permissives are not credited for primary protection in the accident analyses. The function, operation, and capability of the boron dilution protection system (BDPS) is not affected by this change. The Gamma-Metrics system will provide the flux doubling alarm currently performed by the Westinghouse 2  $\phi$  meter. The effect of a failure of the flux doubling function will not change. The probability of occurrence of the accidents described in the safety analysis report (SAR) is not increased. Furthermore, the BDPS is being

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Activity No. DCP 9800195 (Unit 1) and DCP 9800196 (Unit 2)

replaced by volume control tank level alarms coupled with revised procedures to allow operators to take manual actions to implement the requirements for mitigating an unanticipated boron dilution without taking credit for the automatic functions of the BDPS. The Gamma-Metrics system will improve the overall system reliability and performance. Therefore, the proposed change does not create an increase in the probability of occurrence of any accidents previously analyzed.

One of the basic features of the proposed activity is a more reliable system. For this reason alone the probability of a malfunction will actually be reduced. Additionally, the Gamma-Metrics system provides equivalent reliability, function, and failure modes compared to the Westinghouse system which if these reasons were considered alone, the probability of a malfunction would remain unchanged. This change does not create new failures that would increase the probability of failure of any other components important to safety used in mitigating any accidents analyzed in the SAR.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed activity does not change the function, operation or capability of the source range or intermediate range systems. The function, operation or capability of the BDPS is also not affected by this change. Installation of the new Gamma-Metrics system does not affect the analyses performed for the inadvertent dilution accident, since the flux doubling function will be maintained and performed by the Gamma-Metrics system. The current SRM/IRM systems have been evaluated as not having the possibility to create accident or transient conditions. Since the design basis functions of the SRM and IRM are preserved and will not change, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

The result of the failure of the new Gamma-Metrics SRM/IRM systems is the same as before and will not effect any other equipment important to safety used in mitigating the consequences of an accident analyzed in the SAR. The interface with other equipment important to safety is not changed. The functions provided by the SRM and IRM systems are not credited for primary protection during accidents and they are not assumed in the initiation of any accident or transient. Therefore, the proposed activity will not create the possibility of a different type of malfunction of equipment important to safety than previously evaluated.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

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Activity No. DCP 9800195 (Unit 1) and DCP 9800196 (Unit 2)

The proposed design changes do not affect the margin of safety as defined in the basis since the existing setpoints and allowable values remain the same except that they are also stated in equivalent of % RTP. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

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Tracking No. 6G-00-0138  
Activity No. DCP 9900604 and FDRP 19-046

DESCRIPTION:

This DCP and FDRP will abandon in place the outdoor diesel oil storage tank (DOST) fire protection (FP) foam system for the outdoor 125,000 and 50,000 DOSTs (Fire Zone 18.20-0). This DCP will disconnect the power feed to outdoor DOST FP foam system control panel 0FP06J. This DCP will also disconnect the annunciator alarm input cable from panel 0FP06J to panel 1PA40J. The outdoor DOST FP foam system supply piping will also be isolated mechanically from the FP ring header. The outdoor DOST FP foam system is being abandoned in place to eliminate the possibility of a spurious FP foam system actuation from contaminating the diesel oil in the outdoor DOSTs.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed activity only abandons in place the outdoor DOST FP foam system. No new ignition sources are being added to Fire Zone 18.20-0 by this proposed activity. No changes are being made to the construction of the outdoor DOSTs which are non-safety related. Also, no changes are being made to the berm which surrounds the outdoor DOSTs or to the manual suppression capacity via nearby fire hydrants. If a fire were to occur in Fire Zone 18.20-0, the berm around the outdoor DOSTs would contain the contents of the tanks, thereby preventing an uncontrolled spill of burning oil from affecting equipment important to safety. Also, the outdoor DOSTs are located at least 50 feet from safety related or other important systems, structures, and components (SSCs) in accordance with FPR Section 3.7.j; therefore, a fire in the outdoor DOSTs would not affect other systems, structures, or components (SSCs). In addition, fire hydrants are provided in the vicinity of the outdoor DOSTs for manual fire suppression. Therefore, the abandonment of the automatic outdoor DOST FP foam system will not increase the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The normal operation of the outdoor DOSTs has not been altered. No new ignition sources have been added to this fire zone. The proposed activity only abandons in place the outdoor DOST FP foam system. Adequate fire protection is provided for the outdoor DOSTs by physical separation from other SSCs, the berm around both outdoor DOSTs, and nearby fire hydrants. No new failure modes have been

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created by this change. Therefore, the proposed activity does not create the possibility for an accident or malfunction of a different type than any previously evaluated in the safety analysis report.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The outdoor DOST FP foam system is not discussed in any Technical Specifications. Therefore, this proposed activity does not reduce the margin of safety as described in the basis for any Technical Specification.

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Tracking No. 6G-00-0159  
Activity No. DCP 9900827 (Unit 1) and DCP 9900828 (Unit 2)

DESCRIPTION:

The essential service water (SX) system gate valves 1/2SX173 and 1/2SX178 valve actuator instrument air (IA) solenoid valves will be replaced with manual three-way valves. The safety-related SX valves are located on the SX supply and return lines to the diesel driven auxiliary feedwater (AF) pump heat exchangers. The three-way IA valves will be normally positioned to isolate and vent IA to the SX valve actuators, keeping valves 1/2SX173 and 1/2SX178 normally open. The automatic control signals for the SX valves will be deleted. The valve position limit switches for the 1/2SX173 valves will also be deleted.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

Failure of the 1/2SX173 and 1/2SX178 valves cannot cause any of the Chapter 15 accidents that require auxiliary feedwater. The probability for flooding is not increased because SX valve pressure boundaries are not adversely impacted by this change. The consequences of the Chapter 15 accidents are not increased because the 1/2SX173 and 1/2SX178 valves will be maintained open, providing a flow path for cooling water to diesel driven AF pump heat exchangers and room coolers. Therefore, the AF pumps will be available to mitigate the consequences of the Chapter 15 accidents. The diesel driven AF pumps are not required to mitigate the consequences of auxiliary building flooding. Therefore, the consequences of flooding are not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The design change does not adversely affect the function of the SX, AF, or IA systems. No new accident initiators will be created. Failure of the affected IA system lines will not create a new type of accident or transient. Replacing the solenoid valves with manual three-way valves on the SX valve actuators will not create the possibility of an accident or transient of a different type than any previously evaluated. Replacing solenoid operated IA valves with manual three-way valves will not introduce a new type of valve failure mode. Removing the automatic opening function of these valves and revising them to manual valves that are normally open does not create the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report since the SX flow path for cooling water to the diesel driven AF pump heat exchangers and room coolers will be aligned without relying on an automatic

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Tracking No. 6G-00-0159  
Activity No. DCP 9900827 (Unit 1) and DCP 9900828 (Unit 2)

opening function (i.e., the valves will be in their accident mitigating position (normally open)).

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The margin of safety for Technical Specification 3.7.8, as it applies to active valves 1/2SX173 and 1/2SX178, is not reduced because the valves will be maintained normally open. The valves will no longer be required to actively stroke open. Therefore, there will be no need to measure valve stroke times to demonstrate the valves will actuate to the correct position on a actual or simulated actuation signal. 1/2SX173 and 1/2SX178 valve positions will be administratively controlled in the same manner as other manual SX valves.

Safety Evaluation Summary Form

Tracking No. 6H-00-0026  
Activity No. DCP 9800527 (Unit 1) and DCP 9800528 (Unit 2)

DESCRIPTION:

The proposed design changes add 3/4" x 1" thermal relief valves on the inside containment chilled water return headers 1/2WO53AA-10" and 1/2WO53AB-10" at a location between the inside containment isolation valves 1/2WO056A/B and the outside containment isolation valves 1/2WO020A/B for penetrations 1/2PC-5 and 1/2PC-8. The purpose of the relief valve is to provide a thermal overpressure relief for the isolated water-filled piping sections in containment under a loss of coolant accident (LOCA) or main steam line break condition as discussed in NRC Generic Letter 96-06.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The addition of the relief valve to the penetration does not alter the function, but will increase the reliability, of the containment isolation valves/piping during accident conditions. The penetration, containment isolation valves, and associated piping will still provide containment integrity/isolation in the event of an accident. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The reliability of existing equipment is not degraded. The chilled water system is not required for accident mitigation. The potential increase in containment flooding post-LOCA due to a stuck open relief valve is not significant since the amount of fluid added will be small. The relief valves are subject to leak rate testing to verify their seat tightness for containment isolation. The addition of the relief valve does not alter the function, but will increase the reliability, of the containment isolation valves/piping during accident conditions. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The change does not affect any Technical Specification parameters. Containment integrity continues to be maintained and plant operation will remain within the

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requirements of Technical Specifications. A change to the Technical Specification Bases will be made to add the new relief valves to Table B 3.6.3-1 "Primary Containment Isolation Valves".



Safety Evaluation Summary Form

Tracking No. 6H-00-0034  
Activity No. DCP 9900386 (Unit 1) and DCP 9900387 (Unit 2)

DESCRIPTION:

The proposed design changes revise the trip logic for the loss of DC power trip associated with the turbine digital electro-hydraulic computer (DEHC) to require a loss of power to both card frames. The change to the loss of DC power trip logic will prevent a single card failure from initiating a turbine trip. In addition, the logic for the power supply monitor light on the Operators A panel will be revised to provide indication of loss power to the cards frames.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The loss of power logic provides a turbine trip in response to loss of internal power in the DEHC. The change to the circuit does not affect the reliability of the DEHC power supplies, the DEHC, or the turbine. The change eliminates single failure trip concerns associated with output relay circuit cards used in the trip logic. This change reduces the probability of an inadvertent turbine trip from failures in the loss of power circuitry. The change does not affect the response of the DEHC to an actual loss of internal power. The loss of power is not used for the other turbine protection functions and will not affect their operation.

The loss of power trip is not used to control or mitigate the transient following a turbine trip from a DEHC loss of power or for the other turbine protection trips. The change to the logic will not prevent the reactor trip signal initiated following any turbine trip. Therefore, the response of the plant following any turbine trip as described in the UFSAR is not affected. The loss of power trip logic is not used in response to other turbine or DEHC failures and has no affect on the response of the plant or action required for such failures.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The loss of power circuitry is not used for turbine control and does not affect operation of the turbine. The change to the logic does not alter the response of the DEHC to a loss of power and a turbine and reactor trip will occur as required. The loss of power logic is not used for other turbine protection, including overspeed, and will not prevent actuation of required protection functions. The logic is not used in any reactor protection system logic to initiate the reactor trip. The reactor trip following a turbine trip is initiated by depressurization of the

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Tracking No. 6H-00-0034  
Activity No. DCP 9900386 (Unit 1) and DCP 9900387 (Unit 2)

electro-hydraulic system header or closure of the throttle valves that occurs in response to any turbine trip signal and is not affected by the logic change.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The loss of DEHC power trip is not addressed in the Technical Specifications. The changes to the loss of power logic will not affect the function, operation, or margin of safety for any systems, structures, or components required by the Technical Specifications. The modification does not involve changes to any parameters upon which the Technical Specifications are based.

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Tracking No. 6H-00-0036 Revision 2  
Activity No. DCP 9900266 (Unit 1) and DCP 9900267 (Unit 2)

DESCRIPTION:

The proposed activity replaces the automatic boron dilution protection system (BDPS) with alarms, indicators, procedures, and controls. When alerted by one or more of these alarms during plant Modes 3, 4, or 5, operations personnel will be instructed to take administrative action to procedurally align the reactor vessel to the refueling water storage tank (RWST) to borate and prevent the core from going critical.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed change involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and there is no significant increase in individual or cumulative occupational radiation exposure.

The maximum initial to critical boron concentration ratio was calculated so that as long as this ratio of the actual core design exceeds the limit, an operator would have enough time to prevent criticality according to the alternate Standard Review Plan (SRP) acceptance criteria (U. S. Nuclear Regulatory Commission Standard Review Plan, NUREG-0800, Section 15.4.6, "Chemical and Volume Control System Malfunction that Results in a Decrease in Boron Concentration in the Reactor Coolant (PWR)," Revision 1, July 1981). In this way, the BDPS would not be credited in mitigating an inadvertent boron dilution. The SRP states that an operator has fifteen minutes to act on the alarm that announces the dilution event. In this case, a volume control tank (VCT) high level alarm is assumed to announce the dilution event.

Westinghouse NSAC-183 Final Report, "Risk of PWR Inadvertent Criticality During Shutdown and Refueling," dated December 1992, concluded that gradual boron dilution events are not considered to be significant contributors to core damage. Similarly, the report found rapid boron dilution to be a low frequency event, estimated to range from  $1\text{E-}4$  to  $1\text{E-}7$  per reactor-year.

The proposed modification will not impact equipment important to safety expected to function post-accident. The addition of new 70% level alarm cards and the CV112A alarm when not in the VCT position are non-safety related functions associated with alarming only at the main control board.

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Tracking No. 6H-00-0036 Revision 2  
Activity No. DCP 9900266 (Unit 1) and DCP 9900267 (Unit 2)

The alternate method to detect and mitigate this event using manual operator actions will ensure that the dilution sources are isolated, and therefore, accomplish the intent of the original BDPS design. Because the BDPS as installed could not be shown to always be successful and cannot be relied on, the proposed change represents an improved response to the dilution transient.

By preventing a return to critical during an inadvertent boron dilution event, the revised analysis has confirmed that the new detection and mitigation methodology meets the same SRP acceptance criteria requirements as applicable to the existing BDPS. Therefore, it can be concluded that the proposed change does not increase in the probability of occurrence of a postulated inadvertent boron dilution event relative to the unreliable condition of the BDPS.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed activity removes the automatic features associated with mitigating the dilution transient and replaces them with operator action, thereby maintaining the intended function. The design change only effects the logic and equipment associated with mitigating an already established transient and does not influence logic or equipment that could possibly create an accident or malfunction of a different type than that previously evaluated in the safety analysis.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

ComEd has revised the analysis of the chemical and volume control system (CVCS) malfunction mitigated by operator action in Modes 3, 4, and 5 using the revised analytical methodology discussed with the NRC as documented in the letter from L. R. Wharton (U. S. NRC) to Licensee (Commonwealth Edison, Texas Utilities Electric, Union Electric, and Wolf Creek Nuclear Operating Corporation), "Utility Subgroup Technical Approach to Modify or Delete the Boron Dilution Mitigation System," dated February 8, 1993.

With the revised method, it is recognized that the CVCS and the reactor coolant system (RCS) form a closed system, and mass imbalances which may affect the RCS may be detected in the CVCS. The revised analysis demonstrates that positive indication of the occurrence of an inadvertent boron dilution event in Modes 3, 4, and 5 is provided to the operator with the new VCT high level alarms, and that with the alarm setpoint at 70%, sufficient time is available for the operator to diagnose this event and perform all requisite activities necessary to terminate the event prior to the loss of all shutdown margin.

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Tracking No. 6H-00-0036 Revision 2  
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The proposed changes are consistent with the methodology presented to the NRC on December 15, 1992, by Commonwealth Edison, Texas Utilities Electric, Union Electric, Wolf Creek Nuclear Operating Corporation, and Westinghouse as documented in the aforementioned letter. Subsequent to this, the NRC's review and approval of the operation of Wolf Creek without automatic BDPS actuation was found to be acceptable based on Wolf Creek Nuclear Operating Corporation's evaluation (Letter from R. C. Hagan of Wolf Creek Nuclear Operating Corporation, to U. S. NRC, submittal of Wolf Creek License Amendment Request, dated November 22, 1995), as documented in the NRC Safety Evaluation (Letter from J. C. Stone of U. S. NRC, to N. S. Carns of Wolf Creek Nuclear Operating Corporation, transmitting Wolf Creek TS Amendment Number 96, dated March 1, 1996.).

Based on the answers and discussion presented in this evaluation, it has been determined that the proposed changes does not involve a significant increase in the probability or consequences of an accident, or other adverse condition over previous evaluations or create a possibility of a new or different kind of accident or condition over the previous evaluations, or involve a reduction in the margin of safety, as defined in the basis for any Technical Specification.

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Tracking No. 6H-00-0102  
Activity No. DCP 9900550 and DCP 9900551

DESCRIPTION:

This change installs permanent linestop fittings and temporary linestops on heater drain (HD) lines 1HD14AA-18" and 1HD14AC-18" to provide drain cooler inlet isolation boundaries. These lines supply water from flash tanks 1A and 1C to the shell side of low pressure drain coolers 11A and 11C in the condensate booster (CB) system. Once repairs are completed to drain coolers 11A and 11C, the temporary linestops will be removed. The final plant configuration will include a linestop nozzle, completion plug, and a blind flange.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The probability of an accident is not expected to increase because the installations are qualified for the design pressures and are not expected to cause a loss of condenser vacuum. During linestop installation, the main condenser can be isolated via manual HD valves. The linestop equipment is designed to provide positive isolation of the drain coolers and to function as a boundary to prevent a loss of main condenser vacuum. The consequences of a malfunction of equipment important to safety are not affected by this change because systems required for safe shutdown following a turbine trip or loss of condenser vacuum are not affected and the consequences of the accidents remain the same.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

No different type accidents or transients can be created by these changes. Failure of the linestop equipment could cause a plant trip due to loss of condenser vacuum. This would be similar to any piping failure or other type failures that could cause a loss of condenser vacuum. This malfunction is similar to a pipe break or leak in the same line which would have a similar affect.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

No Technical Specifications are affected by the change or temporary condition. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

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Safety Evaluation Summary Form

Tracking No. 6H-00-0113  
Activity No. DCP 9900436

DESCRIPTION:

The proposed activity revises window engraving for alarm window 0-34-F2 at panel OPM03J for a microprocessor relay failure in the switchyard. The sequence of events recorder (SER) is also revised as part of the design change.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

Com Ed is a member of Mid American Interpool Network (MAIN) and transient stability must be maintained. The proposed changes are being done as a result of power uprate increasing the station electrical output. The proposed change has no interface with any hydraulic systems, ventilation systems, and radioactive material handling systems; therefore, the probability of accidents resulting in dose consequences is not increased. The proposed change has no interface with any equipment important to safety; therefore, the probability of a malfunction of equipment important to safety is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The UFSAR has evaluated stability trips and line outage contingencies in Section 8.2-2. Transmission Planning develops specific contingencies and abnormal condition unit trips on the basis of network load flows and configurations. Line contingencies added as a result of power uprate are not different than previously evaluated. The window engraving change provides accurate information to operations within human factor guidelines; therefore, the possibility for an accident or a malfunction of a different type than previously evaluated in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The window engraving revision does not affect any Technical Specifications. Therefore, the margin of safety is not reduced as a result of this change.

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Tracking No. 6H-00-0114  
Activity No. DCP 9800813

DESCRIPTION:

The proposed activity temporarily removes the air actuator to repair essential service water (SX) 2B containment refrigeration unit bypass valve 2SX147B. The air operator will be removed from the valve while an engineered blocking device is mounted on the valve body, effectively locking the valve stem in place. Upon completion of the repair activities, the valve actuator will be reinstalled and the valve blocking device will be removed.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The ability of the SX system to mitigate the consequences of any accidents is not changed by locking the 2SX147A valve in its open position. Two independent trains of containment cooling are still operable to mitigate all accident scenarios; therefore, the consequences of any accident are not changed. By removing the air operator from the valve, the potential for a new type of accident or malfunction is not created because this proposed activity places the fail open 2SX147B valve in its fail safe position consistent with SX system design. There are no UFSAR sections or Technical Specifications that require this valve to achieve a closed position. The required system functions and operating requirements as defined in the Technical Specifications do not change. This change does not create any new accident initiators; therefore, the probability of an accident is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed activity places the fail open 2SX147B valve in its fail safe position consistent with SX system design. There are no UFSAR sections or Technical Specifications that require this valve to achieve a closed position. The required system functions and operating requirements as defined in the Technical Specifications do not change. Therefore, this proposed activity does not create the possibility of an accident or malfunction of a type different from those evaluated in the SAR.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The function of the reactor containment fan cooler (RCFC) system is to cool and dehumidify the containment under normal and accident conditions. The RCFC

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Activity No. DCP 9800813

system consists of two redundant trains each powered from a separate safety related bus. During normal operation, the primary refrigeration unit bypass containment refrigeration unit inlet valves and outlet valves are open and the bypass valve functions as a modulating valve. In emergency conditions, the inlet and outlet valves close and the bypass valve moves to the full open position. As this temporary modification essentially results in the placement of the 2SX147B valve in its fail safe position, the margin of safety as described in the Technical Specifications is not affected. In addition, the associated SX train is not impacted because all safety related heat loads which are required to be supplied with cooling flow are not affected. The catastrophic failure of this temporary modification will not disable the affected SX train. Also, the 100% capacity opposite SX train will still be operable and available to remove core decay heat following a design basis accident. Therefore, the margin of safety as described in the Technical Specifications, is not reduced.

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Tracking No. 6H-00-0117  
Activity No. DCP 9900553 (Unit 1) and DCP 9900554 (Unit 2)

DESCRIPTION:

The proposed design changes provide fire protection (FP) water as an alternate cooling water source to the 1B and 2B centrifugal charging (CV) pump oil coolers 1/2CV02SA and the associated gearbox oil coolers 1/2CV03SA. A crosstie between the FP and essential service water (SX) pipes supplying cooling water to the oil coolers is provided. This will be accomplished by installing:

1. a 1-1/2" hose quick disconnect and dust cap downstream of normally closed auxiliary drain valves 1/2FP5162 on the sprinkler piping in the auxiliary building elevation 364' in areas 5 and 7.
2. 1-1/2" tap lines on SX lines 1/2SX58AB-2" supplying the Train B CV pump lube oil coolers and gear oil coolers. This will include isolation valves, quick disconnects, and dust caps. The 2" isolation valves will be installed on 1/2SX58AB-2" for isolation purposes to direct the flow through the desired flow path.

The disconnects will be normally covered by dust caps rated for water pressure up to 250 psig (greater than FP and SX design pressures). The hose reel will be installed in the 1B and 2B CV pump rooms for the storage of hoses.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed activity does not change any initiating conditions or events associated with any accident or transient. Also, the affected components do not initiate or affect the initial conditions of any accidents or transients. The alternate cooling source would be used during a loss of all SX which is beyond design basis. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The changes implemented under the design changes do not have an adverse impact on the reliability of the CV, SX, or FP systems and do not adversely impact the reliability of any interfacing system. On the contrary, the design changes will enable the continued operation of the 1B/2B CV pump to provide the required injection flow to the reactor coolant pump seals if all SX becomes unavailable. A

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cross tie between the FP and SX systems does not challenge the FP system because the required amount of water to both oil coolers of each pump is only 40 gpm. This is far less than the capability of the FP line. Additionally, the stipulation of having a fire in conjunction with the loss of all SX is not required because the loss of all SX scenario is not a design basis accident or transient. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

CV pump operability requires the pumps be cooled by SX. The added components have no affect on this requirement when not in use. The alternate cooling supply would be used during a loss of all SX. The CV pump is not operable during a loss of all SX (a condition beyond the design basis). Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

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Tracking No. 6H-00-0119  
Activity No. DCP 9900317

DESCRIPTION:

The proposed change will, on a reactor trip, reinstate the low average temperature (LO T<sub>Ave</sub>) interlock for feedwater (FW) isolation for main FW Isolation valves 2FW009A-D, FW tempering control valves 2FW034A-D, FW tempering isolation valves 2FW035A-D, main FW isolation bypass valves 2FW043A-D, main FW regulating valves 2FW510, 520, 530, 540, and main FW regulating bypass valves 2FW510A, 520A, 530A and 540A.

The existing logic on FW preheater bypass isolation valves 2FW039A-D remains unchanged. The subject valves will close on a reactor trip signal. This function is required to isolate the main FW nozzle from the auxiliary feedwater (AF) nozzle in the faulted steam generator (SG) during a feedline break accident scenario.

The LO T<sub>Ave</sub> interlock was removed in conjunction with the removal of the feedwater bypass line check valves, 2FW078A-D, disk removal as-part of modification M6-2-88-040. These check valves were removed since they caused improper flow splits between the main FW nozzle and the AF nozzle on the SGs. The limitation of FW flow to the main FW nozzle is necessary to prevent tube vibration resulting in premature wear of steam generator tubes.

The design change will also add an interlock to open the FW recirculation valves, 2FW012A-C, on a reactor trip. The 2FW012 valves presently cycle open on low feedwater flow.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed changes do not adversely affect the design basis, reliability, and response characteristics of any systems, structures, or components (SSCs) associated with the FW system and interfacing systems. In addition, the FW isolation logic changes and FW recirculation valve opening upon reactor trip does not cause any systems, structures, or components (SSCs) associated with UFSAR accidents and transients to be operated outside their design limits or become susceptible to degradation. Opening of the FW recirculation valves at full FW flow has no adverse impact on the FW recirculation discharge piping structural integrity since the stroke times are not impacted and the hydraulic transient should be less severe. This is due to pressures at full flow being lower than the reduced flow condition that results in the FW recirculation valve opening. Also, there are no pump run out concerns for the feedwater, heater drain (HD), and condensate booster (CB) pumps and no suction pressure concerns for the FW pumps. There

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are no changes to the initial conditions of any UFSAR accident and transients. Therefore, there is no increase in the probability of any UFSAR accidents.

The proposed logic changes do not alter the radiological consequences of any accident since they do not degrade or prevent actions described or assumed in the UFSAR accidents, do not alter any assumptions previously made in the evaluation of the radiological consequences, do not impede actions required to mitigate the radiological consequences of an accident, do not impact the availability of accident mitigating SSCs and fission product barriers, and do not impact UFSAR accident scenario operator actions. All the analyses described in the UFSAR are bounding for the proposed activity. Therefore, there is no increase in the consequences of any UFSAR accidents.

The FW recirculation valves do not perform a safety function. Safety related interposing relays will be used to provide isolation between the 1E reactor trip system/ESFAS circuits and the non-1E FW feedwater recirculation control circuits. Therefore, failure of the non-1E circuits will not cause any impact on the 1E circuits. Opening of the FW recirculation valves at full FW pump flow as compared to a low flow condition has no adverse impact on the structural integrity of the piping downstream of the recirculation valves. The opening and closure time of the subject valves has not changed as a result of this change. In addition, any hydraulic transients due to flow on the recirculation piping should be reduced due to lower pressure in the system during full FW pump flow conditions. There are no FW, HD, and CB pump performance concerns.

The control circuit for the isolation logic has been evaluated for the additional relay load and was found to be acceptable. The proposed change to the logic for the feedwater isolation valves does not change the way the valves function or operate, it only changes the logic associated with FW isolation on a reactor trip. On reactor trip, the FW isolation valves will not isolate until the LO T<sub>Ave</sub> setpoint is reached with the exception of the 2FW039A-D valves (close on reactor trip). There is no equipment operated outside their design basis as a result of this change.

Based on the above, there is no increase on the probability of occurrence of a malfunction of equipment important to safety.

The LO T<sub>Ave</sub> interlock was originally removed from the FW isolation on reactor trip to provide an alternate method to prevent AF flow into the SG preheater section of the original SGs and to limit blowdown from a SG in the event of a feedline break in the upper nozzle line. It is possible with the modification to the FWI logic that a single failure of a 2FW039A-D valve to close could result in an increased AF purge volume in a single intact loop. If this were to occur, the AF system would have to

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purge warm main FW from the bypass FW line into the SG. However, if the single active failure were a failed open 2FW039A-D valve (in an intact loop), then an additional AF pump could be credited in the analysis. This would double the AF flow delivered to all intact SGs since flow restriction (via flow control valves 2AF005A-H and flow restricting orifices 2AF02MA-H) is provided in the single pump AF lines in each loop before they are joined in a common header and enter each SG. Doubling the AF flow would more than offset the change in purge volume.

Based on the above, there is no increase on the consequences of a malfunction of equipment important to safety.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The FW system was originally designed to operate with FW isolation interlocked with reactor coolant system low average temperature (LO T<sub>Ave</sub>) and with a check valve installed on the main FW bypass flow line. The check valve was removed via Modification M6-2-88-040 to address the FW flow split anomaly created by the disc of the check valve. Removal of the check valve resulted in the elimination of the LO T<sub>Ave</sub> interlock to protect the SG preheater from a potential bubble collapse type water hammer in the event of AF backflow into the FW bypass flow line and to minimize the amount of main feedwater that needs to be purged before colder AF is introduced to the SG on a feedwater system pipe break event. Maintaining the existing logic on the 2FW039A-D valves also isolates the SG preheater section from AF.

Assuming a single failure of a 2FW039A-D valve to close, AF would enter the SG preheater section until the main FW isolation valves close. Westinghouse document #RC&SGSS-CAE-1590, "Evaluation of the Byron/Braidwood Feedwater Bypass Line Controlled Closure Check Valve Disc Removal", states that water hammer occurrences from AF flow to the SG preheater are allowed up to ten (10) times over the design of the plant. Therefore, although undesirable, the SGs are designed for this occurrence.

The change in control logic does not create any new modes of operation or new adverse interactions. Opening of FW recirculation valves at full FW flow has no adverse impact on the minimum suction requirements of the FW pumps. Additionally, the HD, CB, and FW pumps do not approach their run-out limits (NFM Letter PSA:00-046 dated 5-24-2000). Opening of FW recirculation valves at full FW flow has no adverse impact on the structural integrity of the FW recirculation discharge piping since the stroke times of the affected valves are not impacted. In addition, the hydraulic transient in the recirculation piping upon opening the

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recirculation valves at full flow will be less severe than the reduced flow condition due to lower system pressure. Opening of the FW recirculation valves at full FW pump flow as compared to a reduced flow condition has no adverse impact on the structural integrity of the piping downstream of the recirculation valves. The opening and closure stroke time of the subject valves has not changed as a result of this change. In addition, any hydraulic transients on the circulation piping will be less severe due to lower pressure in the system during full FW pump flow conditions. There are no FW, HD, and CB pump performance concerns. The change in control logic does not create any new types of malfunctions. No new failure modes are created. The change in control logic does not create any new modes of operation. Therefore, the proposed modification does not create the possibility of a different type of malfunction.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed change does not affect FW isolation on SG high-high and safety injection. The change in logic for FW isolation on a reactor trip coincident with LO T<sub>Ave</sub> and FW recirculation valve opening on a reactor trip do not affect the basis for the margin of safety. The basis for the minimum shutdown margin requirements and the basis for the control rod insertion limits are not affected. In addition, the following change to the Bases to account for the proposed logic change does not reduce the margin of safety as described below: Page B3.3.2-36 of the Bases describing the Engineered Safety Feature Actuation System Interlocks Reactor Trip, P-4 will be revised to include that the FW isolation function of the P-4 interlock is also interlocked with low TAVE. In addition, a statement will be added in the same page to indicate that for Unit 2, a reactor trip isolates the FW preheater bypass isolation valves 2FW039A-D. The FW isolation function is interlocked with P-4 to avert or reduce the continued cooldown of the RCS following a reactor trip. An excessive cooldown of the RCS following a reactor trip could cause an insertion of positive reactivity with a subsequent increase in core power. The FW isolation function from a P-4 signal is not credited as a mitigation function in the Chapter 15 analysis of design basis event. In addition, none of functions associated with the reactor trip signal are required to show that the plant licensing basis safety analysis acceptance criteria are not exceeded. Therefore, this activity does not reduce the margin of safety as described in the basis of the subject Technical Specification.

Safety Evaluation Summary Form

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Tracking No. 6H-00-0171 Revision 1  
Activity No. DCP 9900377

DESCRIPTION:

The proposed design provides permanent temporary power distribution panels/load centers in the containment for use during refueling outages. The temporary power panels will be fed from offsite power. The interconnecting cables to the panels will be removed and stored before the unit is put on line. The change also provides a permanent cover for the 'Bilco' hatch on the refueling water storage tank tunnel that has capped openings for routing cables and hoses used during an outage. The capped openings are approved ventilation barriers.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The use of the capped openings and temporary power panels do not affect the events which initiate a loss of coolant accident or radioactive release accident. The hatch is designed to mitigate the effects of the accident. The hatch will be verified to maintain the required negative pressure with respect to the outside during and after each use. The temporary power panels do not interact with any plant system or component. Therefore, there is no increase in the probability of an accident due to this change. The use of the capped openings will be governed by administrative controls and are approved ventilation barriers. The penetrations will be sealed with caulk, foam, or equivalent material to insure the ventilation and security barrier maintains the required negative pressure with respect to the outside during use. The temporary power panels do not interact with any plant system or component. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The penetrations will be sealed with caulk, foam, or equivalent material to insure the ventilation and security barrier maintains the required negative pressure with respect to the outside during use. After the outage, the temporary feeds to the temporary power panels will be removed and stored and the openings capped. The capped openings are approved ventilation barriers. The temporary power panels do not interact with any plant system or component and will be installed to maintain structural integrity during power operation. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

**PEPP-E FORM**



Safety Evaluation Summary Form

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Tracking No. 6H-00-0171 Revision 1  
Activity No. DCP 9900377

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The replacement of the hatch with a hatch having capped openings could affect the ventilation system ability to maintain the required Technical Specification negative pressure with respect to the outside. Controls and testing requirements have been included in a procedure to insure this requirement will be satisfied. The procedure verifies the penetrations will be sealed with caulk, foam, or equivalent material to insure the barrier maintains the required negative pressure with respect to the outside. The new installation of the hatch will not allow the hatch to be opened. This will provide a permanent security barrier and eliminate the need for the alarm and surveillance requirements. The use of offsite power for the temporary power feeds will not interact with any plant systems or components. The power panels and cabling will be installed to maintain structural integrity during power operation. The temporary feeds to the temporary power panels will be removed and stored following an outage. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

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Tracking No. 6H-00-0175  
Activity No. DCP 9900424

DESCRIPTION:

The high pressure turbine 1<sup>st</sup> stage existing pressure transmitters, 2PT-505 and 2PT-506, are not scaleable to the new steam pressure anticipated after the Unit 2 power uprate. The turbine impulse pressure P-13 interlock is actuated when the pressure in the first stage of the high pressure turbine is greater than approximately 10% of the full power pressure. This design change replaces existing Barton Model 753 pressure transmitters (2PT-505 and 2PT-506) with Rosemount Model Number 1153 GB pressure transmitters. The physical configuration between the existing and new components is slightly different and requires minor changes to the existing supports and tubing. There are no changes to the UFSAR created by this design change. This modification also updates station procedures and corrects various editorial discrepancies in documentation discovered during the preparation of the modification package (i.e. revise directional notes to give correct locations for details).

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed replacement pressure transmitters (Rosemount Model 1153) are designed for the nuclear power industry and meet specific seismic and environmental criteria. This criteria has been reviewed for the as installed condition and has been found to be acceptable for this application. The scaling capability of these components provides adequate margin for the maximum anticipated uprate pressure and the quality of these replacement components increases reliability.

Modifications to the instrument supports are necessary to facilitate the bolting pattern and positioning of the new instruments and calculations have been revised to incorporate the applicable information for these changes. A scaling and uncertainty calculation has been revised to the manufacturers calculated uprated power condition. This value will bound the interim condition before uprate.

This work activity will be implemented online prior to refueling outage B2R09 and does not impact any plant systems necessary to support core cooling. Only one instrument train will be removed from service at a time.

The modification is essentially a direct component replacement with an equal or better component having the same function and signal output. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety has not increased.

<b>PEPP-E FORM</b>
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Safety Evaluation Summary Form

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Tracking No. 6H-00-0175  
Activity No. DCP 9900424

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed modification replaces existing turbine impulse pressure transmitters 2PT-505 and 2PT-506 with new Rosemount Model 1153 GB transmitters. Both the existing and the replacement transmitters are analog type components. The replacement transmitters perform the same design function of converting pressure to an electrical signal (the output signal will remain 4 to 20 milliamps). Because the design function of the new component is no different than the original, this modification will not affect plant operations or change any system operations or interactions for all operating modes as previously defined.

Since the existing design function of the replacement transmitters (Rosemount) is the same as the existing transmitters (Barton) and the replacement transmitters meet or exceed all the design conditions, the possibility for an accident or malfunction of a different type than any evaluated has not been created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The replacement of the existing Barton Model 753 transmitters with new Rosemount Model 1153 GB transmitters will have no impact on the system function. All critical characteristics of the replacement Rosemount transmitters meet or exceed those of the currently installed Barton transmitters. The Rosemount transmitters are nuclear grade components which have been qualified to seismic and environmental criteria that meet or exceed those of the existing system requirements.

The impact of installation has been evaluated and determined not to impact the design function of the instrument loop.

The margin of safety as defined in Technical Specification Table 3.3.1-1 remains unchanged by this modification and no other Technical Specification sections are associated with this change.

Safety Evaluation Summary Form

Tracking No. 6H-00-0180  
Activity No. DCP 9900825

DESCRIPTION:

This design change will install 16 permanent gallery platform(s) on the Unit 2 safety injection (SI) accumulator instrumentation structural members (4 per accumulator). The platforms will allow access to level instrumentation during outages and will eliminate the need to build scaffold.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The steel platforms will be fastened to structural support steel and will not impact any safety-related components. The platforms do not change the design function of any systems, structures, or components (SSCs). The platforms have been seismically designed for II over I. There will be no increase in hydrogen generation since the material of the platforms consists of carbon steel. All material for the steel platforms will be coated for Level I coatings in containment. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The installation of steel platforms on the 6-inch pipe support columns for the SI accumulator level instrumentation does not change the design function of any SSCs and does not create a potential for a new type of accident or malfunction. The platforms that are fastened to structural steel supports will not impact any safety-related equipment. The platforms have been seismically designed for II over I. There will be no increase in hydrogen generation since the material of the platforms consists of carbon steel. All material for the steel platforms will be coated for Level I coatings in containment. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The installation of the platforms does not impact or affect any Technical Specifications. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6G-01-0001  
Activity No. DCP 9900903

DESCRIPTION:

The proposed activity modifies the 2RH01SB valve enclosure (leak collection device) for valve 2SI8811B to add up to four (4) plugged access ports. The applicable plant drawings will be revised to correct the safety class of valve enclosures (1/2RH01SA/B) from ASME MC to ASME Class 2, and to show generic plugged access port details for all valve enclosures. The UFSAR and Technical Specification Bases will be revised to change the SI8811 valve locations from inside containment to outside containment and to clearly indicate that the guardpipe/enclosure is located outside containment and is not part of the containment boundary.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The addition of inspection ports will not affect the ability of any equipment important to safety to function as previously required to mitigate the consequences of an accident. The fittings/plugs will be ASME Section III Class 2 and installed using approved station procedures. The inspection ports will not change the design function of any systems, structures, or components (SSCs). The UFSAR and Technical Specification Bases revisions is administrative in nature. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The installation of the inspection ports on the valve enclosures (1/2RH01A/B) does not change the design function of any SSCs and does not create a potential for a new type of accident or malfunction. The fittings/plugs are ASME Section III Class 2 and will be installed using approved station procedures. The UFSAR and Technical Specification Bases revisions to show the valve enclosures outside of containment are considered as-built and administrative in nature. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

Safety Evaluation Summary Form

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Tracking No. 6G-01-0001  
Activity No. DCP 9900903

The welded seal ring between the recirculation sump suction pipe and the guard pipe constitutes the actual containment boundary. Integrity of the seal ring and the seal ring welds is tested as part of Appendix J leakrate testing. Therefore, the margin of safety as described in the Technical Specifications for containment isolation is not reduced.

## 50.59 REVIEW COVERSHEET FORM

**50.59 Evaluation No.:** 6G-01-0019

**Station:** Byron

**Activity/Document Number:** DCP 9700572, DCP 9700573, DCP 9700574 and DRP 9-043

**Revision Number:** 0

**Title:** Station Air Compressor Inlet Filter Relocation and Non-Essential Service Water Piping Changes

### Description of Activity:

The proposed design changes relocate Station Air (SA) compressor inlet filters (0SA01F, 1SA01F, and 2SA01F) from outdoors to inside the turbine building and relocate filter pressure indicators. Non-Essential service water (WS) flushing connections are installed on the WS lines of the station air compressor heat exchangers. Existing ¾ inch diameter drain lines and globe valves are replaced with 2" diameter flushing lines and ball valves. Two new pipe supports are also installed on Unit 0 and Unit 1 WS lines supplying cooling water to the compressor aftercoolers. A "for record only" change is made to the service air P&ID to show existing compressor inlet air temperature transmitters, pressure indicators, and suction throttling valves. In addition, a "for record only" change is made to remove drawing air filter plan and section details that are not applicable to Byron Station.

### Reason for Activity:

The air filters are moved indoors to prevent potential ice buildup on the filters and freezing of compressor inlet guide vanes during winter operation. Air filters and guide vanes have previously experienced problems due to ice and freezing. The flushing connections allow periodic flushing of the heat exchangers to ensure full heat transfer capability to the WS system. Compressor heat exchangers have previously been replaced because of degraded performance from fouling and silt buildup. The WS line pipe supports prevent excessive movement of piping and minimize the potential for future pipe damage. Since the affected WS pipes are located near the floor, they are susceptible to being stepped on by personnel working on the compressors. The "for record only" changes are made to accurately show the as-built plant configuration.

### Effect of activity:

Relocating the air filters indoors will mean the station air compressors will intake air from the turbine building. The WS flushing connections will allow the air compressor heat exchangers to be flushed for silt removal. The replacement ball valves provide for improved flushing capability over the original globe valves. The new WS pipe supports provide added stability to the affected WS lines. The "for record only" changes provide an improved level of detail on drawings.

### Summary of Conclusion for the Activities 50.59 Review:

The 50.59 evaluation determined that the proposed design change will not increase the frequency of occurrence of an accident or malfunction of an SSC important to safety previously evaluated in the UFSAR. The proposed change will not increase the consequences of an accident or malfunction of an SSC important to safety previously evaluated in the UFSAR. The proposed change will not create the possibility for an accident of a different type or a malfunction of an SSC important to safety with a different result than previously evaluated in the UFSAR. The proposed change does not impact design basis limits or methods of evaluation as described in the UFSAR. The change has no impact on Technical Specifications or Operating License.

### Attachments:

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

**50.59 REVIEW COVERSHEET FORM****50.59 Evaluation No.:** 6G-01-0019**Forms Attached:** (Check all that apply.)

<input type="checkbox"/>	Applicability Review				
<input type="checkbox"/>	50.59 Screening	50.59 Screening No.	_____	Rev.	_____
<input checked="" type="checkbox"/>	50.59 Evaluation	50.59 Evaluation No.	<u>6G-01-0019</u>	Rev.	<u>0</u>
<input type="checkbox"/>	50.59 Validation	50.59 Validation No.	_____	Rev.	_____



## 50.59 REVIEW COVERSHEET FORM

**50.59 Evaluation No.:** 6G-01-0024

**Station:** Byron Unit 2

**Activity/Document Number:** DCP 9900994

**Revision Number:** 0

**Title:** Interface of Installing Revenue Metering Units on Unit 2 System Auxiliary Transformer 345kV Feed Lines at Switchyard

**Description of Activity:**

This activity reviews the interface with Operating procedures and training as a result of installation revenue metering units (current transformer/potential transformer (CT/PT)) on the Unit 2 System Auxiliary Transformer (SAT) incoming 345kV lines in the switchyard.

**Reason for Activity:**

State regulations now require metering of incoming and outgoing power from generating stations due to deregulation. Therefore, the installation of metering units and associated hardware to Byron SATs and Main Power Transformers (MPTs) is being scheduled. This design change addresses the interfaces of the design with station procedures and operations as a result of installing the CT/PT units on 345kV incoming lines feeding the Unit 2 SATs. The CT/PT units are SF6 gas packed units and are required to be monitored for gas pressure until the alarm units are wired to Bulk Power Operations. A full evaluation is being performed since a new element (CT/PT unit) is being added and could potentially cause a loss of offsite power to the SATs in the event of a fault.

**Effect of activity:**

Byron Operating Surveillance 0BOSR SY-W1 will be revised. Operators will be trained to visually check the SF6 gas pressure reading from the gauges of the CT/PT units to verify gas is not leaking. The results of a loss of offsite power to the SATs is already analyzed in the UFSAR accident analysis and has no impact on the safe shutdown of the reactor and accident and post accident mitigation.

**Summary of Conclusion for the Activities 50.59 Review:**

Station interface activities (procedure revision and training) will be performed as a result of installation of CT/PT units on the 345kV incoming lines to the SATs. A failure on the CT/PT unit could potentially cause a loss of offsite 345kV power to SATs which could result in a loss of power to the 4kV ESF buses. However, the proposed change does not affect the capability of onsite emergency diesel generators to power the 4kV ESF buses for safe shutdown and post accident recovery. A loss of offsite power is previously analyzed and has no impact on the safe shutdown of the reactor and accident and post accident mitigation. Although a new element susceptible to failure has been added, the result of a failure is not different than previously analyzed events. The equipment vendor has demonstrated the reliability of the CT/PT unit is very high and with a minimal rate of failure.

**Attachments:**

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

## 50.59 REVIEW COVERSHEET FORM

50.59 Evaluation No.: 6G-01-0024

Forms Attached: (Check all that apply.)

<input type="checkbox"/>	Applicability Review				
<input type="checkbox"/>	50.59 Screening	50.59 Screening No.	_____	Rev.	_____
<input checked="" type="checkbox"/>	50.59 Evaluation	50.59 Evaluation No.	<u>6G-01-0024</u>	Rev.	<u>0</u>
<input type="checkbox"/>	50.59 Validation	50.59 Validation No.	_____	Rev.	_____

**50.59 REVIEW COVERSHEET FORM****50.59 Evaluation No.:** 6G-01-0028**Station:** Byron**Activity/Document Number:** DCP 9900814 (Unit 1) and DCP 9900815 (Unit 2)**Revision Number:** 0**Title:** Determinate Pressurizer Heater Element 11 in Unit 1 and Pressurizer Heater Element 68 in Unit 2**Description of Activity:**

The proposed activity determinates pressurizer heater element 11 of back-up Group D on Unit 1 and pressurizer heater element 68 of back-up Group A on Unit 2. Heater element 11 is grounded and removed from service to prevent the breaker from closing and heater element 68 is grounded and removed from service to prevent the breaker from closing.

**Reason for Activity:**

The Electrical Maintenance Department has requested this design change to allow the removal of the out of service paperwork for each of the pressurizer heater breakers.

**Effect of activity:**

The proposed design changes will return to service the other two Unit 1 pressurizer heater elements (12 and 35) of back-up Group D and the other two Unit 2 pressurizer heater elements (67 and 38) of back-up Group A which are fed from the breakers currently removed from service.

**Summary of Conclusion for the Activities 50.59 Review:**

The operation of the pressurizer heaters will continue to satisfy the requirements for normal pressurizer pressure control. The heater capacity maintained after determining these elements is sufficient to maintain the reactor coolant system near normal operating pressure when accounting for heat losses through the pressurizer insulation. The remaining heaters provide sufficient capacity to maintain normal pressure and temperature conditions in the primary system. The pressurizer will still be able to perform its design functions during normal and accident conditions.

**Attachments:**

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

**Forms Attached:** (Check all that apply.)

<input type="checkbox"/>	Applicability Review			
<input type="checkbox"/>	50.59 Screening	50.59 Screening No.		Rev. <u>          </u>
<input checked="" type="checkbox"/>	50.59 Evaluation	50.59 Evaluation No.	<u>6G-01-0028</u>	Rev. <u>0</u>
<input type="checkbox"/>	50.59 Validation	50.59 Validation No.		Rev. <u>          </u>

## 50.59 REVIEW COVERSHEET FORM

**50.59 Evaluation No.:** 6G-01-0033

**Station:** Byron

**Activity/Document Number:** EC 78973 (Unit 1) and EC 78974 (Unit 2)

**Revision Number:** 0

**Title:** Install Bypass and Check Valve of Air Solenoid Valve on Auxiliary Feedwater Pump Recirculation Valves 1AF024 and 2AF024

**Description of Activity:**

The proposed design changes install a bypass line with a check valve on the air supply line to valves 1AF024 and 2AF024. Currently, each valve has two solenoid operated air supplies (A and B trains) connected to the valve operator. The air supply from the "A" solenoid flows through the exhaust port of the "B" solenoid to the valve operator. The new bypass line provides an alternate flow path from the "A" solenoid to the operator.

**Reason for Activity:**

The solenoid valves need to be replaced because of wear. The replacement solenoid valves will not allow sufficient reverse flow through the exhaust port to stroke the valve in an acceptable amount of time. The new bypass provides an alternate flow path for the supply air from the "A" solenoid. The new check valve will prevent reverse flow of supply air from the "B" solenoid out through the exhaust port on the "A" solenoid.

**Effect of activity:**

The addition of the bypass and check valve in the air supply tubing will provide an alternate flow path for supply air from the "A" solenoid to the valve operator. The air supply for the 1AF024 and 2AF024 valves is classified non-safety and the valves fail closed. The addition of the bypass does not affect the fail close function of the valves. The bypass flow path does not adversely affect the function of the 1AF024 and 2AF024 valves.

**Summary of Conclusion for the Activities 50.59 Review:**

The proposed change may be implemented using plant procedures without obtaining a license amendment. The addition of a bypass line and check valve on the air supply line to valves 1AF024 and 2AF024 does not introduce the possibility of a change in the frequency of an accident because the air supply lines to the 1AF024 and 2AF024 valves are not an initiator of any accident and no new failure modes are introduced. The 1AF024 and 2AF024 valves remain fail closed on a loss of air. The probability of a failure of the new check valve that affects the operation of the 1AF024 and 2AF024 valves is judged to be very small when compared to other failures which would result in failure of the valve to operate such as the loss of the non-safety related instrument air system. The impact of the new check valves is considered negligible to the likelihood of a malfunction of the 1AF024 and 2AF024 valves. Therefore, there is only a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety. The proposed change does not introduce the possibility of a change in the consequences of an accident because the function of the Auxiliary Feedwater (AF) system to mitigate potential accidents is unchanged. The proposed change does not introduce the possibility of the change in the consequences of a malfunction because the function of the AF system to mitigate potential accidents and malfunctions unchanged. The addition of the bypass flow path in the air supply to the operator does not affect the function of the 1AF024 and 2AF024 valves or any other system, structure, or component (SSC) important to safety. The proposed activity does not introduce the possibility for a malfunction of a SSC with a different result because the failure of the new check valve in the bypass line has the same results as the failure of one of the 1AF024 and 2AF024 valve operator solenoid valves. The addition of the bypass and check valve does not adversely affect the seismic support for the regulator and the air solenoids. The proposed change does not directly affect any fission product barriers and does not adversely affect the function of the 1AF024 and 2AF024 valves or any other SSC. Therefore, the change does not result in a design basis limit for a fission product barrier being exceeded or altered. The instrument air tubing for the 1AF024 and 2AF024 valves does not impact any design basis or safety analysis.

**50.59 REVIEW COVERSHEET FORM****50.59 Evaluation No.:** 6G-01-0033**Attachments:**

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

**Forms Attached:** (Check all that apply.)

<input type="checkbox"/>	Applicability Review				
<input type="checkbox"/>	50.59 Screening	50.59 Screening No.		Rev.	
<input checked="" type="checkbox"/>	50.59 Evaluation	50.59 Evaluation No.	<u>6G-01-0033</u>	Rev.	<u>0</u>
<input type="checkbox"/>	50.59 Validation	50.59 Validation No.		Rev.	

Safety Evaluation Summary Form

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Tracking No. 6H-01-0008  
Activity No. DCP 9900908

DESCRIPTION:

The proposed activity will add guidelines to drawing 6E-0-3000U Sheet 2 for routing non-system communication (telephone, computer, etc.) cables in free air in all areas of the plant.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

There are no accidents identified as a result of this change because the installation criteria precludes interaction with any equipment required to mitigate the consequences of an accident. The cable does not interface with any systems, structures, or components (SSCs) assumed to function during or after an accident condition. Any equipment attached to the cables will not be used to mitigate any design basis accidents or will be an initiator of any event.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

Neither the cable nor the equipment it is connected to actively interface with any SSCs assumed to function during postulated accidents. The equipment itself will not be used to mitigate any design basis accident or transients. Therefore, the possibility of an accident or malfunction of a type different from those evaluated in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The cable is being installed in accordance with installation guidelines such that no possible interactions with SSCs can result from the installation, operation, or the failure of this equipment during accidents. No additional credible accidents or transients can occur due to installation of the cable or equipment. This cable/equipment does not interact with any equipment important to safety and, therefore, no new failure modes are created that could impact accidents or transient conditions. No Technical Specifications are affected by this activity, therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

## 50.59 REVIEW COVERSHEET FORM

**Station:** Byron

**Activity/Document Number:** DCP 9900993

**Revision Number:** 0

**Title:** Interface of Installing Revenue Metering Units on Unit 1 System Auxiliary Transformer 345kV Feed Lines at Switchyard

**Description of Activity:**

This activity reviews the interface with Operating procedures and training as a result of installation revenue metering units (current transformer/potential transformer (CT/PT)) on the Unit 1 System Auxiliary Transformer (SAT) incoming 345kV lines in the switchyard.

**Reason for Activity:**

State regulations now require metering of incoming and outgoing power from generating stations due to deregulation. Therefore, the installation of metering units and associated hardware to Byron SATs and Main Power Transformers (MPTs) is being scheduled. This design change addresses the interfaces of the design with station procedures and operations as a result of installing the CT/PT units on 345kV incoming lines feeding the Unit 1 SATs. The CT/PT units are SF6 gas packed units and are required to be monitored for gas pressure until the alarm units are wired to Bulk Power Operations. A full evaluation is being performed since a new element (CT/PT unit) is being added and could potentially cause a loss of offsite power to the SATs in the event of a fault.

**Effect of activity:**

Byron Operating Surveillance 0BOSR SY-W1 will be revised. Operators will be trained to visually check the SF6 gas pressure reading from the gauges of the CT/PT units to verify gas is not leaking. The results of a loss of offsite power to the SATs is already analyzed in the UFSAR accident analysis and has no impact on the safe shutdown of the reactor and accident and post accident mitigation.

**Summary of Conclusion for the Activities 50.59 Review:**

Station interface activities (procedure revision and training) will be performed as a result of installation of CT/PT units on the 345kV incoming lines to the SATs. A failure on the CT/PT unit could potentially cause a loss of offsite 345kV power to SATs which could result in a loss of power to the 4kV ESF buses. However, the proposed change does not affect the capability of onsite emergency diesel generators to power the 4kV ESF buses for safe shutdown and post accident recovery. A loss of offsite power is previously analyzed and has no impact on the safe shutdown of the reactor and accident and post accident mitigation. Although a new element susceptible to failure has been added, the result of a failure is not different than previously analyzed events. The equipment vendor has demonstrated the reliability of the CT/PT unit is very high and with a minimal rate of failure.

## 50.59 REVIEW COVERSHEET FORM

### Attachments:

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

### Forms Attached: (Check all that apply.)

<input type="checkbox"/>	Applicability Review			
<input type="checkbox"/>	50.59 Screening	50.59 Screening No.		Rev. <u>          </u>
<input type="checkbox"/>	50.59 Evaluation	50.59 Evaluation No.		Rev. <u>          </u>
<input checked="" type="checkbox"/>	50.59 Validation	50.59 Validation No.	<u>6H-01-0082</u>	Rev. <u>0</u>



# 50.59 REVIEW COVERSHEET FORM

LS-AA-104-1001

01/11/01

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ation: Byron Units 1 and 2

Activity/Document Number: EC 332356 (Unit 1) and EC 333251 (Unit 2)

Revision Number: 0

Title: Letdown Booster Pump Modification

## Description of Activity:

The proposed design change installs a letdown flow booster pump, piping, valves, and other components on each unit to increase reactor coolant letdown flow during unit outages. The booster pump will be operated during Modes 5 or 6 with reactor coolant system (RCS) temperature less than or equal to 140° F. During normal plant operation, the booster pump will be isolated from the residual heat removal (RH) system on the suction side by two new locked closed manual gate valves and isolated from the chemical volume and control (CV) system on the discharge side by a new closed gate valve and existing check and manual globe valves.

Presently, during shutdown conditions, reactor coolant letdown flow is provided by the RH system. The letdown flow rate in this original RH to CV flow path is limited to 120 gpm. With the new booster pump in operation, the flow rate will be a minimum of 150 gpm and a maximum of 180 gpm. This increased flow rate will reduce the required time to clean up the RCS using CV system demineralizers following RCS forced oxidation. This in turn will reduce critical path outage time. The booster pump is intended to be operated primarily following RCS forced oxidation through reactor cavity flood-up. However, the booster pump may also be operated whenever all design criteria outlined within the safety evaluation are met. Operation of the booster pump will occur between the following two extremes: 1) with the RCS water solid and a maximum pressurizer cover-pressure of 5 psig; and 2) at mid loop RCS hot leg level and 0 psig RCS pressure.

The proposed letdown flow booster pump will take suction from the "A" RH pump suction line RH01CA-16" and discharge to the reheat heat exchanger (\_CV05A) outlet line \_CV80A-3", at a point between manual valve \_CV7038 and letdown reheat heat exchanger flow control valve \_CV381A. Valve \_CV381A will be maintained closed when the booster pump is in operation. Line \_CV80A-3" connects to the normal CV letdown line at the same point as the existing RHR letdown tie-in. The flow path from this point to the volume control tank (VCT) remains unchanged by the proposed design change.

Booster pump operation can occur with or without operation of the "A" RH pump. Adequate net positive suction head (NPSH) will be available to the booster pump with the RH pump in operation and likewise, adequate NPSH will be available to the "A" RH pump with the booster pump in operation. The "A" RH pump can operate and perform its shutdown cooling function while the booster pump is operating. The elevated pressures the booster pump must develop to produce higher letdown flow rates must be procedurally limited/controlled to prevent CV letdown line relief valve (\_CV8119) from lifting.

The new booster pump, piping, and components within the first isolation valve upstream and downstream of the pump are non-safety related. The section of the booster pump suction line upstream of the suction isolation valves is classified as ASME Section III, Class 2 and the section of the new pump discharge line downstream of the discharge isolation valve is classified as ASME Section III, Class 3.

The seismically supported booster pump will be located in the boron thermal regeneration (BR) letdown chiller heat exchanger (\_BR03A) room on auxiliary building elevation 346'. The BR system and the heat exchanger in this room are not currently operational. The booster pump suction pipe is routed from the RH pump suction line \_RH01CA-16", in the adjacent "A" containment spray (CS) pump (\_CS01PA) room, into the letdown chiller heat exchanger room. The booster pump suction line is provided with two manual valves located in the "A" CS pump room, to isolate the RH safety Class 2 piping from the non-safety booster pump. The booster pump discharge line will be routed into the adjacent CV-BR valve room (valve aisle #1), to tie into the CV outlet line from the reheat heat exchanger (\_CV05A). The existing check valve \_CV7039, manual valve \_CV7038, and air operated valve \_CV381A, located in the valve room, are used to isolate the CV system ASME Class 2 piping from the ASME Class 3 piping. Valve \_CV380A will be the boundary between the Class 3 piping and the non-safety related booster pump piping.

Power for the 75 HP booster pump motor will be taken from the BR chiller compressor starter cabinet (\_BR06E) outside the letdown chiller heat exchanger room. The BR chiller compressor control switch will be replaced and its associated control circuitry will be modified to operate the booster pump. The letdown booster pump will be fed from a non-safety related power source. BR chiller alarms are replaced with a letdown booster pump trip alarm in the control room.

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Activity/Document Number: EC 332356 (Unit 1) and EC 333251 (Unit 2)

Revision Number: 0

## Reason for Activity:

The proposed activity is necessary to shorten the unit outage time required to cleanup the RCS following chemical forced oxidation, which creates a controlled release of radioactive corrosion products into the RCS, where it can be ion-exchanged through the CV system demineralizers. By increasing the flowrate through a CV demineralizer, the time required to lower RCS activity levels and containment radiation levels to an acceptable level is reduced. Based on Braidwood outage experience during A1R09, increasing the letdown flow rate will reduce RCS clean-up time by approximately 10 hours.

## Effect of Activity:

The proposed design change results in an increase in the maximum letdown line flow rate from 120 gpm to 180 gpm. The higher letdown line flow rate was evaluated by Westinghouse and deemed acceptable for the affected letdown piping and associated components/equipment. The design change removes power from the BR chiller compressor and its associated control circuitry. Power originally provided to the chiller compressor will be used to power the booster pump motor. The control room hand switch, originally used to control the chiller compressor, will be replaced with a pump type switch to control the booster pump. BR chilled water piping in the letdown chiller heat exchanger room will be cut and capped. As currently described in UFSAR Section 9.3.4.1.2.4, the BR system is no longer used. The BR system will remain non-operational following installation of the design change.

At Braidwood during A1R09, a diaphragm valve (1RE1003) developed external leakage during a CV letdown divert to a recycle hold up tank (HUT) while the reactor coolant drain tank (RCDT) pump was in operation. This indicates that the two influences overwhelmed the reactor building and containment equipment drains to radwaste (RE) system piping resulting in elevated pressures (but below design pressure). At Byron, special operational considerations will be in place when CV letdown flow is diverted to the HUT (via the CV112A valve) at elevated flow rates (>120gpm).

The proposed design change may be installed while the associated unit is operating. The connection of the booster pump suction line the 16" dia. RH pump suction line will require an emergency core cooling system (ECCS) Technical Specification Action, since the RH header must be drained to make the welded pipe connection. During modification installation and testing, precautions will be taken to prevent introduction of foreign material into the CV and RH systems to prevent possible future fuel rod damage due to debris-induced fretting (UFSAR Section 4.2.2.2.1). The booster pump discharge piping can be isolated from the CV system when the connection is made to the existing CV line. System testing and flushing activities, associated with the booster pump, can be performed on a temporary basis with no adverse impact on the plant.

Systems, structures, or components affected by the proposed activity include the BR system, RH system, ECCS Train "A", and the CV system. There is no impact on RH system decay heat removal capability.

## Summary of Conclusion for the Activities 50.59 Review:

The proposed design change does not require prior NRC approval because it does not result in an increase in the frequency of occurrence or consequences of an accident or malfunction of an SSC previously addressed in the UFSAR. In addition, there is no possibility of creating an accident of a different type or different result or malfunction of an SSC of a different type or different result than previously evaluated in the UFSAR.

## Attachments:

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if multiple discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

# 50.59 REVIEW COVERSHEET FORM

LS-AA-104-1001

01/11/01

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Activity/Document Number: EC 332356 (Unit 1) and EC 333251 (Unit 2)

Revision Number: 0

Forms Attached: (Check all that apply.)

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Applicability Review

50.59 Screening

50.59 Screening No. \_\_\_\_\_

Rev. \_\_\_\_\_

50.59 Evaluation

50.59 Evaluation No. 6G-02-0001

Rev. 0

50.59 Validation

50.59 Validation No. \_\_\_\_\_

Rev. \_\_\_\_\_

## 50.59 REVIEW COVERSHEET FORM

**50.59 Validation No.:** 6H-02-0003

**Station:** Byron

**Activity/Document Number:** EC 79349 (Unit 1) and EC 79388 (Unit 2)

**Revision Number:** 0

**Title:** Revise Unit 1 and Unit 2 Pressurizer Pressure Low Alarm Setpoint Which Energizes the Pressurizer Backup Heaters From 2210 psig to 2220 psig on Decreasing Pressure - EC 79349 (Unit 1) and EC 79388 (Unit 2).

**Description of Activity:**

This change revises the Byron Unit 1 and 2 pressurizer pressure low alarm annunciator setpoint, which energizes the pressurizer backup heaters, from 2210 psig to 2220 psig on decreasing pressure. The existing setpoint at 2210 psig decreasing has a reset deadband of 8 psig (resets at 2218 psig). The revised setpoint of 2220 psig decreasing will have a revised deadband of 5 psig (resets at 2225 psig). In addition, associated station procedures, which are based upon the alarm setpoint or contain information related to the alarm setpoint, will be revised to reflect the new 2220 psig setpoint.

**Reason for Activity:**

The pressurizer backup heaters on/low pressure alarm comparator card (1/2PB-0455G/F) receives its signal from the output (demand) of the master pressurizer pressure controller (MPPC). During normal operations, the MPPC output demand should be at ~25% (NOP @ 2235 psig) with the variable heaters modulated at ~50% on to offset the pressure reduction resulting from a normal small amount of bypass flow through the pressurizer spray lines (a small spray flowrate promotes chemical/boron mixing and keeps the spray line/nozzle heated above the minimum temperature assumed in thermal stress analyses). On a decreasing pressure signal of 220 psig (-15 psig from 2235 psig), the variable heaters are turned 100% on. If pressure continues to decrease, the existing backup heater on setpoint will not be reached until 2210 psig (-25 psig from 2235 psig). Thus, no additional heat can be generated on a decreasing pressure from 2220 psig to 2210 psig in order to stop the pressure decrease. Therefore, this setpoint change will turn on all of the backup heaters at 2220 psig to minimize decreasing pressurizer pressure transients.

The change to the backup heaters on setpoint to 2220 psig was selected for two reasons: 1) the variable heaters are scaled such that at 2235 psig, the variable heaters are at 50% on. At -15 psig from normal operating pressure (2220 psig), the variable heaters are at 100% on. Therefore, it is desired to then turn on the backup heaters just after the variable heaters are at the fully on state, 2) moving the backup heaters on setpoint higher will minimize a decreasing pressure transient and reduce the chances of reaching the Technical Specification departure from nucleate boiling (DNB) pressure limit.

The setpoint change is being made to optimize pressurizer pressure control, to prevent unplanned entry into LCO 3.4.1 DNB Limits during normal load changes, and is part of a number of other activities being performed to improve pressurizer pressure control operation at both Byron and Braidwood.

During Power Uprate Implementation, the Technical Specification DNB limit was revised to 2209 psig (as stated in current Core Operating Limits Report (COLR)), which provides more operating margin to the DNB limit. Therefore, this setpoint change along with the DNB limit change will result in less potential to enter the DNB limit on decreasing pressure transients.

## 50.59 REVIEW COVERSHEET FORM

**50.59 Validation No.:** 6H-02-0003

This change has already been implemented successfully at Braidwood. The change being made at Byron is identical to that already performed at Braidwood. The Braidwood change can be applied at Byron since all associated instrumentation, setpoints, evaluations, and safety analysis is identical at both stations. The 10CFR50.59 performed at Braidwood Station has been validated and found applicable to Byron Station.

**Effect of activity:**

This setpoint change will turn on all of the backup heaters at 2220 psig to minimize decreasing pressurizer pressure transients.

**Summary of Conclusion for the Activities 50.59 Review:**

This identical setpoint change has already been evaluated and implemented at Braidwood Station. Byron Station has validated the Braidwood 50.59 evaluation to ensure the proposed activity is entirely encompassed by the previous evaluation and does not extend beyond the plant mode bounds assumed in the previous evaluation. There are no equipment lineups, temporary alterations, or modifications that invalidate the previous evaluation, and the previous evaluation found the original activity acceptable (i.e., prior NRC approval was not required). Based on this review, the proposed setpoint changes at Byron are bounded by the results and conclusions of the previous Braidwood 50.59 evaluation.

**Attachments:**

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

**Forms Attached:** (Check all that apply.)

<input type="checkbox"/>	Applicability Review			
<input type="checkbox"/>	50.59 Screening	50.59 Screening No.		Rev. <u>          </u>
<input type="checkbox"/>	50.59 Evaluation	50.59 Evaluation No.		Rev. <u>          </u>
<input checked="" type="checkbox"/>	50.59 Validation	50.59 Validation No.	<u>6H-02-0003</u>	Rev. <u>0</u>

## 50.59 REVIEW COVERSHEET FORM

**50.59 Validation No.:** 6H-02-0007 Revision 2

**Station:** Byron

**Activity/Document Number:** EC 79262 and EC 79263

**Revision Number:** 1

**Title:** Permanent Storage of Lead Shielding Blankets in Containments

**Description of Activity:**

The ECs authorize the permanent storage of up to 27,000 lbm of lead shielding blankets inside each of the Unit 1 (EC 79262) and Unit 2 (EC 79263) containment buildings. The lead shielding may be stored inside steel boxes outside the missile barrier on elevation 377", within the reactor head laydown concrete enclosure on elevation 426' or inside steel boxes near the reactor head laydown concrete enclosure on 426'.

**Reason for Activity:**

During a refueling outage, lead shielding is used extensively to reduce dose to personnel. Lead shielding blankets are the preferred method for shielding. A large number of these blankets are necessary to meet shielding needs; a storage location inside the containment building is desired to eliminate the need to carry the shielding blankets in and out of containment each outage.

**Effect of activity:**

There will not be any impact on plant operation from this activity. The shielding blankets do not impact the operation of any plant equipment. Installation of the lead blankets on plant components is not addressed by this evaluation. During a refueling outage, the blankets will be already available inside the containment building for installation at the desired locations.

**Summary of Conclusion for the Activities 50.59 Review:**

Permanent storage of lead shielding blankets inside containment does not adversely affect UFSAR design functions. The stored quantities of lead blankets do not result in an unacceptable amount of potential hydrogen, chlorides, lead, or combustible materials. Containment flood levels are not adversely affected and the lead shielding blanket materials are stored in a manner such that they do not create an adverse effect on the function of the containment emergency core cooling system (ECCS) recirculation sumps. The storage of the lead blankets does not adversely affect the floor loading and are not adjacent to any safety related equipment. The storage of lead blankets in containment has no impact on peak cladding temperature, containment peak temperature, or peak pressure during a large break loss of coolant accident. Therefore, the change does not involve any change to a design basis limit for fission product barriers. Storing lead blankets inside containment does not affect plant equipment or other parameters that would alter the methods of performing any plant procedure. The change does not affect any safety analysis evaluation methodology or operation of any ECCS equipment. Storage of lead blankets inside containment does not result in changes to the way plant equipment is utilized or the function of any plant equipment. Storage of lead blankets inside containment does not alter any system or component parameters upon which the Technical Specifications for any plant system are based.

**50.59 REVIEW COVERSHEET FORM****50.59 Validation No.:** 6H-02-0007 Revision 2**Attachments:**

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

**Forms Attached:** (Check all that apply.)

<input type="checkbox"/>	Applicability Review			
<input type="checkbox"/>	50.59 Screening	50.59 Screening No.		Rev.
<input type="checkbox"/>	50.59 Evaluation	50.59 Evaluation No.		Rev.
<input checked="" type="checkbox"/>	50.59 Validation	50.59 Validation No.	<u>6H-02-0007</u>	Rev. <u>2</u>

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**Station:** Byron

**Activity/Document Number** EC338488, EC338489, EC338614, EC338615

**Revision Number:** 0.0,0.0

**Title:** Revised Control Switch Operation of Residual Heat Removal (RH) Miniflow Valves 1(2)RH610/611

### Description of Activity:

The proposed activity changes the operator mechanism of the control switches for the RH miniflow line isolation valves 1(2)RH610/611 (the miniflow valves) to enable a maintained open position. This will be a change from its original configuration of spring return to center from both closed and open positions. The spring return to center from closed position will not be changed. The change will be done at main control board panels 1(2)PM06J.

### Reason for Activity:

The miniflow line provides a recirculation path to prevent deadheading the RH pumps on low flow conditions. Control switch maintained open capability will allow operators to perform the required gradual heat up of the RH pumps for a shutdown cooling start without requiring them to hold the switch open for an extended time and/or until the valve's circuit breaker is de-energized. When an RH pump is started, the MOV is normally open due to low discharge flow. The valve automatically closes when discharge flow exceeds approximately 1400 gpm. This flow value is generally reached sooner in time than an adequate RH pump warmup can occur when started for the shutdown cooling mode. Operating experience has shown that pump damage can occur if a slow controlled heatup is not performed when placing the RH system in service for shutdown cooling. Maintaining the miniflow MOV open allows the controlled pump heatup to occur.

### Effect of Activity:

This change will have the ultimate result to help preclude potential RH pump damage when being placed in service for shutdown cooling. It will directly alleviate a cumbersome procedural activity for operators during RH pump manual starts. Presently, operators must hold the control switch open until the valve's circuit breaker can be manually de-energized. This configuration change introduces no more than a minimal increase in probability that the miniflow line MOV control switch could inadvertently be mispositioned. The miniflow valves are assumed to have their control switches in the automatic position to assure that injection flow to the vessel is not diverted or bypassed during an accident. The automatic position will be the normal control board configuration. This change will not impact the capability of the RH pump to start and provide emergency core cooling system (ECCS) flow when actuated by an automatic start signal.

### Summary of Conclusion for the Activities 50.59 Review:

Revising the control switch for the RH miniflow valve cannot introduce the possibility of a change in the frequency of an accident because the control switch positioning, miniflow valve operation, and RH pump starts are not initiators of any accidents and no new failure modes have been introduced. The maintained open feature will be used during shutdown cooling mode manual pump starts to gradually warm-up the RH system to reactor coolant system hot leg temperatures in a more controlled fashion to avoid potential thermal shock to the pump and will not increase the likelihood of occurrence of a malfunction of the RH system or its components. This change will introduce no increase to the consequences of any accidents because the RH system will function no differently than previously analyzed. This change enables operators to have more flexibility during manual pump starts when gradual pump warmup is necessary. The UFSAR evaluated malfunctions of RH pumps and failures of the miniflow valves. The consequences of those failures are not affected by this change activity because there are no new failure modes introduced by the change. This change activity is bounded by UFSAR analysis and does not introduce the possibility of an increase in the consequences of a malfunction of a system, structure, or component important to safety. An accident of a different type than previously evaluated is not possible because the RH system, its pumps, controls, and miniflow valves, are not initiators of any accident and no new, unbounded, failure modes have been introduced by changing the MOV control switch operator. The only credible malfunctions for the RH system are the pump failure and MOV failure as previously discussed. This activity does not create different failure modes for those components; therefore, a different result than previously analyzed is not possible. The change activity does not cause any RH system parameters to change. ECCS component parameters ensure fuel clad integrity is maintained under accident conditions. The change to the miniflow line control switch operation does not



**50.59 REVIEW COVERSHEET FORM**

Effect the RH system flow contribution to the ECCS flow analysis. Pump flow characteristics and ECCS system alignment requirements are not changed. Therefore, there are no design basis limits for fission product barriers exceeded or altered by this activity. This activity is a physical configuration change to the RH system. It does not affect any evaluation methods used in the design of the RH system. This evaluation consideration is not applicable. NRC notification of the activity is not required.

**Attachments:**

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if multiple discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

**Forms Attached:** (Check all that apply.)

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**Applicability Review****50.59 Screening****50.59 Screening No.****Rev.****50.59 Evaluation****50.59 Evaluation No.****Rev.****50.59 Validation****50.59 Validation No.**6H-02-0026**Rev.**0

<u>Drawing Change Requests (DCR)</u>	
1.	6G-99-0008
2.	6G-99-0059
3.	6G-99-0078
4.	6G-99-0108
5.	6G-99-0129
6.	6G-99-0147
7.	6G-99-0155
8.	6G-99-0167
9.	6G-99-0169
10.	6G-99-0238
11.	6H-99-0037
12.	6H-99-0059
13.	6H-99-0220
14.	6H-99-0381
15.	6G-00-0059
16.	6G-00-0083
17.	6G-00-0090
18.	6G-00-0098
19.	6G-00-0145
20.	6G-00-0151
21.	6G-00-0157
22.	6G-00-0160
23.	6H-00-0086
24.	6G-01-0015
25.	6H-01-0020

Safety Evaluation Summary Form

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Tracking No. 6G-99-0008  
Activity No. DCR 980453

DESCRIPTION:

The proposed activity includes the pressurizer coffin area in the heavy load path during Mode 6 or during a defueled condition.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The probability of occurrence of the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because this activity has been analyzed in calculation number BYR97-451 Revision 0, which evaluated every component in the pressurizer coffin area and determined that they are not needed for safety function during Mode 6 or in a defueled condition. This activity is not creating any new accident or impacting any previously evaluated accident. Also, per the analysis, this activity does not have any impact on consequences of an accident nor any impact on the offsite dose release.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because the calculation BYR97-451 Revision 0 has evaluated all aspects of safety related function for every component in the pressurizer coffin area and determined that they are not needed during Mode 6 or a defueled condition. Further, this activity does not adversely impact UFSAR accident related systems, structures and components.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The margin of safety, as defined in the basis for any Technical Specification, is not reduced because inclusion of the pressurizer coffin area in the heavy load path will not affect the parameters upon which Technical Specifications are based.

## Safety Evaluation Summary Form

Tracking No. 6G-99-0059Activity No. DCR 980256DESCRIPTION:

Revise UFSAR Figure 9.2-4 Sheet 9 (P&ID M-49 Sheet 6) to reflect the as-built condition of the hypochlorite tank and feed pumps interconnecting piping.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The hypochlorite system is not an initiator of any accident described in the UFSAR either by its failure or by its improper operation. None of the equipment associated with the hypochlorite system is equipment important to safety. The hypochlorite system has no interface with equipment important to safety. The hypochlorite system does not function to mitigate the consequences of any accident described in the UFSAR. It does not function to limit or contribute to offsite dose.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The function and operation of the hypochlorite system are not changed. The valves that are being reflected in the UFSAR Figure would be expected on a well designed pump and tank skid. There are no new interfaces with other plant systems due to this change.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The hypochlorite system is not reflected in the Technical Specifications and the operation of the hypochlorite system does not support the safety function of any system reflected in Technical Specifications.

## Safety Evaluation Summary Form

Tracking No. 6G-99-0078Activity No. DCR 990052DESCRIPTION:

The proposed activity revises architectural drawings and UFSAR Figure 5.2-5 to delete one of two floor drains in the containment regenerative heat exchanger room at elevation 396'-6" to reflect the as-built condition of the plant.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed change will not change the function or operation of the reactor building equipment drain (RE) and reactor building floor drain (RF) systems. The proposed changes will have no effect on the operation of the containment sump monitors which are part of the reactor coolant system leakage detection system. A review of the containment flooding analysis determined the containment flooding calculations are not impacted. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed change will not change the function or operation of the RE and RF systems. The proposed changes will have no effect on the operation of the containment sump monitors and containment flooding analysis calculations are not impacted. The piping systems remain seismically qualified as originally designed. No physical changes are being made in the plant. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed change does not affect any parameters upon which Technical Specifications are based; therefore, there is no reduction in the margin of safety.

**PEPP-E FORM**

Safety Evaluation Summary Form

Tracking No. 6G-99-0108  
Activity No. DCR 990092

DESCRIPTION:

DCR 990092 will reflect the as built status of the non-essential service water (WS) system as shown on P&ID's M-43-1/2A/2B/3A, M-127-1A/2 and M-551-10. The changes made to the drawings are the inclusion of small vent and drain valves and the removal of check valve 0WS245 which was never installed.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety is not increased because the WS system provides heat removal for the balance of plant equipment. No equipment important to the safe shutdown of the reactor is served by the WS system. The WS system is non-safety related since all essential loads, and those required for the safe shutdown of the reactor, are served by the essential service water system (SX). Accordingly, the WS system is designated Safety Category II, Quality Group D. None of the loads served by WS affect the safety of the plant.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

No accidents or malfunctions of a different type than any evaluated previously in the safety analysis report will be created by the proposed change to the facility. The proposed change is an update to the WS piping schematic to match the as-built condition of the system. The components involved are normally closed vent and drain valves. This type of component is operated infrequently and has little impact on the operation of the system. The check valve (0WS245) was located in the circulating water pump house which is a non-seismic, non-safety related structure. The removal of this check valve will not create any flooding concerns. Therefore, no new failure modes are created by the proposed change.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

Technical Specifications are not affected as the WS system provides heat removal for the balance of plant equipment. No equipment important to the safe shutdown of the reactor is served by the WS system. The WS system is non-safety related since all essential loads, and those required for the safe shutdown of the reactor, are served by the SX system. Accordingly, the WS system is designated Safety

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6G-99-0108Activity No. DCR 990092

Category II, Quality Group D. None of the loads served by WS affect the safety of the plant. Therefore, the margin of safety as described in the basis for any Technical Specification is not affected.

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Safety Evaluation Summary Form

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Tracking No. 6G-99-0129  
Activity No. DCR 990200

DESCRIPTION:

The proposed activity revises P&IDs M-35-1, M-35-2, and M-120-1-1 to show the 1MS020A/D, 1MS022A/D, 2MS020D, and 2MS022D valves as normally closed.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The effect of the proposed activity will be negligible. These valves are in series with the normally closed 1/2MS021A-D and 1/2MS023A-D valves. Closing an additional valve in series on the two main steam branch lines provides double isolation.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

Closing an additional isolation valve on a main steam branch line will not create a malfunction of a different type. A steamline break and the resulting reactor coolant system cooldown has been analyzed and this is the only possible failure mode of this activity. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

Closing an additional valve in series will ensure the main steam branch lines are isolated and therefore preventing an unmonitored release path from the containment to the atmosphere. The original design called for single valve isolation while the change provides for dual valve isolation. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.



## Safety Evaluation Summary Form

Tracking No. 6G-99-0147Activity No. DCR 990100DESCRIPTION:

The proposed activity adds valves 1SH652 and 2SH652 to drawings M-72 Sheets 7 and 8, the EWCS database, and UFSAR Figures 9.2-20 Sheets 7 and 8. These valves were found to exist in the field but were not shown on the drawings, databases, or UFSAR figures. Adding them to the drawings and databases facilitates configuration control of the valves. The existence of the valves was reviewed against the system design and the valves were determined to be within the requirements of the design (i.e., the system design does not prohibit the existence of valves in the location that they were found to exist).

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The activity of showing these valves on the design drawings facilitates configuration control and does not increase the possibility of any accident or malfunction of equipment important to safety. In fact, the consequences of any accidents or transients are reduced because the existence of the valves will be known and identification of any problems associated with these valves will be more quickly determined. The station heating (SH) system is a non-safety-related system that does not interact with systems important to safety in any ways that affect the probability of an accident or malfunction.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The activity of showing these valves on the design drawings facilitates configuration control and does not create any new accident or malfunction. In fact, the possibility of any accidents or malfunctions is reduced because the existence of the valves will be known and identification of any problems associated with these valves will be more quickly determined. The SH system is a non-safety-related system that does not interact with systems important to safety in any ways that affect the possibility of a new accident or malfunction.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The SH system is not mentioned in the basis of any Technical Specification. The non-safety-related SH system does not interact with equipment important to safety

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Safety Evaluation Summary Form

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Tracking No. 6G-99-0147

Activity No. DCR 990100

and inclusion of these drain valves on the SH system design documents does not create any new system functions or interactions.

**PEPP-E FORM**

## Safety Evaluation Summary Form

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Tracking No. 6G-99-0155Activity No. DCR 980282DESCRIPTION:

This proposed activity adds valves to UFSAR Figure 9.2-4 Sheets 5 and 6, corrects typographical errors, and updates the EWCS equipment database. This activity was the result of finding makeup demineralizer (WM) system equipment in the plant that was not shown on the UFSAR figure or identified in EWCS. A walkdown was performed due to the discrepancies that were discovered and this activity will update the design documents to reflect as built conditions.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The changes to the UFSAR figures do not change the design basis of the WM system. The non-safety related WM system does not affect the probability of any accident or malfunction and the changes incorporated by this activity do not create any new interactions for this non-safety-related system. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The WM system is a non-safety-related system and its design basis is not being changed by this activity. Corrections to the design drawings to match the as built conditions do not create any new accidents or malfunctions of any type.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

This is a non-safety-related system and is not addressed in the basis of any Technical Specification. The affected WM components do not interact with any equipment that affects the margin of safety of any Technical Specification.

## Safety Evaluation Summary Form

Tracking No. 6G-99-0167Activity No. DCR 990111DESCRIPTION:

The proposed activity adds valves 0WO5151 thru 0W05153 and pressure indicator OPI-WO419 to P&ID M-118 Sheet 1, the EWCS database, and UFSAR Figure 9.2-17 Sheet 1. These valves and pressure indicator were found to exist in the field but were not shown on the drawing, database, or UFSAR figure. Adding them to the drawing and database facilitates configuration control of the valves. The existence of the equipment was reviewed against the system design and was determined to be within the requirements of the design (i.e., the system does not prohibit the existence of the equipment in the location that they were found to exist).

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The activity of showing this equipment on the design drawing facilitates configuration control and does not increase the possibility of any accident or malfunction of equipment important to safety. In fact, the consequences of any accidents or transients are reduced because the existence of the equipment will be known and identification of any problems associated will be more quickly determined. The service building chilled water (WO) system is a non-safety-related system that does not interact with systems important to safety in any ways that cause the probability of an accident or malfunction.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The activity of showing this equipment on the design drawing facilitates configuration control and does not create any new accident or malfunction. In fact, the possibility of any new accidents or malfunctions is reduced because the existence of the equipment will be known and identification of any problems associated will be more quickly determined. The service building WO system is a non-safety-related system that does not interact with systems important to safety in any ways that cause the possibility of a new accident or malfunction.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The service building WO system is not mentioned in the basis of any Technical Specification. The non-safety-related service building WO system does not interact with equipment important to safety and inclusion of this equipment on the

<b>PEPP-E FORM</b>
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Safety Evaluation Summary Form

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Tracking No. 6G-99-0167

Activity No. DCR 990111

service building WO system design document does not create any new system functions or interactions.

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6G-99-0169  
Activity No. DCR 990110

DESCRIPTION:

The proposed activity adds valves 0SH652, 0SH653 and pressure indicator 0PI-SH197 to P&ID M-72 Sheet 1A, the EWCS database, and UFSAR Figure 9.2-20 Sheet 1. These valves and pressure indicator were found to exist in the field but were not shown on the drawing, database, or UFSAR figure. Adding them to the drawing and database facilitates configuration control of the valves. The existence of the equipment was reviewed against the system design and was determined to be within the requirements of the design (i.e., the system design does not prohibit the existence of the equipment in the location that they were found to exist).

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The activity of showing this equipment on the design drawing facilitates configuration control and does not increase the possibility of any accident or malfunction of equipment important to safety. In fact, the consequences of any accidents or transients are reduced because the existence of the equipment will be known and identification of any problems associated will be more quickly determined. The station heating (SH) system is a non-safety-related system that does not interact with systems important to safety in ways that affect the probability of an accident or malfunction.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The activity of showing this equipment on the design drawing facilitates configuration control and does not create any new accident or malfunction. In fact, the possibility of any new accidents or malfunctions is reduced because the existence of the equipment will be known and identification of any problems associated will be more quickly determined. The SH system is a non-safety-related system that does not interact with systems important to safety in any ways that affect the possibility of a new accident or malfunction.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The SH system is not mentioned in the basis of any Technical Specification. The non-safety-related SH system does not interact with equipment important to safety

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6G-99-0169  
Activity No. DCR 990110

and inclusion of this equipment on the SH system design document does not create any new system functions or interactions.

**PEPP-E FORM**

Safety Evaluation Summary Form

Tracking No. 6G-99-0238  
Activity No. DCR 990257

DESCRIPTION:

The proposed activity revises drawing M-52-3 to reflect the correct valve type for fire protection (FP) ring header drain valves 0FP5154, 0FP5158, and 0FP5160. These valves are shown in drawing M-52-3 as globe valves where the as installed valves are gate valves.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The valves are in a normally closed position on a dead ended drain line and are not in the normal system flow path. The change in valve type has no impact on FP system operation. The valves are provided to allow draining the FP system and changing the type of valve does not impact the ability of the drain valve to perform this function. The subject valves do not create a new release path for radioactive fluid. Therefore, the proposed change will not increase the probability of occurrence or the consequences of an accident or malfunction of equipment to safety as originally evaluated in the safety analysis report.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The valves are in a normally closed position on a dead ended drain line and are not in the normal system flow path. The change in valve type has no impact on FP system operation. The design requirement for these drain valves remains unchanged by the change in valve type. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed change does not affect any equipment in the Technical Specifications. Therefore, the margin of safety, as defined in the Technical Specifications, is not reduced.

**PEPP-E FORM**



Safety Evaluation Summary Form

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Tracking No. 6H-99-0037  
Activity No. DCR 990012

DESCRIPTION:

The proposed activity updates drawing M-152-36 to provide valve numbers for existing containment chiller hot gas bypass valves that were not previously provided valve numbers.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed activity only provides valve numbers for existing valves installed under a previously evaluated design change and does not modify plant equipment. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed activity only provides valve numbers for existing valves installed under a previously evaluated design change and does not modify plant equipment. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The containment chillers are not addressed by the Technical Specifications and the addition of valve numbers to existing valves does not affect the margin of safety for any Technical Specification.

Safety Evaluation Summary Form

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Tracking No. 6H-99-0059  
Activity No. DCR 990027

DESCRIPTION:

This activity updates UFSAR Figure 9.2-2 Sheet 12 which depicts the chemical addition system at the essential service water towers. The updates to the print included changes to valve types and pipe sizes. These changes were made to make the print match the installed plant condition. The minor revisions to the print did not change the function of the system or how it interacts with any other system.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The function of the system and its interaction with any other systems was not changed by this activity. Minor revisions to valve types and pipe sizes to this non-safety-related chemical addition system do not increase the probability or consequences of any accident or malfunction.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The function of the system and its interactions with any other systems was not changed by this activity. Minor revisions to valve types and pipe sizes to this non-safety-related chemical addition system do not create the possibility of a different type of accident or malfunction.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The function of the system and its interactions with any other systems was not changed by this activity. Minor revisions to valve types and pipe sizes to this non-safety-related chemical addition system do not impact the margin of safety for the Essential Service Water system or any Technical Specification.

Safety Evaluation Summary Form

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Tracking No. 6H-99-0220  
Activity No. DCR 990031

DESCRIPTION:

The proposed activity adds existing auxiliary boiler pressure indicators 1/2PI-AS058 on drawings M-56-1C and M-133-1C.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

Adding existing pressure indicators on the referenced drawings as described in the SAR does not change the auxiliary boiler system. The pressure indicators already exist in the plant so no changes to installed plant equipment are being made. Showing the existing pressure indicators on the referenced drawings does not change the consequences of an accident or probability of a malfunction.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The pressure indicators are passive components that cannot create an accident or malfunction; therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The auxiliary boilers are not addressed by the Technical Specifications; therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

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Tracking No. 6H-99-0381  
Activity No. DCR 990106

DESCRIPTION:

The original brake horsepower (BHP) values used for various ventilation fans did not take into consideration the enveloping design conditions. The initial fan BHP values calculated were not based on the lowest design temperature for the HVAC systems so they did not reflect worst case electrical load requirements. The proposed activity will revise the Electrical Load Monitoring System for AC Loads (ELMS-AC) database to correct the motor BHP input values used for fans in the HVAC systems for the auxiliary building, main control room, diesel generator room, miscellaneous electrical equipment room, switchgear rooms, and containment.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The original BHP values used for the various ventilation fans did not take into consideration the enveloping design conditions. The initial fan BHP values calculated were not based on the lowest design temperature for the HVAC systems so they did not reflect worst case electrical load requirements. The change in the modeled BHP does not represent a change in the operation of the system. The load changes were evaluated using ELMS-AC which determined sufficient margin exists in capacity. Running voltages will remain above the minimum required for equipment operation. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The BHP values in the ELMS-AC database are intended to represent the worst case design load for the motors for each of the modeled load conditions. The BHP values used in ELMS-AC are the analytical values based on design limits and do not represent expected normal loading. Therefore, the change in the modeled BHP does not represent a change in the operation of the system. The increases in the modeled BHPs for the different fan motors will cause an increase in modeled loading for the auxiliary power (AP) system and the emergency diesel generators (EDGs). The load changes were evaluated using ELMS-AC which determined sufficient margin exists in capacity. The running voltages will remain above the minimum required for equipment operation and the 4160V ESF bus running voltages will be high enough to prevent actuation of the degraded voltage

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Safety Evaluation Summary Form

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Tracking No. 6H-99-0381  
Activity No. DCR 990106

relays for expected normal switchyard voltages. Therefore, operation of the AP system is not affected by the load changes. Since AP system operation is not affected, there will be no change in the operation of equipment powered by the AP system. Since the loading is within the capacity of the EDGs, there is also no change in operation of the EDGs. The change in the HVAC fan individual BHP loading does not result from a change to the systems or design conditions. The change takes into consideration the affects of temperature on fan BHP and uses the highest loading resulting from the current design temperatures. The change in modeled BHP for the fans does not affect operation of the fans for the entire temperature range. Since the change does not have any impact on the operation of the plant or individual systems and components and there is no physical change to the plant, the change in modeled loading does not create any accident or transient that has not already been addressed.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The degraded voltage and loss of voltage setpoints are based on the minimum voltages required for operation of the loads. The change in loading on the AP system does not affect the minimum voltage level required for operation of individual equipment. The changes to the affected fan motor BHPs do not change the minimum voltages required for their operation. The load changes do not affect operation of the relays or their accuracy. Therefore, based on the above, the setpoints do not require changing. The margin provided is the difference between the analyzed voltages required for proper operation of the equipment and the higher voltage established by the setpoints. Since the minimum required voltages are not increased and the setpoints are not lowered, there is no change in margin. The load increases do not result in running voltages below the setpoints for the expected range switchyard voltages. Since the capacity of the required power sources and qualified connecting circuits is sufficient for the new AP loading, availability of the sources is not affected. Since the load changes are within the capacity of the AP 4kV buses and EDGs, the number of AP ESF divisions available is not affected. The AP system was designed with excess capacity to accommodate load growth and not as design margin. The design margin in capacity results from the margin used to establish the limits for allowable capacity and the use of worst case design conditions to calculate loading. Therefore, the reduction in excess capacity from the load increase is not a reduction of margin of any Technical Specification parameters.

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Safety Evaluation Summary Form

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Tracking No. 6G-00-0059  
Activity No. DCR 990408

DESCRIPTION:

The proposed activity revises UFSAR Figures 11.2-7, 11.2-8, 11.2-9, and 11.2-18 to show that the radwaste filters are normally bypassed. Previously, the UFSAR figures showed the radwaste filters as normally in service. The changes to the figures will make them consistent with existing UFSAR statements.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The changes do not affect equipment important to safety and are consistent with other UFSAR statements. The changes are being made to UFSAR figures/drawings and no changes are being made to how the plant is operated or designed. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The affected systems are non-safety related and their failure would not impact any equipment important to safety. The changes do not affect the analysis of a liquid radwaste leak. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

No Technical Specifications are affected by this proposed activity and the changes do not affect any Technical Specification equipment or requirements. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

Tracking No. 6G-00-0083  
Activity No. DCR 990185

DESCRIPTION:

The proposed change updates several mechanical and electrical drawings to show the as built conditions of the chemical addition to the non-essential service water (WS) system.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety is not increased because the WS system provides heat removal for the balance of plant equipment. No equipment important to the safe shutdown of the reactor is served by the WS system. The WS system is non-safety related since all essential loads, and those required for the safe shutdown of the reactor, are served by the essential service water (SX) system. Accordingly, the WS system is designated Safety Category II, Quality Group D. None of the loads served by WS affect the safety of the plant.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

No accidents or malfunctions of a different type than any evaluated previously in the safety analysis report will be created by the proposed change to the facility. The proposed change is an update to the WS piping and electrical drawings to match the as built condition of the system. Therefore, no new failure modes are created by the proposed change.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

Technical Specifications are not affected as the WS system provides heat removal for the balance of plant equipment. No equipment important to the safe shutdown of the reactor is served by the WS system. The WS system is non-safety related since all essential loads, and those required for the safe shutdown of the reactor, are served by the SX system. Accordingly, the WS system is designated Safety Category II, Quality Group D. None of the loads served by WS affect the safety of the plant. Therefore, the margin of safety as described in the basis for any Technical Specification is not affected.

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6G-00-0090  
Activity No. DCR 99-471

DESCRIPTION:

The proposed change revises drawing M-49 Sheet 6 (UFSAR Figure 9.2-4 Sheet 9) to include more detail regarding the potable water (TW) system.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The TW system is non-safety related and has no affect on equipment important to safety. The TW system is not used to mitigate the consequences of an accident or malfunction of equipment important to safety. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The changes being made are to plant drawings only. The design intent of the system is not affected. The TW system cannot cause an accident or malfunction. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The changes being made do not affect any Technical Specifications. The TW system is not part of the Technical Specifications. The changes being made will not affect equipment that is part of the Technical Specifications.



Safety Evaluation Summary Form

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Tracking No. 6G-00-0098  
Activity No. DCR 980338

DESCRIPTION:

The proposed activity revises drawings to show the as-built configuration of components for the make-up demineralizer (WM) system, WM chemical feed systems, and well water (WW) systems. The DCR adds and/or correct location of flush and test connections, corrects tie-in points of piping on common headers, adds isolation valves not previously shown on drawings, adds new equipment numbers, corrects the isolation line-up for local pressure indicators, corrects the type of valve installed (i.e., ball valve or diaphragm valve), and adds information notes.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

No accident initiators, systems, structures or components used to mitigate accidents or equipment important to safety are affected. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The component configuration is in accordance with normal design practices. The make-up demineralizer has no safety function and there is no change in the ability of the WW system and the WM system to perform the required operations for providing water as designed. Therefore, The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The drawing revisions agree with as-built conditions and do not affect the deep well pumps or their ability to perform as required by the Technical Specifications. The drawing revisions do not impact the portion of the WW system that supplies water to the essential service water towers. All added as built flush connections for the makeup demineralizer portion of the WW supply system and tie-ins have dual isolation valves or an isolation valve and end cap to provide dual isolation. Therefore, the margin of safety is not reduced.

**PEPP-E FORM**

Safety Evaluation Summary Form

Tracking No. 6G-00-0145  
Activity No. DCR 990622

DESCRIPTION:

The proposed activity revises drawing S-1070 (UFSAR Figure 6.3-8 Details "D" and "E") to reclassify the inner recirculation sump screens from Category II to Category I. The proposed activity also revises drawing S-1065 to reclassify the designation for the Unit 2 recirculation sump checkered plate from Category II to Category I (the Unit 1 checkered plate was already shown as Category I on the drawing). The drawings incorrectly showed the inner screens and the Unit 2 checkered plate as Category II. The screens and checkered plate protect the emergency core cooling system (ECCS) sump from debris that could potentially block ECCS flow.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The change did not affect the reactor coolant system pressure boundary. Therefore, the probability and consequences of a LOCA were unchanged. The correction of the classification on the drawings for the checkered plate and inner sump screens has no adverse affect on the function of the sump screens, the recirculation sump, or the ECCS. No equipment important to safety was adversely affected by the change.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The change did not introduce any new failure mechanisms. The change in material classification provides a higher level of assurance that the components will perform their safety function. The change had no affect on equipment failures or malfunctions. No new equipment was added and no installed equipment is operated in a different manner. No new failure modes were introduced.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

All assumptions made in the bases for the ECCS Technical Specification were unaffected by the change. ECCS pumps remained fully operational, ECCS flow was unaffected, and the resultant accident consequences and associated margins of safety were unchanged.

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6G-00-0151  
Activity No. DCR 990294

DESCRIPTION:

The proposed activity revises drawing M-72 Sheet 3 (UFSAR Figure 9.24-20 Sheet 4) to show two 3/4" vent/drain valves that are installed in the station heat (SH) system.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The station heat (SH) system is non-safety related and has no affect on equipment important to safety. The SH system is not used to mitigate the consequences of an accident or malfunction of equipment important to safety. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The changes being made are to plant drawings only. The design intent of the system is not affected. The SH system cannot cause an accident or malfunction. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The changes being made do not affect any Technical Specifications and the SH system is not part of the Technical Specifications. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6G-00-0157  
Activity No. DCR 990265

DESCRIPTION:

The proposed activity implements as built drawing changes to add or correct information on the station heating (SH) and makeup demineralizer (WM) drawings and the associated EWCS database.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The SH system is a non-safety related system and is not required to function during accident or transient conditions. The makeup demineralizer also has no safety functions and the system is not taken credit for in any accident or transient mitigation function. Any equipment/component failure occurring within the SH or WM systems will have no impact on other safety-related equipment/components performing their safety functions. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The SH and WM systems provide no any safety functions; therefore, any failure associated with these systems will not create an accident or malfunction of a different type than any previously evaluated. As such, the proposed activities will not create any new accident or malfunction.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The SH and WM systems do not impact any Technical Specifications. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

Tracking No. 6G-00-0160  
Activity No. DCR 990478 and DCR 990480

DESCRIPTION:

The proposed activity is an as-build drawing change request to add information to the following station drawings for the following fire protection (FP) and carbon dioxide (CO) system components:

1. OPI-FP8028 - Drawings M-52 Sheet 5 and M-2052 Sheet 3 are being revised to show pressure indicator OPI-FP8028.
2. OCO5031A and OCO5031B - These valves are incorrectly listed as OCO035B and OCO35A, respectively, on drawings 6E-0-4962C, 6E-0-4030CO03, 6E-0-4030CO04, 6E-0-4961C, 6E-0-4961D and the SLICE cable tabs. The change will eliminate the incorrect valve number and insert the correct valve numbers.
3. 1FP5166/5167/5168/5169/5170/5171/5172 - These valves are being removed from drawing M-52 Sheet 3.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The probability of a design basis fire is based upon the occupancy of the area, associated fire hazards and ignition sources, and the fire detection and suppression available to mitigate fires that originate in the area. The proposed activity is a revision to drawings that does not change the occupancy, fire hazards or ignition sources, or the detection or suppression capability in the area. Therefore, the probability of occurrence of the accident is not increased.

Since the systems have maintained their capability to protect safe shutdown and safety-related equipment and safe shutdown equipment is not otherwise affected by the proposed changes, the conclusions of the safe shutdown analysis of Fire Protection Report Section 2.4 are unchanged. Therefore, the consequences of a design basis fire are not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed change revises drawings that do not physically alter the fire protection components in any areas of the plant or make any change to how these systems operate. The proposed change does not affect the operation of other plant systems or equipment because there is no interface between the FP and CO systems and other systems, structures, or components that are affected by the

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Tracking No. 6G-00-0160  
Activity No. DCR 990478 and DCR 990480

proposed change. Therefore, the proposed changes do not create the possibility of an accident or transient of a different type than previously evaluated.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed change revises drawings that do not physically alter the fire protection components in any areas of the plant or make any change to how these systems operate. The proposed change does not affect the operation of other plant systems or equipment because there is no interface between the FP system and other systems, structures, or components that are affected by the proposed change. Therefore, the proposed changes do not reduce the margin of safety as defined in the basis for any Technical Specification.

Safety Evaluation Summary Form

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Tracking No. 6H-00-0086  
Activity No. DCR 930142

DESCRIPTION:

Technical Evaluation 93-0094 evaluated the use of longer leads on the limit switches to the Unit 2 pressurizer safety valves. This DCR will indicate that the longer leads are applicable on prints 6E-2-4842D and 6E-2-3554CT2.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

This change has no impact on plant operations since it relocates a splice and does not change the electrical circuit. Mechanical mounting details and function are unchanged. Seismic mounting of the limit switch, electrical conduits, and junction boxes are also unchanged. The relocated splice still meets original equipment qualification requirements. There are no increases in the probability or consequences of an accident or malfunction since the above requirements are met.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

There are no changes in the original UFSAR assumptions due to the addition of longer leads. The change described is to update the prints to reflect the use of these longer leads; therefore, the possibility for an accident or malfunction of a different type than evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The addition of the longer leads will meet all the original requirements of the Technical Specifications and is not a functional change. Therefore, the pressurizer safety indication is not impacted nor the margin of safety reduced.

Safety Evaluation Summary Form

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Tracking No. 6G-01-0015  
Activity No. DCR 990687

**DESCRIPTION:**

The proposed activity updates drawing M-43 Sheet 1 (UFSAR Figure 9.2-1 Sheet 1) to show current plant configurations. The updated drawing shows removal of chemical addition pump OWS08M, valves OWS5013, OWS5014, and OWS5015, chemical addition tank OWS07M, and the tanks associated piping and calibration column. The name of valve OWS5016 is changed to indicate it is now a spare chemical injection point and the position is changed from normally open to normally closed. An existing chemistry vendor skid is also added to the drawing with the position of skid isolation valves OWS491 and OWS492 changed from normally closed to normally open. The skid monitors the water quality of the flume and directs addition of scale inhibitor and silt dispersion chemicals based on this water quality. The tie-in location of the tap-off to non-essential service water (WS) header OWS01B for the chemistry vendor skid is moved to show the actual location between the 0B WS pump discharge line and 0B WS strainer suction line.

**SAFETY EVALUATION SUMMARY:**

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The WS system is non-safety related since essential loads, and those required for the safe shutdown of the reactor, are serviced by the essential service water system. The WS system maintains its operating configuration, system chemistry is maintained in accordance with the description in the UFSAR, and performance parameters are unchanged. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

Operation of WS system is not changed. The method of taking water into the WS system and cooling nonessential loads is unchanged. Chemical treatment of the WS system controls organic slime buildup and inhibits scale and corrosion as described in the UFSAR. The WS system is non-safety related and does not provide cooling for any essential loads.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

There are no Technical Specifications affected by this design change. Therefore, the margin of safety is not reduced.



Safety Evaluation Summary Form

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Tracking No. 6H-01-0020  
Activity No. DCR 990408

DESCRIPTION:

The proposed activity revises drawings M-48 Sheets 6A, 7, 8, and 17. The drawings are being revised to add an editorial note stating "Filter may be bypassed as part of normal operation". The filters affected are 0WF01F, 0WZ03F, 0WY03F, and 0WE01F. The drawings currently show the filters are normally in-service through their normal valve positions. No changes to the normal valve positions are being made. DRP 6-088 changed the wording of the UFSAR to allow for bypassing these filters. The proposed change to the drawings is adding clarifying information that the bypassing is allowed. The drawings are also UFSAR figures.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed changes have no effect on the postulated events that could cause a release of the radioactive inventory of the spent resin storage tank or boron recycle hold up tanks. The accident initiators for these releases are operator error and small cracks that propagate. The proposed changes have no impact on either of these initiators. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

There is no effect on any equipment that is assumed to function in an accident or on any equipment that supports such equipment. The proposed change identifies equipment that can be bypassed as part of normal plant operations. The equipment is being operated in a method that has been reviewed. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

There are no Technical Specifications that are affected by the proposed change. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced apply to this change.

Draft Revision Packages (DRP)

1.	6G-99-0186
2.	6G-99-0234
3.	6H-99-0298
4.	6G-00-0012
5.	6G-00-0062
6.	6G-00-0099
7.	6G-00-0142
8.	6G-00-0143
9.	6G-00-0148
10.	6G-00-0149
11.	6H-00-0094
12.	6H-00-0118
13.	6H-00-0159
14.	6H-00-0163
15.	6H-00-0192
16.	6G-01-0010
17.	6G-01-0025
18.	6H-01-0013
19.	6H-01-0014
20.	6H-01-0015
21.	6H-01-0016
22.	6H-01-0025
23.	6H-01-0029
24.	6H-01-0061
25.	6G-02-0002
26.	6G-02-0003
27.	6G-02-0006
28.	6G-02-0007
29.	6G-02-0014
30.	6H-02-0028

## Safety Evaluation Summary Form

Tracking No. 6G-99-0186Activity No. DRP 8-077DESCRIPTION:

The purpose of this UFSAR change was to correct the circulating water (CW) pump and circulating water makeup pump flow rates listed in UFSAR Table 2.4-16. The CW pump flow was changed from 211,000 gpm/pump to 214,500 gpm/pump and the CW makeup pump flow was changed from 30,000 gpm/pump to 24,000 gpm/pump.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The probabilities of a CW line break, expansion joint failure, or loss of condenser vacuum are unchanged by correcting the CW pump and CW makeup pump flow values in the UFSAR. The arrangement of the river screen house and the function of safety-related equipment is not impaired should a failure of a CW makeup pump or component occur. Changing the CW makeup pump flow value in the UFSAR does not affect these flood protection features. In the event of a circulating line break which cannot be isolated, the turbine building could theoretically be flooded to grade level at Byron. Damage to turbine building equipment will not prevent safe shutdown of the plant because changing the CW pump flow value did not affect the results of these analyses. The change had no effect on equipment failures or malfunctions. Correcting the pump flow rates in UFSAR Table 2.4-16 creates no new failure modes. The CW system is not required to maintain the reactor in a safe shutdown condition or mitigate the consequences of any malfunction of equipment important to safety.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

Changing the CW pump and CW makeup pump flow values in UFSAR Table 2.4-16 does not create the possibility of an accident or transient of a different type. The change does not adversely affect CW system operation. The CW system design is based on the revised flow values.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

No Technical Specifications were affected. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

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Safety Evaluation Summary Form

Tracking No. 6G-99-0234  
Activity No. DRP 8-190

DESCRIPTION:

This purpose of this UFSAR change was to revise the description in Chapter 15 Section 15.5.1, "Inadvertent Operation of Emergency Core Cooling System During Power Operations", to remove statements that operator action will be taken to manually open the pressurizer power operated relief valves (PORVs). The transient description is revised to indicate that if the pressurizer PORVs are not available to open to relieve pressure then the pressurizer safety relief valves (PSRVs) will lift to relieve pressure initially releasing steam followed by subcooled water to mitigate the pressurizer overfill portion of the transient. The effect of the proposed activity will be an updated licensing basis and an updated operations procedure that will reflect the updated licensing basis.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The activity is not a precursor to the initiation of an inadvertent actuation of emergency core cooling system (ECCS) transient or any licensing basis accident described in the safety analysis report. The activity was to update the UFSAR to credit the PSRVs with mitigation of the pressurizer overfill portion of the inadvertent operation of ECCS during power operation (spurious SI) transient. The other transient potentially affected by this activity is the inadvertent opening of a pressurizer safety or relief valve transient. As described in UFSAR Section 15.6.1, this transient is initiated by a pressurizer or safety relief valve inadvertently opening. The precise cause of the inadvertent opening is not currently defined in the plant safety analysis. The inadvertent opening of a pressurizer safety or relief valve represents a challenge to the reactor core during critical at power operation as a departure from nucleate boiling ratio (DNBR) concern. Utilizing the relief valves may result in some degradation and the possibility that the valves may not fully reseal. The probability of the relief valves failing open due to water service application was previously evaluated in the SER for NUREG-0737, Item II.D.1. Thus, the change is bounded by the previously evaluated SER and does not increase the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The change is not an accident or equipment malfunction precursor. The change did not make physical changes to the facility or change the manner in which the facility is operated. For analysis purposes, the PORVs are assumed to not be available for mitigation of the inadvertent operation of ECCS during power operation accident. However, current Technical Specifications requires that "Each

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Safety Evaluation Summary Form

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Activity No. DRP 8-190

PORV and associated block valve shall be OPERABLE" during Modes 1, 2, and 3 (LCO 3.4.11). The initiating factors for the inadvertent operation of ECCS during power operation accident is unaffected. The potential consequences of this change are bounded by the "Inadvertent Opening of a Pressurizer Safety or Relief Valve" accident described in Section 15.6.1. Since the probability is unaffected and the potential consequences are bounded by an existing accident of the same accident class, the possibility of an accident or transient of a different type than previously evaluated is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The activity did not affect any sections of the Technical Specifications. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

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Tracking No. 6H-99-0298  
Activity No. DRP 7-177

DESCRIPTION:

The proposed activity revises the UFSAR to reflect the use of the emergency personnel airlock for access to and from the containment building during all modes of plant operation for Units 1 and 2.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The use of the personnel air locks does not interact with the nuclear fuel or fuel handling equipment, nor are any reactor coolant boundaries, steam piping, residual heat removal (RHR) system equipment, or RHR system piping affected. At least one air lock door is closed at all times to ensure containment integrity and restrict radioactive material release from containment in Modes 1-4 or with core alterations or irradiated fuel movement inside containment. Station procedures are in place to respond to a loss of decay heat removal. The frequency of air lock door usage is not judged to have any impact on the failure characteristics of the air lock. Leak testing is performed on the door seals in accordance with station procedures.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The usage of the emergency personnel air lock during all modes of plant operation does not initiate any accidents that result in the release of radioactivity inside containment. The design of the air lock doors ensures that only one door can be opened at a time. During Modes 1-4, station procedures allow opening of one door only after the other door has been fully closed, thus maintaining containment integrity. In Modes 5 and 6, one air lock door is closed during irradiated fuel movement or core alterations within containment and one air lock door is closed as required by Technical Specifications. The opening action of the air lock doors will not result in any different failure mechanism for the door or its seals. Door seals are leak tested per approved station procedures.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The change did not affect parameters upon which Technical Specifications are based.

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Safety Evaluation Summary Form

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Tracking No. 6G-00-0012

Activity No. DRP 9-085

DESCRIPTION:

The proposed UFSAR change revises UFSAR Figure 4.2-9, Rod Cluster Control Assembly Outline, with correct information for Byron and Braidwood. The change to the current drawing involves correcting spider hub dimensions.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

Although the control rods are assumed to function in many SAR transients, this proposed activity alters nothing in the actual plant, procedures used to operate the plant, or in any assumption made as an input to the accident or transient analyses. Since no accidents or transients are affected, the probabilities or consequences of an accident or transient are not changed.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

This proposed change alters nothing in the actual plant, procedures used to operate the plant, or in any assumption made as an input to the accident or transient analyses. Therefore, the possibility of a new accident or transient is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed change does not pertain to detail identified or assumed in the Technical Specifications or Technical Specification Bases. Therefore, the margin of safety is not affected.

Safety Evaluation Summary Form

Tracking No. 6G-00-0062  
Activity No. DRP 8-159

DESCRIPTION:

The proposed UFSAR change deleted UFSAR Table 3.9-10, "BOP Design Criteria for Active Valves", and revised UFSAR Table 3.9-9 to include balance of plant (BOP) active valves. The UFSAR change revised the upset, emergency, and faulted condition stress limits for ASME Code Class 2 and 3 BOP active valves to match the limits specified in the ASME Code.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The UFSAR change had no affect on the probability of a seismic event or any UFSAR accident. The probability of a seismic event is based on the geological conditions in the area near the site. The UFSAR change does not affect geological conditions. Active BOP valves remain fully qualified to the requirements of ASME Section II, therefore, the probability of a pipe break (loss of coolant accident, main steam line break, feedwater line break, or high energy line break) remains unchanged. The change did not adversely affect the initiators of any accident described in the UFSAR. Active BOP valves remain fully qualified to perform their accident mitigation functions as described in the UFSAR. The change had no affect on systems used to mitigate any accident or transient. The probability of an active valve failure is unchanged. BOP active valve were qualified by a combination of stress analysis including seismic loads where applicable, seismic analysis of extended structure were applicable, seismic analysis of extended structure were applicable, in-shop hydrostatic tests, in-shop seat leakage tests, and periodic inservice tests. Thus, the operability of BOP active valves is unchanged.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The change did not affect the qualification of BOP active valves. No systems, structures, or components were adversely affected by the change. The UFSAR change did not physically change any system, structure, or component. No new failure modes have been created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

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Tracking No. 6G-00-0062  
Activity No. DRP 8-159

All ASME components remain within the requirements of the ASME Code.  
Therefore, the margin of safety, as defined in the basis for any Technical  
Specification, is not reduced.

Safety Evaluation Summary Form

Tracking No. 6G-00-0099  
Activity No. DRP 9-031

DESCRIPTION:

This proposed UFSAR change changes the requirement in Appendix E.30 for the containment hydrogen monitors to be functional from 30 minutes to 90 minutes and includes the following justification statements:

Allowing 90 minutes for the system to be functional is acceptable based on the following:

1. The expected hydrogen concentration at 90 minutes is only 1.2% versus 1.0% at 30 minutes. This is still within the 0-10% and 0-30% range of the hydrogen monitors and per UFSAR Figure 6.2-36, this is still less than the 1.8% hydrogen concentration expected at 20 hours post-loss of coolant accident (LOCA), when the recombiners are assumed to be in service.
2. A recombiner cannot be placed in service until containment temperature is <225°F. This occurs between approximately 15 minutes and 2 hours and 45 minutes depending on the exact LOCA break location. Therefore, in several accident scenarios, even if containment hydrogen concentration were known at 30 minutes, a recombiner would not be permitted to be started at that time.
3. Extending the time for making the hydrogen monitors functional reduces the chance that hydrogen control activities could potentially distract operators during the extremely busy period following an accident, which has a positive impact on public health and safety by reducing the probability of operator error during potential accidents and hence reduce core damage frequency.
4. A hydrogen recombiner is not required to be placed in service until about 20 hours post-LOCA to maintain containment hydrogen <4%.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

Making the hydrogen monitors functional is an action taken in response to an accident or transient; it is not an initiator of an accident or transient. Therefore, allowing an extra 60 minutes to place the hydrogen monitors on-line will not increase the probability of occurrence of any accident or transient. The hydrogen monitors are used to determine containment hydrogen concentration. Other than starting the hydrogen mixing system (reactor containment fan coolers), which does not actually remove any hydrogen from containment, the only influence operators have over containment hydrogen concentration post-LOCA is to place the

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Tracking No. 6G-00-0099  
Activity No. DRP 9-031

hydrogen recombiners or the post-LOCA purge system in service if necessary. Per the UFSAR, Figures 6.2-7 through 6.2-12a, the recombiners cannot be placed in service before, at a minimum, 15 minutes to 2 hours and 45 minutes, depending on the specific accident, and the recombiner effect is not significant until 20 hours post-LOCA. Calculation BRW-99-0483-M/BYR99-0127, "Analysis of Post LOCA Hydrogen Concentration in Containment - Bounding Case," Revision 2, assumes that a single hydrogen recombiner is placed in service at about 20 hours post-LOCA.

Making the hydrogen monitors functional at 90 minutes instead of 30 minutes still allows 16 1/2 hours to initiate steps to place the hydrogen recombiners or post-LOCA purge in service; more than ample time to perform this activity (16 1/2 hours = 20 hours minus 90 minutes for functional hydrogen monitors minus 2 hours to put the recombiners in service). Placing the hydrogen recombiner in service prior to 20 hours will maintain containment hydrogen < 4% as well; therefore, there is no increase in the consequences of any accident or transient.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

There is no change in the manner in which the hydrogen monitors are operated. They will still be maintained in the "standby" condition under Technical Requirements Manual Section 3.3.j. The hydrogen monitors will still be made functional in accordance with operating procedure BOP PS-09. Therefore, changing the time required to make them functional from 30 to 90 minutes will not create the possibility an accident or malfunction of a different type than any previously evaluated.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The hydrogen monitors will continue to be maintained in an operable condition per the Technical Specifications. Therefore, no Technical Specification is impacted by this change.

Safety Evaluation Summary Form

Tracking No. 6G-00-0142  
Activity No. DRP 8-110

DESCRIPTION:

The proposed activity revises UFSAR Section 2.4.13.4, page 2.4-41 from "Six domestic and agricultural water wells are being monitored..." to state "Six domestic and agricultural water wells have been monitored....". Additionally "and groundwater and surface water monitoring is presently being conducted by Commonwealth Edison Company." will be deleted.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed change (administrative in nature) does not impact any design features or adversely affect the ability to achieve and maintain safe shutdown of the plant. This activity was performed during construction and is no longer required. The UFSAR change will reflect the present state at which Byron Station monitors groundwater.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The UFSAR change does not impact any equipment important to safety or affect safe shutdown capability. The change is administrative in nature and represents the present condition of testing performed by Byron Station. The groundwater monitoring near the Byron Salvage/Dirks Farm superfund site was done voluntarily up to 1991. ComEd never was required by USEPA to sample groundwater in that area. This change is administrative in nature.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed activity has no impact on the bases of any Technical Specification. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

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Tracking No. 6G-00-0143  
Activity No. DRP 9-033

DESCRIPTION:

The proposed activity revises UFSAR Section 9.2.2.4.4 to describe the design basis leakage for the component cooling (CC) system and to clarify system line-up after a loss of coolant accident (LOCA).

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The revision of UFSAR Section 9.2.2.4.4 will not increase the probability of occurrence of any accident or transient. There is no physical change to the CC system. As discussed in UFSAR Section 3.6.2 and evaluated by calculation, no significant leakage in the CC system is expected. No through-wall cracks are postulated for the safety-related portions of the CC system. The CC system is not an initiator of any previously evaluated accidents or transients. The CC system remains fully capable of performing its support function as assumed in all previously evaluated accidents or transients. The proposed UFSAR change only adds a clarification to the description of the CC system.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

There is no physical change to the CC system. As discussed in UFSAR Section 3.6.2 and evaluated by calculation, no significant leakage in the CC system is expected to occur. Therefore, this UFSAR change will not create the possibility of an accident or transient of a different type than any previously evaluated.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed UFSAR change does not document any physical changes in the plant. The margin of safety, as discussed in the Technical Specification Bases, includes the potential need to manually realign the system depending on the magnitude of the failure. This change only clarifies that the CC trains would not need to be separated unless a leak occurred which was larger than the design-basis leak postulated for the system. As discussed in UFSAR Section 3.6.2 and evaluated per calculation, no through-wall cracks are postulated for the safety-related portions of the CC system. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

<b>PEPP-E FORM</b>
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Safety Evaluation Summary Form

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Tracking No. 6G-00-0148  
Activity No. DRP 8-156

DESCRIPTION:

The proposed UFSAR change makes several corrections to UFSAR Section 3, Section 6.3.2.5, and Appendix A1.92 (Regulatory Guide 1.92). References to the station heating system were removed from containment penetration discussions since the station heating system does not penetrate the containment building. The exceptions to Regulatory Guide 1.92 were removed in Section 3.7.3.7 and in Appendix A1.92. ASME pump testing frequency was changed from monthly and quarterly to periodically per ASME Inservice Testing Criteria. Additional corrections were made for snubber loading, control rod drive mechanism travel, and Class 1 valve data.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed UFSAR revisions do not change the design, function, or operation of any system, structure, or component which may have the potential to increase the probability of occurrence or the consequences of an accident or malfunction of equipment. The proposed changes only affect the descriptions in the UFSAR by clarifying existing statements. The proposed changes reflect actual plant conditions, plant configuration, and design methods.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The equipment associated with the proposed UFSAR changes is not physically being changed and there are no changes to the function or operation of plant equipment. Therefore, a malfunction or possibility of an accident different than previously evaluated is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

Technical Specifications are not affected by this activity. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

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Tracking No. 6G-00-0149  
Activity No. DRP 8-158

DESCRIPTION:

Several discrepancies were identified in the UFSAR under the Design Basis Initiative (DBI) program. The following discrepancies will be corrected by this UFSAR change:

DBI Open Item Number 1293 - Several parameters such as Ultimate Stress, Yield Stress, Strength Coefficient (K), Hardness Exponent (n) and the number of specimens tested for A-106 Grade B material will be corrected.

DBI Open Item Number 64 - The method of combining the seismic response will be corrected.

DBI Open Item Number 2577 - The load combinations will be revised to match Westinghouse Specifications 955926 and 966927.

DBI Open Item Number 2836 - The dimensions for Category I buildings will be revised to match their respective design drawing dimensions.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

This change (administrative and editorial in nature) does not impact any design features or adversely affect the ability to achieve and maintain safe shutdown of the plant. The UFSAR change will reflect the present designed bases for Byron/Braidwood Stations. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

This UFSAR change does not impact any equipment important to safety or affect safe shutdown capability. The changes are administrative and editorial in nature and reflect the design basis of the plant. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6G-00-0149  
Activity No. DRP 8-158

No Technical Specifications are impacted by this UFSAR change. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

**PEPP-E FORM**



Safety Evaluation Summary Form

Tracking No. 6H-00-0094  
Activity No. DRP 7-033

DESCRIPTION:

The proposed UFSAR change revises UFSAR Section 10.4.9.3 (Auxiliary Feedwater System Safety Evaluation) and Table 3.2-1 (Safety Category and Quality Group Classification for Structures and Components) by adding a statement that a seismic analysis has been performed on the carbon dioxide storage tank (0CO01T) located in the Unit 1 turbine building near the air intake for the 1B auxiliary feedwater (AF) pump diesel (1AF01PB-K) and that a seismic event will not effect the structural integrity of the tank nor effect the functional requirements of the AF system.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed UFSAR change will not increase the probability of any of the accidents previously evaluated in the safety analysis report (SAR). This change does not involve any physical changes to any plant equipment nor does it involve any change to an operating procedure or test. Therefore, there is no change to the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

There is no physical change to the plant or equipment associated with this UFSAR revision. The affected equipment, the carbon dioxide tank and the AF diesel, will not be affected. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the SAR is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed change does not affect any parameters upon which any Technical Specifications are based; therefore, no reduction in margin of safety exists.

**PEPP-E FORM**

Safety Evaluation Summary Form

Tracking No. 6H-00-0118  
Activity No. DRP 8-186

DESCRIPTION:

The proposed UFSAR change revises UFSAR sections discussing the flood protection design of the essential service water (SX) pump rooms to indicate that these rooms are watertight in relation to the design basis flood in the rooms. The affected UFSAR sections are 3.4.1.2, 9.2.1.2.4, 9.2.1.2.7, 9.3.3.1 and 9.3.3.2. Also, DRP 8-186 added that the safe shutdown capability of the plant is not degraded by the flood levels in the SX pump rooms due to break flows from higher elevations.

The changes made by DRP 8-186 were necessary to clarify the watertight level of the SX pump rooms and document the evaluation of the flood levels in the SX pump rooms due to break flows at higher elevations. The UFSAR refers to the SX pump rooms as being watertight. The doorways and penetrations leading into the SX pump rooms are watertight except for ventilation ducts connecting the SX pump rooms to the auxiliary building equipment drain pump rooms and the auxiliary building floor drain sump rooms. The lowest elevation of these ducts is approximately 340 feet 10 inches; this elevation is 10 feet 10 inches above the floor elevations in the SX pump rooms.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed UFSAR changes do not have any physical impact on plant equipment. The auxiliary building flood level calculation determines the flood levels resulting from postulated design basis line cracks. The location of these cracks have been postulated based on piping stress levels in accordance with the requirements of the Standard Review Plan, NUREG-0800, Section 3.6.1, "Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment." The proposed UFSAR changes do not have any impact on the stress levels in plant piping; therefore, the probability of a piping failure is not increased. The conclusions of the UFSAR related to the SX pump rooms are not affected. A design basis piping failure in an SX pump room will not affect the equipment in the other SX pump room; each SX pump room is watertight in relation to the design basis flood level for the room.

Considering the flowpath into the SX pump rooms through the equipment and floor drain sump pump rooms, the resulting flood levels do not invalidate the conclusions of the design basis evaluations. The maximized flood level in one SX pump room is below the flood level listed in UFSAR Section 9.3.3.2. Furthermore, the concurrent maximized flood levels in both SX pump rooms do not affect any

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6H-00-0118  
Activity No. DRP 8-186

safe shutdown equipment in the rooms. The safe shutdown capability, after a design basis auxiliary building flooding event is maintained.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed UFSAR changes are needed to clarify the watertight reference to the SX pump rooms and the auxiliary building floor and equipment drain pump rooms. Although the SX pump rooms are not fully watertight, the only opening into the rooms that is not watertight is located at an elevation significantly higher than the evaluated flood level in the rooms (10.8 feet versus 19 inches). Therefore, the SX pump rooms can be considered to be watertight with respect to each other in relation to design basis flood levels due to breaks in the rooms. Considering the flowpath into the SX pump rooms through the equipment and floor drain sump pump rooms, the resulting flood levels in the SX pump rooms do not invalidate the conclusions of the existing analyses. The safe shutdown capability following an auxiliary building flooding event is maintained. The conclusions of the UFSAR evaluation of auxiliary building flooding are not affected. Furthermore, the level of protection for plant safety related equipment from postulated design basis floods is not reduced. Therefore, the proposed UFSAR changes do not create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

Considering the flowpath into the SX pump rooms through the equipment and floor drain sump pump rooms, the resulting maximized flood levels in one SX pump room from the worst case break are bounded by the flood levels evaluated in Section 9.3.3.2 of the UFSAR. More importantly, the maximized, concurrent flood levels in both SX pump rooms do not affect the operation of any safe shutdown equipment in the rooms. The conclusions of the evaluations that confirm the safe shutdown capability after auxiliary building flooding are maintained. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

Tracking No. 6H-00-0159  
Activity No. DRP 8-190

DESCRIPTION:

The proposed change revises the Byron/Braidwood description in Chapter 15, Section 15.5.1, "Inadvertent Operation of Emergency Core Cooling System During Power Operations" to remove statements that operator action will be taken to manually open the pressurizer power operated relief valves (PORVs). The transient description will be revised to indicate that if the pressurizer PORVs are not available, the pressurizer safety relief valves (PSRVs) will lift to relieve pressure, initially releasing steam followed by subcooled water. The existing discussion of the pressurizer overfill case will be deleted.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

Following an inadvertent operation of emergency core cooling system (ECCS) event, water relief through the PSRVs may result in internal valve damage. Byron Station has committed to inspecting and repairing the PSRVs after an event that resulted in water discharge. Therefore, at the resumption of normal plant operation following a spurious safety injection (SI) event, the PSRVs will be operable per design so the probability of an "inadvertent" opening is not increased.

Water discharge through the PSRVs, subsequent to a spurious SI event, will not impair the valves safety function assumed in the accident analysis since the PSRVs will be repaired prior to returning the plant to normal operation. The PSRVs will then be able to perform their function assumed in the reactor coolant system (RCS) overpressurization accidents.

The proposed change to utilize the PSRVs instead of the PORVs does not change the consequences of the spurious SI at power transient. RCS inventory will pass through the PSRVs, in place of the PORVs, to the pressurizer surge tank potentially rupturing the tank rupture disc and spilling contaminated fluid into containment. The radiological consequences remain bounded by the existing analysis.

Water relief through the PSRVs in response to a spurious SI will not result in three (3) fully open PSRVs so that the spurious SI event does not progress into a higher class transient (i.e., LOCA, Condition III). All three PSRVs may lift in response to the event, but they will close, and the resulting leakage from three PSRVs is expected to be bounded by flow through one fully open PSRV. Thus, the spurious SI transient may result in a limited version of an inadvertent PSRV stuck in the open position (also a Class II event).

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6H-00-0159  
Activity No. DRP 8-190

In the evaluation of an "Inadvertent Opening of a Pressurizer Safety or Relief Valve", an accidental depressurization of the RCS is postulated, potentially resulting in a release of RCS inventory into containment through a PSRV and pressurizer surge tank rupture disc. No fuel damage is assumed to occur as a result of this event. As such, the radiological releases (offsite dose) resulting from this breach of the rupture disc were found to be "substantially less than that of a LOCA", but no quantifiable value is given for this dose. Since the leaking PSRV in the spurious SI event occurs well after the reactor has tripped, the consequences of the event are bounded by the present analysis in UFSAR Section 15.6.1.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed activity does not make physical changes to the facility and does not change the manner in which the facility is operated. For analysis purposes, the PORVs are assumed to be unavailable for mitigation of the Inadvertent Operation of ECCS during Power Operation accident and water discharges through the PSRVs. This scenario is a limited version of an inadvertent opening of a PSRV which is analyzed in Section 15.6.1 of the UFSAR. No failures of a different type than already analyzed in the UFSAR are created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The PSRVs will be repaired prior to returning the plant to normal operation. Therefore, water discharge through the PSRVs will not impair the valves safety function upon return to normal plant operation.

During the spurious SI transient, the RCS safety limit is not challenged since the physical configuration of the high head ECCS pumps (centrifugal charging pumps) combined with the pumps shutoff head do not exceed 2735 psig (2600 shutoff head plus about 40 psig from the refueling water storage tank head pressure on the suction side of the pumps).

The PORVs are not assumed to operate during the spurious SI transient. The discharge piping from the PSRVs and PORVs runs into a common line upstream of the Pressurizer Relief Tank. The integrity of the PSRVs discharge piping is maintained upon water discharge through the PSRVs; therefore, the relief capacity of the PORVs is maintained. Furthermore, the water discharge through the PSRVs does not in any way impact the ability to manually operate the PORVs as required to mitigate the consequences of an steam generator tube rupture (TS Basis 3.4.11).

**PEPP-E FORM**

Safety Evaluation Summary Form

Tracking No. 6H-00-0163  
Activity No. DRP 9-006

DESCRIPTION:

The proposed activity revises Sections 7.2.2.3.7 and 7.3.2.3 of the UFSAR. These sections of the UFSAR provide a discussion of the effect of an adverse environment on the automatic rod control system.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed activity does not result in the physical alteration of any system, structure, or component (SSC). The proposed activity revises the bases for concluding that the effect of an adverse environment on the automatic rod control system does not represent a significant safety question. Additionally, the proposed UFSAR revision does not affect the initiators of any UFSAR Chapter 6 or Chapter 15 transient analyses. Finally, crediting failed equipment is inappropriate since it is not known in which direction the equipment would fail and is a non-traditional approach in performing analysis. Eliminating reference to the negative flux rate trip protective feature will not affect the consequences of such a failure. Therefore, there is no increase in the probability or consequences of an accident or malfunction of equipment important to safety.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed activity does not result in the physical alteration of any SSC. The proposed activity revises the bases for concluding that the effect of an adverse environment on the automatic rod control system does not represent a significant safety question. There are no changes to any SSC, process, or procedure so there are no activities that could create the possibility of an accident or transient of a different type than those previously analyzed.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed activity does not affect any of the required design basis accidents as defined in NUREG 0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Stations," and explicitly described in Chapters 6 and 15 of the Byron/Braidwood Updated Final Safety Analysis Report. The proposed activity merely revises the bases for concluding that the effect of an adverse environment on the automatic rod control system does not represent a

**PEPP-E FORM**

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Tracking No. 6H-00-0163

Activity No. DRP 9-006

significant safety question. Rod withdrawal as a result of environmental failure of the excore detectors prior to reactor trip is considered unlikely based on the physical location of the detectors and the number of detectors that must fail in the same direction. In the unlikely event of a steamline break resulting in coincident automatic rod withdrawal due to exposure of the excore neutron detectors to an adverse environment, operator training, procedures, and available control board indication are considered adequate to diagnose and terminate the event. The Bases of Technical Specifications do not consider the scenario described in UFSAR Sections 7.2.2.3.7 and 7.3.2.3. Therefore, the margin of safety is not reduced.

**PEPP-E FORM**

Safety Evaluation Summary Form

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Tracking No. 6H-00-0192  
Activity No. DRP 8-075

DESCRIPTION:

The proposed UFSAR change revises the type of filters specified for use in the miscellaneous electrical equipment room and safety related switchgear room (VE/VX) ventilation systems. The filter type is being changed from one with fiberglass media to one with synthetic media.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The new type of filter performs the same function as the original filters. The operation of the affected systems and plant is not being changed. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The new filters meet or exceed the requirements of the original filters; therefore, the operation of the system is not affected. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed change will not affect operation of the system or plant. The required area temperatures will still be met with the new filter media. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.



Safety Evaluation Summary Form

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Tracking No. 6G-01-0010  
Activity No. DRP 9-041

DESCRIPTION:

The proposed change to the UFSAR revises UFSAR Section 9.5.2.1 to add a description of the Emergency Notification System (ENS) and the Emergency Response Data System (ERDS), revises UFSAR Section 9.2.1.2.1 to add a description of the essential service water (SX) system opposite unit cross-tie, revises UFSAR Section 10.4.7.5 to add a description of the erosion/corrosion inspection program, and revises UFSAR Section 6.3.2 to add valves 1/2SI8802A to list of valves evaluated for pressure locking.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The UFSAR changes did not involve physical changes to the facility and did not physically alter the performance characteristics or challenge any system that would change the initiators of any accident or transient described in the UFSAR. The changes did not physically alter the performance characteristics or challenge the integrity of any system that would affect the integrity of any fission product barriers or any primary or secondary pressure retaining systems. These changes did not alter the capability of any system to perform their design function in the event of a design basis accident and did not affect any mitigative function assumed in the UFSAR. Therefore, calculated doses for design basis accidents were unaffected by the change and as a result, the UFSAR changes did not involve any increase in the consequences of any accident or transient. No new equipment was installed and no installed equipment is operated in a different manner.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The UFSAR changes did not add new or different equipment to the facility. There were no changes to the methods utilized to respond to plant transients and no alterations to the way the plant is normally operated. The UFSAR changes did not alter instrumentation setpoints that initiate protective or mitigative actions. As a result, no new failure modes were introduced. The design, hardware, and performance characteristics of the various systems were unchanged by this activity.

Safety Evaluation Summary Form

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Tracking No. 6G-01-0010  
Activity No. DRP 9-041

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed UFSAR changes are consistent with the basis for Technical Specifications 3.5.2 and 3.7.8; therefore, the margin of safety was unchanged.

**50.59 REVIEW COVERSHEET FORM****50.59 Evaluation No.:** 6G-01-0025**Station:** Byron**Activity/Document Number:** DRP 9-019**Revision Number:** 0**Title:** Revision to UFSAR Section E.2 - Shift Supervisor Administrative Duties (I.A.1.2)**Description of Activity:**

The proposed activity revises UFSAR Section E.2 to clarify the administrative duties of the Shift Manager. References to non-docketed studies performed in 1977 and 1979 are being deleted and replaced with commitments pertaining to the administrative duties of the Shift Manager. In particular, the new text states: "The administrative duties of the shift supervisor (i.e., Shift Manager position) are controlled by station administrative procedures. These administrative procedures are such that the administrative duties assigned to shift manager personnel do not detract from their primary responsibility of assuring the safe operation."

**Reason for Activity:**

The previously cited 1977 and 1979 studies are not docketed and are currently not retrievable.

**Effect of activity:**

There is no effect on plant operations. The proposed activity merely replaces outdated information with current controls.

**Summary of Conclusion for the Activities 50.59 Review:**

The proposed UFSAR change is may be implemented without prior NRC approval because the proposed activity does not meet any of the criteria in paragraph (c)(2) of 10 CFR 50.59. The change to the description of the Shift Manager's administrative duties described in the UFSAR will not affect the probability or the consequences of any previously analyzed accident or create a new accident. The proposed activity does not affect any design basis fission product barrier or any method of evaluation. The proposed change only clarifies the administrative duties of the Shift Manager and does not affect operation of any plant equipment.

**Attachments:**

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

**Forms Attached:** (Check all that apply.)

<input type="checkbox"/>	Applicability Review			
<input type="checkbox"/>	50.59 Screening	50.59 Screening No.	_____	Rev. _____
<input checked="" type="checkbox"/>	50.59 Evaluation	50.59 Evaluation No.	<u>6G-01-0025</u>	Rev. <u>0</u>
<input type="checkbox"/>	50.59 Validation	50.59 Validation No.	_____	Rev. _____

Safety Evaluation Summary Form

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Tracking No. 6H-01-0013  
Activity No. DRP 8-142 and DRP 8-144

DESCRIPTION:

The proposed activities revise the UFSAR to delete statements in UFSAR Sections 9.5.4.2 and 9.5.5.2 that imply the diesel generator engine mounted piping is designed to Diesel Engine Manufacturer's Association (DEMA) standards that meet or exceed ANSI B31.1, Power Piping design requirements.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed activity does not change any initiating conditions or events associated with any accident or transient or change the normal operation of the diesel generator. The changes do not adversely affect diesel generator reliability or availability and the diesel generators remain capable of performing their intended safety function as required to mitigate the consequences of an accident. The changes do not introduce any new operational limitations and are bounded by the worst case single failure of a complete loss of a diesel generator.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The changes do not change any operational or performance characteristic of the diesel generators and have no impact on equipment failures. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The changes do not challenge the reliability or availability of the diesel generators as an emergency source of AC power. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

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Tracking No. 6H-01-0014  
Activity No. DRP 8-124

DESCRIPTION:

The proposed activity for UFSAR Section 9.5.5.2 revises the design temperature of the jacket water system of 190°F to state 190°F corresponds to the jacket water temperature off normal alarm, revises the statement that states the standpipe is large enough to provide for 7 days continuous operation without makeup to the jacket water system to read that this is true in the absence of leakage from the system, and deletes the statement that a leak test of the jacket water system is performed every 18 months.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The changes do not change any initiating conditions or events associated with any accident or transient of the diesel generators. The changes do not affect reliability or availability of the diesel generators. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The changes do not impact any operational or performance characteristics of the diesel generators. There are no impacts on interfacing equipment important to safety. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The changes do not challenge the reliability or availability of the diesel generators as an emergency source of AC power. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

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Tracking No. 6H-01-0015  
Activity No. DRP 8-178

DESCRIPTION:

The proposed UFSAR revision corrects the statement in UFSAR Section 8.1.1.d that electrical interlocks prevent connecting redundant load groups with each other to indicate that the redundant bus configuration performs this function, provides clarification and corrects the description of the types of windows on the local annunciator panel for the diesel generator in UFSAR Section 8.3.1.1.2.2, and deletes references to cable segregation codes AR and BR in UFSAR Table 8.3-8.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed change does not change any initiating conditions or events associated with any accident or transient. The changes do not adversely affect electrical power system reliability or availability. The diesel generators and auxiliary power systems remain capable of performing their intended safety function as required to mitigate the consequences of the affected accidents. No new failure mechanisms or modes are created. Therefore, the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The changes do not introduce any operational or performance characteristic of the plant electrical power systems. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The changes do not challenge the reliability or availability of the affected systems as a source of power. Therefore, the margin of safety, as defined in the basis for any Technical Specification, is not reduced.

Safety Evaluation Summary Form

Tracking No. 6H-01-0016  
Activity No. DRP 9-001

DESCRIPTION:

The proposed change to the UFSAR will revise the commitment to Position C of Regulatory Guide 1.93. This position specifies that preventive maintenance activities that require incapacitation of any required electric power sources be scheduled for performance during cold shutdown and/or refueling periods. Previously DRP 5-065 addressed exception to this requirement to allow online preventive maintenance for the System Auxiliary Transformers (SAT). This change will allow online preventive maintenance of the Emergency Diesel Generators (EDG). The exception to Regulatory Guide 1.93 will be documented in UFSAR Appendix A, has justification similar to the previous change for the SAT, and is consistent with Maintenance Rule philosophy and numerous NRC approved license amendments granting extended allowed outage times to perform online maintenance.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The changes do not change any initiating conditions or events associated with any accident or transient. The EDGs are used in accident and transient mitigation and are not assumed to initiate any of the analyzed accidents or transients. The changes do not introduce any new operational limits for the affected engine subsystems and do not challenge the reliability/availability of the remaining EDGs. All EDGs remain reliable sources of emergency power and no new failure mechanisms are introduced.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The changes will have no negative impact on equipment failures. The change will enhance overall EDG reliability. No physical changes are being made to the EDGs. Therefore, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

Technical Specifications 3.8.1 and 3.8.2 ensure that a reliable source of emergency power is available to equipment necessary to mitigate the consequences of abnormal operating occurrences, accidents, or transients. Technical Specification actions entered during maintenance ensure the plant

Safety Evaluation Summary Form

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Tracking No. 6H-01-0016  
Activity No. DRP 9-001

remains in a previously analyzed condition for the duration of the maintenance window. This previous analysis is bounding and ensures the margin of safety is not reduced.



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Tracking No. 6H-01-0025  
Activity No. DRP 8-142 and DRP 8-144

DESCRIPTION:

The proposed activity deletes statements in UFSAR Sections 9.5.5.2 (DRP 8-142) and 9.5.4.2 (DRP 8-144) that imply that Diesel Generator (DG) engine mounted piping designed to Diesel Engine Manufacturer's Association (DEMA) standards meet or exceed ANSI B31.1, Power Piping design requirements. The Design Basis Initiative (DBI) project identified that no supporting information validated the statements in the affected UFSAR sections that DEMA standards meet or exceed ANSI B31.1 standards. A Braidwood station review of open items 1912BRW and 2208BRW confirmed that there is no basis to the statements and recommended they be removed from the UFSAR. DRP 8-142 and DRP 8-144 close out the actions required for open items 1912BRW and 2208BRW.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed UFSAR changes do not change any initiating conditions or events associated with any accident or transient and do not change the normal operation of the diesel generators. The accident/transient function of the diesel generators is to provide a source of emergency power to support the operation of equipment necessary to mitigate the consequences of accidents. The proposed changes do not adversely affect diesel generator reliability or availability. The diesel generators remain capable of performing their intended safety function as required to mitigate the consequences of the affected accidents.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed changes do not introduce any new operational limitations for the affected engine subsystems and do not challenge the availability of the diesel generators. A complete malfunction of a diesel generator that results in the loss of a single train to mitigate the consequences of an accident is the most limiting failure considered for a diesel generator. All diesel generators remain reliable sources of emergency power and no new failure mechanisms are introduced by the proposed changes. The proposed changes/activities will have no impact on equipment failures. The changes do not change any operational or performance characteristic of the diesel generators. There are no impacts on interfacing equipment important to safety introduced under these changes.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

Safety Evaluation Summary Form

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Tracking No. 6H-01-0025  
Activity No. DRP 8-142 and DRP 8-144

Technical Specifications 3.8.1, 3.8.2, and 3.8.3 ensure that a reliable source of emergency power is available to equipment necessary to mitigate the consequences of abnormal operating occurrences, accidents, or transients. The implementation of the changes does not challenge the reliability or availability of the diesel generators as a source of AC power and therefore does not reduce the margin of safety as described in the bases of Technical Specifications and supporting safety analysis report documents.

Safety Evaluation Summary Form

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Tracking No. 6H-01-0029  
Activity No. DRP 9-004

DESCRIPTION:

The proposed UFSAR change revises UFSAR page 9.5-7 to discuss the corrosion protection methods of underground piping in the diesel oil (DO) transfer system. The proposed UFSAR change results from installation DCP 9900581 at Braidwood. The piping change is not planned for Byron; however, the corrosion prevention methods are acceptable and could be used at Byron in the future. A description of these methods is included in a common Byron/Braidwood section of the UFSAR.

SAFETY EVALUATION SUMMARY:

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety analysis report is not increased because:

The proposed changes do not impact the system performance in a manner that could increase the probability of accident since these changes do not cause the DO system to operate outside its design or operating limits. The piping changes do not impact any system interfaces. The existence of the non-safety related fuel oil storage tanks and associated piping are not credited in any accident scenario. The safety related tanks which are supplied by these non-safety related tanks contain enough fuel to meet Technical Specification requirements and include seismically supported fill connections to supply additional fuel to the tanks should the need arise. Additionally, the failure of either the non-safety related fuel oil tanks or the associated piping does not initiate or alter the initial conditions of any accident. Therefore, the probability of an accident is unaffected by the proposed changes to the supply and return piping. The proposed changes do not alter the radiological consequences since these changes do not degrade or prevent actions described or assumed in the UFSAR accidents. In addition, these changes do not alter any assumptions previously made in the evaluation of the radiological consequences. The affected components are not radiological boundaries. Additionally, the affected components are not relied upon to support the mitigation of an accident. Therefore, the proposed changes do not increase the consequences of any accident.

A failure of the non-safety related portion of the diesel fuel oil storage and transfer system has no impact on the probability of a malfunction of equipment important to safety. No safety related equipment is dependent on the non-safety-related portion of the diesel fuel oil storage and transfer system in order to perform its safety related function. The proposed piping changes are limited to the non-safety-related portion of the DO system. Therefore, the probability of an occurrence of a malfunction of equipment important to safety is unaffected by these piping changes. The ability of the DO system to mitigate the consequences

Safety Evaluation Summary Form

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Tracking No. 6H-01-0029

Activity No. DRP 9-004

of a malfunction of equipment important to safety is unaffected by the piping changes. The ability to obtain fuel from the non-safety related fuel oil storage tanks is not credited in the ability of a system to mitigate the consequences of an accident.

2. The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created because:

The proposed piping changes allow the non-safety-related portion of the diesel fuel oil storage transfer system to operate in the same manner as the original configuration. As with the existing configuration, a failure of the new components does not result in any accident or transient. The safety related tanks contain an adequate supply of fuel oil to meet Technical Specification requirements. A safety related fill connection and approved station procedures are in place to add fuel from a temporary tanker should the need arise. Therefore, the proposed piping changes do not create the possibility of an accident or transient different than previously evaluated.

The non-safety related portion of the diesel fuel oil storage and transfer system is not required to function to support the operation of equipment important to safety. The components affected by the piping changes will continue to function in the same manner. The failure of the affected DO piping does not impact the operation of equipment important to safety. Therefore, the possibility of a different type of failure of equipment important to safety is not introduced as a result of the proposed piping changes.

3. The margin of safety, as defined in the basis for any Technical Specification, is not reduced because:

The proposed piping changes do not affect the inventory in the safety related storage tanks. The safety related tanks provide the necessary fuel to meet commitments regarding safe shutdown of the plant with provisions for providing additional fuel in the event of the failure of the non-safety related supply tank or associated piping. Therefore, the proposed activity does not reduce the margin of safety as described in the basis for any Technical Specification.

## 50.59 REVIEW COVERSHEET FORM

**Station:** Byron

**Activity/Document Number:** DRP 9-001

**Revision Number:** 0

**Title:** Revision of UFSAR Appendix A Regulatory Guide 1.93 Exceptions

**Description of Activity:**

The proposed UFSAR change will revise the Byron commitment to Position C of Regulatory Guide (RG) 1.93 regarding online Emergency Diesel Generator (EDG) preventive maintenance. This position in the Regulatory Guide specifies that "preventive maintenance (PM) activities which require incapacitation of any required electric power sources" be "scheduled for performance during cold shutdown and/or refueling periods". Previously, DRP 5-065, which was incorporated into the UFSAR as part of Revision 5, addressed taking exception to this requirement to allow online PM for the System Auxiliary Transformers (SATs). The DRP 5-065 data package includes correspondence with the NRC documenting the fact that prior NRC approval was not required and that the RG 1.93 exception would be pursued under the 50.59 process. This proposed change will revise the Byron RG 1.93 commitment to allow online PM of the EDGs. The exception to RG 1.93 will be documented in UFSAR Appendix A, has justification similar to the previous change for the SATs, and is consistent with Maintenance Rule philosophy and numerous NRC approved license amendments (including Byron Units 1 and 2 Operating License Amendment 114) granting extended allowed outage times (AOTs) to perform online EDG maintenance.

**Reason for Activity:**

The present commitment in the UFSAR restricts EDG preventive maintenance activities to cold shutdown or refueling conditions. Changing the UFSAR to allow preventive maintenance to be done online in Technical Specification Limiting Conditions for Operations (LCO) windows will provide flexibility in the station and unit work schedules. By providing this flexibility, it will help reduce outage duration, increase EDG reliability, and decrease the number of EDG outages that require maintenance activities. In addition, the proposed change improves EDG availability during shutdown conditions.

**Effect of activity:**

The effect of this change will be to allow preventive maintenance to be performed online as allowed by Technical Specifications. Allowing online preventive maintenance, including overhauls, provides the flexibility to focus more quality resources on required or elected EDG maintenance, increases EDG availability during shutdown conditions, and is consistent with maintenance rule philosophy and numerous license amendments granted by the NRC allowing AOT extensions to support online maintenance of EDGs.

**Summary of Conclusion for the Activities 50.59 Review:**

The Emergency Diesel Generators are not considered to be initiators of any accidents described in the UFSAR. Also, the duration of an online EDG maintenance window will be limited by Technical Specification LCOs and by 10 CFR 50.65 Maintenance Rule requirements, therefore ensuring that the plant remains in an acceptable and analyzed condition. In addition, the operation and functions of the EDGs are not being changed. Therefore, this change will not create the possibility of an accident of a different type or a malfunction with a different result than previously evaluated in the UFSAR. Also, performing online EDG preventive maintenance will not result in exceeding or altering a design basis limit for a fission product barrier. Additionally, this change does not result in a departure from a method of evaluation described in the UFSAR that was used in establishing the design bases or in the safety analyses. In conclusion, this change can be implemented in accordance with 10 CFR 50.59.

**50.59 REVIEW COVERSHEET FORM****Attachments:**

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

**Forms Attached:** (Check all that apply.)

<input type="checkbox"/>	Applicability Review				
<input type="checkbox"/>	50.59 Screening	50.59 Screening No.	_____	Rev.	_____
<input type="checkbox"/>	50.59 Evaluation	50.59 Evaluation No.	_____	Rev.	_____
<input checked="" type="checkbox"/>	50.59 Validation	50.59 Validation No.	<b>6H-01-0061</b>	Rev.	<b>0</b>

## 50.59 REVIEW COVERSHEET FORM

Page 1 of 2

**Station:** Byron Units 1 and 2/Braidwood Units 1 and 2

**Activity /Document Number:** DRP 9-076

**Revision Number:** 0

**Title:** Add Discussion of the Debris Filter Bottom Nozzle on Each Fuel Assembly to the Regulatory Guide 1.82 Compliance Section of the UFSAR

**Description of Activity:**

Add a description of the Fuel Assemblies' debris filter bottom nozzle to the UFSAR discussion of compliance to Regulatory Guide 1.82, "Sumps for Emergency Cooling and Containment Spray systems".

**Reason for Activity:**

A protective grid has been added to the bottom nozzle of each fuel assembly to provide a zone, below the active fuel, where debris can be trapped. The grid is arranged to sit on top of bottom fuel nozzle so that the intersection of the grid straps is over the bottom nozzle. This reduces the possibility of fuel rod damage due to debris-induced fuel rod fretting. However, the coolant flow holes through these nozzles are smaller than the size of the inner screen in the containment emergency recirculation sumps. The size of the containment emergency sump inner screen square openings is 0.1875 inches (resulting in a diagonal dimension of 0.265 inches) while the size of the opening at the bottom of the fuel assemblies is 0.07 inches.

Byron and Braidwood Stations are committed to Revision 0 of Regulatory Guide 1.82. This document states:

"Size of openings in the fine screens should be determined by the physical restrictions, including spray nozzles, that may exist in the systems which are supplied with coolant from the emergency sump. As a minimum, considerations should be given to building spray nozzles, coolant channel openings, and pump running clearances in sizing the fine screen."

This requirement is re-stated in the plants' licensing design basis documented in the Byron/Braidwood UFSAR (Page A1.82-2 and 3), which states that " the size of opening in the fine screen should be based on the minimum restrictions found in systems served by the sump. The minimum restriction should take into account the overall operability of the system served."

The current design basis for Byron and Braidwood states that:

"Based on as-left valve positions, there is a possibility that various ECCS flow balance valves may be throttled to a degree that the minimum clearance dimension within the valve is less than the minimum screen size. These valves are installed in the Centrifugal Charging (CV) pump injection lines to the Reactor Coolant system cold legs, and in the Safety Injection (SI) pump injection lines to the Reactor Coolant cold legs and hot legs. These valves represent the smallest restriction in the ECCS and are the only restriction in the ECCS that is smaller than the diagonal dimension of the containment recirculation sump screen."

In addition to the flow balance valves that are part of the ECCS boundary, the flow channels through the fuel assemblies within the reactor core also are smaller than the minimum ECCS recirculation screen size, thereby presenting a potential flow blockage location for debris.

The UFSAR section that addresses compliance with the requirements of Regulatory Guide 1.82 needs to be revised to incorporate a discussion of the minimum flow channels through the core.

**Effect of Activity:**

This activity will not have any impact on the operation of any plant systems. The new design fuel assemblies have already been used at both Byron and Braidwood as described in Chapter 4 of the UFSAR (refer to Problem Identification Form A1999-02706).

Activity/Document Number: DRP 9-076Revision Number: 0**Summary of Conclusion for the Activities 50.59 Review:**

Westinghouse and the Nuclear Fuel Management Group performed an evaluation of this scenario and concluded that the presence of the small flow channels at the bottom of the fuel assemblies does not pose a significant risk to core cooling under accident conditions. Although some blockage may occur, the minimum flow into the core as a result of the blockage is well in excess of that required to remove decay heat at the time that coolant is drawn from the containment sumps.

The technical evaluation addressed a hot leg reactor coolant system (RCS) break scenario; this is the limiting case. If the break is in the cold leg of the RCS, the flow rate into the core is reduced due to the loss of safety injection flow through the break and resistance to flow downstream of the core. If the break is in a hot leg all safety injection flow will enter the core. This higher flow results in more suspended particles reaching the bottom of the core.

The evaluation of this issue assumes that flow blockage does occur. This is a conservative assumption. In fact, debris particles that enter the ECCS recirculation flowpath would be further fragmented by the pumps that take suction from the containment recirculation sump (RH), and/or by the pumps served by the RH system during this phase (CV and SI).

This activity does not create a possibility for an accident of a different type than any previously evaluated in the UFSAR, or the likelihood of a malfunction of an system, structure, or component (SSC) important to safety, as the change in the bottom grid at each assembly does not increase the frequency of failure of the fuel or any other plant component.

This activity does not create a possibility for a malfunction of an SSC important to safety with a different result, or of a different type, than any previously evaluated in UFSAR. The potential impact on core cooling has been evaluated; adequate ECCS flows are maintained. Since adequate core cooling is maintained, the consequences (dose) from a Loss of Coolant Accident or a malfunction of an SSC important to safety are not increased.

There are no design basis limits for a fission product barrier that are exceeded or altered by the implementation of the modified fuel design.

**Attachments:**

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if multiple discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

**Forms Attached: (Check all that apply.)**

<input type="checkbox"/>	<b>Applicability Review</b>			
<input type="checkbox"/>	<b>50.59 Screening</b>	<b>50.59 Screening No.</b>		<b>Rev.</b> _____
<input type="checkbox"/>	<b>50.59 Evaluation</b>	<b>50.59 Evaluation No.</b>	<b>6G-02-0002 (Byron)/BRW-E- 2002-24 (Braidwood)</b>	<b>Rev.</b> <b>0</b>
<input checked="" type="checkbox"/>				
<input type="checkbox"/>	<b>50.59 Validation</b>	<b>50.59 Validation No.</b>		<b>Rev.</b> _____



# 50.59 REVIEW COVERSHEET FORM

LS-AA-104-1001

01/11/01

Location: Byron / Braidwood

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Activity/Document Number: DRP 9-078

Revision Number 0

Title: Revise UFSAR Section 6.3.5.4 for Using EQ Containment Floor Water Level Instrumentations for Recirculation Switchover from Refueling Water Storage Tank

## Description of Activity:

Revise UFSAR Section 6.3.5.4 to clarify that environmentally qualified (EQ), safety-related level instrumentation for containment floor water level will be used in the Emergency Operating procedures (EOPs).

## Reason for Activity:

The existing containment sump level instrumentation (LS-940A and LS-941A) is not EQ and is non-safety related. This was identified during the review of EOPs. In an effort to compare practices, Braidwood procedures were also reviewed. Subsequently, Braidwood deleted the references to the containment sump level indication from the affected EOPs and modified the steps to address the use of containment floor water level instruments. Containment water level instrument loops LT-PC006 and LT-PC007 are safety related, EQ, seismically mounted, and Regulatory Guide 1.97 Type-1. These instruments provide more reliable analog indication in the control room. However, this change affects UFSAR Section 6.3.5.4 and DRP 9-078 is being prepared for this purpose. DRP 9-078 will clarify that LT-PC006 and LT-PC007 are safety-related level instrumentation for containment floor water level indication.

## Effect of Activity:

EOPs will be revised. Since the procedures will be revised and IE and non-IE equipment both provide indication in the control room, Operators may require training on the revised EOP procedures. UFSAR Section 6.3.5.4 will be revised under DRP 9-078.

## Summary of Conclusion for the Activities 50.59 Review:

Level transmitter LT-PC006 and LT-PC007 loops were considered additional indications to LS-940A and LS-941A for containment floor/sump water level. Procedures were using both floor and sump level instruments as information for recirculation switch over from the refueling water storage tank (RWST) to containment floor/sump in addition to the indication of RWST low level. Therefore clarification of non-IE indication and removal of non-IE LS-940A and LS-941A from the EOPs for reliability will not degrade the safety function performed by LT-PC006 and LT-PC007. There is no change in the functions performed by LT-PC006 and LT-PC007. The calculation for the ECCS screen backlog and weir flow (BRW-98-0100-M/ BYR98-030) identified that a minimum 9" water level above the containment floor (377") is required to ensure adequate weir flow (both RH pumps in operation) at the time of switchover from the RWST to the containment sump. Using revised uncertainty calculation NED-1-EIC-0082, the adverse instrument (LT-PC006 and LT-PC007) uncertainty is +/- 10". This identifies that the normal indicated floor level would be 13" which is the EOP set point. Braidwood letter ED-BRW-98-0347 (dated 4/16/98) states normal expected minimum floor level is 25". Based on this information, the EOP set point of 13" is acceptable and will provide timely switchover information to the operator. The 50.59 evaluation has concluded that the proposed activity does not result in an increase in the frequency of occurrence of any accident, does not result in a malfunction and/or consequences of malfunction affecting any safety related system, structure, or component, does not increase the possibility of a new accident, does not result in a design basis limit for fission product barrier being exceeded, and is not a departure from a method of evaluation. Therefore the proposed activity may be implemented and the affected EOPs revised without prior NRC approval.

## Attachments:

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if multiple discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

Forms Attached: (Check all that apply).

x

**Applicability Review**

**50.59 Screening**

**50.59 Screening No.**

**Rev.**

**50.59 Evaluation**

**50.59 Evaluation No.**

**6G-02-0003**

**Rev.**

**0**

**50.59 Validation**

**50.59 Validation No.**

**Rev.**

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LS-AA-104-1001

Revision 0

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**Station:** Byron and Braidwood

**Activity/Document Number:** DRP 9-081 and Technical Specification Bases Change #02-01

**Revision Number:** 0

**Title:** Revision of UFSAR and Technical Specification Bases for Containment Radiation Monitor Sensitivity and Response Time

## Description of Activity:

Revise the following UFSAR sections as described below:

- 1) Revise Section 5.2.5 to eliminate a sentence that Regulatory Guide 1.45 only requires one seismically qualified leak detection system, add Section 5.2.5.2.1 addressing radiation monitor sensitivity and response time, and add Section 5.2.5.2.2 addressing leak before break considerations,
- 2) Revise Appendix A1.45 to more accurately describe the clarifications/exceptions between the Regulatory Guide and Byron and Braidwood,
- 3) Revise Section 11.5.2.2.10 to provide a reference back to Section 5.2.5.2, and
- 4) Revise Table 11.5-1 to revise the containment radiation monitor setpoints to add "or as low as practicable."

Revise the Technical Specification (TS) Bases B 3.4.15 to

- 1) Delete wording implying that the radiation monitors are rapid,
- 2) Provide a discussion of the containment radiation monitor design conditions, and
- 3) State that the radiation monitor setpoints will be set as low as practicable.

## Reason for Activity:

### UFSAR

- 1) Remove an incorrect statement.
- 2) and 3) The actual reactor coolant system (RCS) activity levels are much lower than the levels for which the containment radiation monitors were designed in conjunction with Regulatory Guide 1.45.
- 4) Better tie the leak detection requirements of the containment radiation monitors to their monitoring and sampling function

### TS Bases

- 1) Remove an incorrect statement. NUREG 1061, Volume 3 recognizes that radiation monitors are only "fair" indicators of leakage
- 2) and 3) Improve clarity with respect to the fact that the radiation monitors may not always be capable of detecting 1 gpm leak within one hour, dependent on the actual RCS and containment background activity, and that the setpoints are set as low as practicable.

## Effect of Activity:

The effect of this activity is to clarify that, although the containment radiation monitors may not always be capable of detecting a 1 gpm leak within 1 hour, their setpoints are maintained as low as practicable given the objective of detecting a leak of 1 gpm within 1 hour and the constraints of actual RCS and containment background activity, and that the numerous RCS leak detection systems, as a whole, meet the intent of Regulatory Guide 1.45.

## Summary of Conclusion for the Activities 50.59 Review:

This activity does not make any physical hardware changes to any RCS leakage detection system. The containment radiation monitors are not initiators of any accident; therefore, this activity will not result in any change to the frequency of occurrence of any accidents evaluated in the UFSAR. The containment radiation monitors will continue to function as originally designed in accordance with Regulatory Guide 1.45, assuming expected RCS activities defined in UFSAR Table 11.1-4. There are no changes to the surveillance requirements of TS 3.4.15; they will continue to be performed in the current manner. The same Limiting Condition for Operation (LCO) Action Requirements of TS 3.4.15 will also continue to be required should either the containment floor drain sump system or the containment atmosphere radioactivity monitor become inoperable. The radiation

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Monitor setpoints will be set as low as practicable, given the objective of detecting a 1 gpm leak in one hour and the constraints of actual RCS and containment background activity levels. It is concluded that the RCS leakage detection system as a whole (as recognized in NUREG 1061 Volume 3) continues to support the requirements of leak before break and there is minimal likelihood of occurrence of a malfunction of a system, structure, or component (SSC) important to safety. Therefore, leakage due to cracks would continue to be identified prior to breakage. Because the crack will still be identified and the plant shutdown prior to breakage, the consequences of an accident are unaffected by this change and the consequences of a malfunction of an SSC important to safety will not increase. These systems perform monitoring functions only. The stability of any crack in the RCS remains acceptable in accordance with WCAP 14559, Revision 1. Therefore, this change cannot create the possibility of an accident of a different type than any previously evaluated or create the possibility of a malfunction of any SSC important to safety with a different result than any previously evaluated. This activity does not make any changes to the RCS pressure boundary. The "leakage crack" evaluated in WCAP 14559, Revision 1 has been shown to be stable for 40 years when subjected to typical transient loads associated with normal, upset, and test conditions. Therefore, the RCS pressure boundary and its ability to act as a fission product barrier is not impacted by this change; therefore, this change does not cause any design basis limit for a fission product barrier to be altered or exceeded. This change does not involve a departure from any method of evaluation described in the UFSAR.

### Attachments:

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if multiple discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

### Forms Attached: (Check all that apply.)

<input type="checkbox"/>	Applicability Review			
<input type="checkbox"/>	50.59 Screening	50.59 Screening No.		Rev. _____
<input checked="" type="checkbox"/>	50.59 Evaluation	50.59 Evaluation No.	6G-02-0006 (Byron)/BRW-E- 2002-71 (Braidwood)	Rev. 0
<input type="checkbox"/>	50.59 Validation	50.59 Validation No.		Rev. _____

## 50.59 REVIEW COVERSHEET FORM

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**Station:** Byron Units 1 and 2/Braidwood Units 1 and 2

**Activity /Document Number:** DRP 9-075

**Revision Number:** 0

**Title:** Modeling Assumptions for the Loss of Offsite Power Analysis

### Description of Activity:

UFSAR change DRP 9-075 revises the evaluation methodology for the Loss Of Offsite Power (LOOP) event (UFSAR Section 15.2.6) to incorporate water relief through the pressurizer safety valves. This DRP is applicable to Byron and Braidwood Stations Units 1 and 2.

### Reason for Activity:

One of the acceptance criteria for a Condition II event is that an incident of moderate frequency (Condition II) should not generate a more serious plant condition (i.e., Condition III) without other faults occurring independently. The current main acceptance criterion for the LOOP event, as analyzed by Westinghouse, is that the pressurizer does not become water solid. The primary concern with the pressurizer becoming water solid is the possibility of progressing to a more serious event, i.e. a small break loss of coolant accident (LOCA).

The method used by Westinghouse for the existing analysis of a LOOP event assumes that the chemical and volume control system (CVCS) has no net effect on the reactor coolant system (RCS) inventory. In effect, charging and letdown are assumed to balance each other with no mass or energy added to or subtracted from the RCS.

In Nuclear Safety Advisory Letter (NSAL) NSAL-00-013, Westinghouse identified modified CVCS modeling assumptions which could result in a net addition to the RCS water mass, and thus an increased potential for filling the pressurizer. For Byron and Braidwood, the LOOP causes a loss of instrument air. In this case, several valves in the letdown flow path will fail closed causing isolation of the letdown flow. The failed close valves include the letdown regenerative heat exchanger isolation valves (1/2CV8389A/B), the letdown line isolation valves (1/2CV459 and 1/2CV460), the letdown line containment isolation valve (1/2CV8152), and the letdown heat exchanger isolation valves (1/2CV8401A/B). As a result of the LOOP, the normal charging path is also isolated. Similar to the letdown line, the loss of instrument air will cause the charging to the regenerative heat exchanger isolation valves (1/2CV8324A-B) in the normal charging line to fail closed. However, the flow path through the reactor coolant pump seal injection lines is not isolated; this flowpath results in an inflow to the RCS during a LOOP event.

Westinghouse performed a LOOP analysis taking into consideration the water mass addition to the RCS via the seal injection path. The results of the analysis indicate the pressurizer does become water solid and water relief through the pressurizer safety relief valves will occur. An additional evaluation was performed that concluded the safety valves would not be damaged by the water relief (Westinghouse letter LTR-SEE-01-287). The valves will be able to close following lifting and will maintain their design function to limit the pressure of the RCS. The valves may leak, but this event is enveloped by an Inadvertent Opening of a Pressurizer Safety event; this is also a Condition II event. Thus, the criterion that a Condition II event cannot progress to a Condition III event without other faults occurring independently is met.

As a result of the above, DRP 9-075 revises the evaluation methodology for a LOOP to incorporate water relief through the pressurizer safety valves.

### Effect of Activity:

The CVCS modeling assumption used in the LOOP analysis performed by Westinghouse is consistent with the plant response following a LOOP event. No changes are required to plant components. The analysis also assumes that plant operators will restore letdown and therefore terminate the net mass addition to the RCS within one hour from event initiation. The existing plant emergency procedures direct the operators to control letdown flow and to stop all charging pumps if pressurizer level is greater than the level specified in the procedure. Additionally, the operators restore instrument air pressure as directed by plant procedure. It is expected the operators would restore letdown after this action is completed. These actions are part of existing plant emergency procedures; the one (1) hour period is considered to be conservative and adequate based on operating personnel experience.

Activity /Document Number: DRP 9-075Revision Number: 0**Summary of Conclusion for the Activities 50.59 Review:**

This activity does not result in a departure from a method of evaluation described in the UFSAR for a LOOP event. The new methodology (water relief through the pressurizer safety valves) has been approved by the NRC for a similar event for Byron and Braidwood Stations as part of the Power Uprate SER. The activity may be implemented without prior NRC review and approval. The radiological consequence based on the new methodology remains bounded by the steamline break event.

**Attachments:**

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if multiple discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

**Forms Attached: (Check all that apply.)**

<input type="checkbox"/>	Applicability Review			
<input type="checkbox"/>	50.59 Screening	50.59 Screening No.		Rev. _____
<input checked="" type="checkbox"/>	50.59 Evaluation	50.59 Evaluation No.	6G-02-0007 (Byron)/BRW-E- 2002-126 (Braidwood)	Rev. 0
<input type="checkbox"/>	50.59 Validation	50.59 Validation No.		Rev. _____

# 50.59 REVIEW COVERSHEET FORM

LS-AA-104-1001  
01/11/01

ation: Byron

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Activity/Document Number: DRP 10-008

Revision Number: 0

Title: Core Recriticality During Hot Leg Switchover (NSAL-94-016, Revision 2, March 2002)

## Description of Activity:

The proposed activity is to accept the analysis and update the UFSAR to take credit for the boron equivalent worth of xenon and control rod insertion to address the post-loss of coolant accident (LOCA) recriticality during hot leg switchover issue identified in NSAL-94-016 Revision 2.

## Reason for Activity:

Westinghouse identified a potential safety issue regarding plant operation after a large cold leg break LOCA. The concern is that during hot leg switchover the core will be flushed with diluted sump solution which may cause the core to return to criticality. The sump solution would be diluted since boron is assumed to accumulate in the core during the cold leg recirculation phase due to core boiling. The accumulation of boron in the core prevents the boron from being returned to the sump which leads to a diluted sump solution. This issue is described in the following documents:

1. NSAL-94-016, Core Recriticality During LOCA Hot Leg Recirculation, 7/25/94
2. NSAL-94-016, Supplement 1, Core Recriticality During LOCA Hot Leg Recirculation, 3/28/96
3. NSAL-94-016, Revision 1, Core Recriticality During LOCA Hot Leg Recirculation, 3/30/99
4. NSAL-94-016, Revision 2, Core Recriticality During LOCA Hot Leg Recirculation, 3/18/02

Currently both Byron and Braidwood have addressed this issue by assessing that, while some dilution of the sump boron concentration might occur in the hours between cold leg recirculation and hot leg switchover due to boil off and boron concentrating in the core, the additional water from the refueling water storage tank following cold leg recirculation and xenon credits at the time of hot leg switchover compensate for the sump dilution. Furthermore, the post-LOCA criticality check at cold leg recirculation which assumes all-rod-out, no xenon, and cold (68°F to 212°F) conditions (current licensing basis requirements) is still judged to be more limiting than at hot leg switchover (for details see Memo CAE-00-202/CCE-00-200). Also, as a defense in depth, Memo CAE-00-202/CCE-00-200 further states that control rod insertion may be credited as an additional mitigating factor to address this issue. Currently, the Byron and Braidwood licensing bases do not credit control rod insertion to address this issue.

NSAL-94-016, Revision 2, provides a generic evaluation that credits xenon credit and control rod insertion to conclude that the check of subcriticality at the beginning of cold leg recirculation adequately addresses potential recriticality due to sump dilution entering the hot leg recirculation provided that the initial subcriticality check does not credit control rods or xenon. Based on the work recently completed by WOG (WCAP-15704), the licensing basis for Byron and Braidwood will now credit the boron worth of inserted control rods and xenon credit at the time of hot leg switchover to address the potential for recriticality due to sump dilution when realigning to hot leg recirculation.

## Effect of Activity:

Credit for control rod insertion will be taken to address the post-LOCA core recriticality issue identified in NSAL-94-016, Revision 2. Accordingly, a UFSAR post-LOCA section will be added (see DRP 10-008 for details).

## Summary of Conclusion for the Activities 50.59 Review:

This activity does not result in a departure from a method of evaluation described in the UFSAR. The UFSAR does not mention the details of the methodology for ensuring post-LOCA subcriticality. The connection to the UFSAR is through reference to licensed Westinghouse emergency core cooling system methodology reported in WCAP-8339 and WCAP-8471-P-A. Note that neither WCAP-8339 or WCAP-8471-P-A discusses specific post-LOCA requirements but only states that control rods are not

modeled in the Westinghouse large break LOCA methodology. A post-LOCA section will be added in the UFSAR that includes a statement that the method for addressing the possibility of recriticality upon entering hot leg recirculation due to sump dilution will credit control rod insertion.

The NRC has previously approved this methodology (control rod insertion following a cold leg break to address post-LOCA recriticality issue) for D.C. Cook. The applicability of this methodology for Byron and Braidwood is described in WCAP-15704. A screening and evaluation have been completed for this activity. The conclusion of the evaluation was that the activity may be implemented without prior NRC review and approval.

**Attachments:**

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if multiple discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

**Forms Attached: (Check all that apply.)**

<input type="checkbox"/>	<b>Applicability Review</b>			
<input checked="" type="checkbox"/>	<b>50.59 Screening</b>	<b>50.59 Screening No.</b>	<b>6E-02-0249 (Byron) BRW-S-2002-299 (Braidwood)</b>	<b>Rev.</b> _____
<input checked="" type="checkbox"/>	<b>50.59 Evaluation</b>	<b>50.59 Evaluation No.</b>	<b>6G-02-0014 (Byron) BRW-E-2002-300 (Braidwood)</b>	<b>Rev.</b> <b>0</b>
<input type="checkbox"/>	<b>50.59 Validation</b>	<b>50.59 Validation No.</b>	_____	<b>Rev.</b> _____



# 50.59 REVIEW COVERSHEET FORM

LS-AA-104-1001  
01/11/01

Station: Byron

Page 1 of 2

Activity/Document Number: DRP 9-070

Revision Number: 0

Title: Update Boration System Capabilities in UFSAR Section 9.3.4.1.3.1

## Description of Activity:

The proposed activity proposes the following two changes to UFSAR Section 9.3.4.1.3.1:

1. The UFSAR currently states that boration to compensate for xenon decay should be completed within 3.5 hours with only seal injection available. Westinghouse has calculated boration times in excess of 4 hours for various Byron and Braidwood reload evaluations (Byron Unit 2 Cycle 10 and Braidwood Unit 1 Cycle 10). Therefore, in order to bound future analysis, the 3.5 hour time specification will be increased to 5 hours. This change is given in bold in the following markup:

At the charging rate of 20 gpm, approximately **5** hours are required to add enough boric acid solution to counteract xenon decay, although xenon decay below the full power equilibrium operating level will not begin until approximately 25 hours after the reactor is shutdown.

2. The UFSAR also currently states that boration to compensate for xenon decay should be completed in 90 minutes using the emergency boration flowpath. Westinghouse calculated a boration time of 95.25 minutes for the Braidwood Unit 1 Cycle 10 reload evaluation. Therefore, in order to bound future analysis, the 90 minute time specification will be increased to 120 minutes. This change is given in bold in the following markup:

In approximately **120** additional minutes, enough boric acid can be injected to compensate for xenon decay, although xenon decay below the equilibrium operating level will not begin until approximately 25 hours after shutdown.

## Reason for Activity:

The activity will make the boration system capabilities in UFSAR Section 9.3.4.1.3.1 consistent with cycle specific BORDER analysis results. It must be noted that these boration times referenced in the UFSAR are design capability and are not safety requirements. It must be further noted that there are no changes to the chemical and volume control (CV) system design, merely cycle specific variation to xenon concentrations that have recently resulted in the timeframes mentioned in the UFSAR not being satisfied in the BORDER analysis.

## Effect of Activity:

The boration system capabilities in UFSAR Section 9.3.4.1.3.1 will bound current and future cycle specific BORDER analyses.

## Summary of Conclusion for the Activities 50.59 Review:

The activity does not involve a change to a system, structure, or component that adversely affects an UFSAR described design function, does not involve a change to a design basis limit for fission product barriers, does not involve a change to a procedure that adversely affects how UFSAR described design functions are performed or controlled, and does not require a change to the Technical Specifications or Operating License. The activity may be implemented without prior NRC review and approval.

## Attachments:

Attach completed Applicability Review if 50.59 Screening is not required.

Attach completed 50.59 Screening if 50.59 Evaluation is not required.

Attach completed 50.59 Evaluation if required to be performed.

Attach completed 50.59 Screening and 50.59 Evaluation if multiple discrete elements of an activity have been linked together and certain elements required a 50.59 Evaluation while other elements did not.

Forms Attached: (Check all that apply.)

<input type="checkbox"/>	<b>Applicability Review</b>		N/A		N/A
<input type="checkbox"/>	<b>50.59 Screening</b>	<b>50.59 Screening No.</b>	<u>N/A</u>	<b>Rev.</b>	<u>N/A</u>
<input type="checkbox"/>	<b>50.59 Evaluation</b>	<b>50.59 Evaluation No.</b>	<u>N/A</u>	<b>Rev.</b>	<u>N/A</u>
<input checked="" type="checkbox"/>	<b>50.59 Validation</b>	<b>50.59 Validation No.</b>	<u>6H-02-0028</u>	<b>Rev.</b>	<u>0</u>