3.4 - LIMITING CONDITIONS FOR OPERATION

A. Standby Liquid Control System (SLCS)

The standby liquid control system (SLCS) shall be OPERABLE.

APPLICABILITY:

OPERATIONAL MODE(s) 1, 2, and 5[a].

ACTION:

1. In OPERATIONAL MODE 1 or 2:

   A. With one subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

   B. With both standby liquid control subsystems inoperable, restore at least one subsystem to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours.

2. In OPERATIONAL MODE 5[a]:

   a. With one subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 30 days or fully insert all insertable control rods within the next hour.

   b. With both standby liquid control subsystems inoperable, fully insert all insertable control rods within 1 hour.

4.4 - SURVEILLANCE REQUIREMENTS

A. Standby Liquid Control System

The standby liquid control system shall be demonstrated OPERABLE:

1. At least once per 24 hours by verifying that:

   a. The temperature of the sodium pentaborate solution is greater than or equal to the limits of Figure 3.4.A-1.

   b. The volume of the sodium pentaborate solution is greater than or equal to the limits shown in Figure 3.4.A-2.

   c. The heat tracing circuit is OPERABLE by determining the temperature of the pump suction piping to be greater than or equal to 83°F.

2. At least once per 31 days by:

   a. Verifying the continuity of the explosive charge.

   b. Determining by chemical analysis that the available concentration of boron in solution is 14% by weight to 16.5% by weight.

   c. Verifying that each valve, manual, power operated or automatic, in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

, or can be aligned to the correct position

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a With any control rod withdrawn. Not applicable to control rods removed per Specification 3.10.I or 3.10.J.

b This surveillance shall also be performed anytime water or boron is added to the solution or when the solution temperature drops below the limits specified by Figure 3.4.A-1.

3.4 - LIMITING CONDITIONS FOR OPERATION

4.4 - SURVEILLANCE REQUIREMENTS

3. When tested pursuant to Specification 4.0.E, by demonstrating that the minimum flow requirement of 40 gpm per pump at a pressure of greater than or equal to 1275 psig is met.

4. At least once per 18 months by:

   a. Initiating one of the standby liquid control subsystems, including an explosive valve, and verifying that a flow path from the pumps to the reactor pressure vessel is available by pumping demineralized water into the reactor vessel. The replacement charge for the explosive valve shall be from the same manufactured batch as the one fired or from another batch which has been certified by having one of that batch successfully fired. Both injection loops shall be tested in 36 months.

   b. Deleted

   c. Demonstrating that the pump suction line from the storage tank is not plugged by manually initiating the system, except the explosive valves, and pumping solution in the recirculation path.

3/4.4.A STANDBY LIQUID CONTROL SYSTEM

The standby liquid control system consists of an unpressurized tank for low temperature sodium pentaborate solution storage, a pair of full capacity positive displacement pumps, two explosive actuated shear plug valves, the poison sparger ring, and the necessary piping, valves and instrumentation. An OPERABLE standby liquid control system provides backup capability for reactivity control independent of normal reactivity control provisions provided by the control rods. OPERABILITY of the system is based on the conditions of the borated solution in the storage tank and the availability of a flow path to the reactor pressure vessel, including the pumps and valves. Two subsystems are required to be OPERABLE; each contains a pump, an explosive valve, and the associated piping, valves, and necessary instruments and controls to ensure an OPERABLE flow path. Inoperability of a nonredundant component, such as the tank, affects both subsystems.

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The standby liquid control system provides the capability for bringing the reactor from full power to a cold, xenon-free shutdown assuming that none of the withdrawn control rods can be inserted. To meet this objective, it is designed to inject a quantity of boron which produces a concentration of no less than 600 ppm of boron in the reactor core in less than 100 minutes. This boron concentration is required to bring the reactor from full power to 3% $\Delta k/k$ or a more subcritical condition, considering the hot to cold reactivity swing and xenon poisoning. An additional margin of 25% boron is provide to compensate for possible losses and imperfect mixing of the chemical solution in the reactor water. This results in an average concentration of 750 ppm of boron in the reactor core assuming no losses. A net quantity of 3035 gallons of solution at less than or equal to 110°F and having a 14 weight percent sodium pentaborate ($NA_2B_{10}O_{16} \cdot 10H_2O$) concentration is required to meet this shutdown requirement. An additional volume of solution is contained below the pump suction and is not available for injection. Other equivalent combinations of increased concentration and reduced volume are also acceptable provided they have considered required temperatures and net positive suction head.

The specified pumping rate of 40 gpm will meet the above design objective. This insertion rate of boron solution will override the rate of reactivity insertion due to cooldown of the reactor following the xenon peak. Two-pump operation will enable faster reactor shutdown for anticipated transients without scram (ATWS) events. The required minimum flow combined with the solution concentration requirements are sufficient to comply with the requirements of 10 CFR 50.62.

With redundant pumps and explosive injection valves and with a highly reliable control rod scram system, operation of the reactor is permitted to continue for short periods of time with the system inoperable or for longer periods of time with one of the subsystems inoperable.

Surveillance requirements are established on a frequency that assures a high reliability of the system. The standby liquid control system is operated by a five-position control switch which allows single pump operation for surveillance testing. This testing demonstrates the capability of firing the explosive trigger assemblies, and injects clean demineralized water from the test tank to the reactor vessel to demonstrate the injection line isn't plugged. Locally controlled testing circulates sodium pentaborate from the storage tank, through one suction line, through a pump, and back into the storage tank. This is done separately for each system to demonstrate that both

Insert to Dresden Page B 3/4.4-1

A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position from the control room, or locally by a dedicated operator.

3.4 - LIMITING CONDITIONS FOR OPERATION

A. Standby Liquid Control System (SLCS)

The standby liquid control system (SLCS) shall be OPERABLE.

APPLICABILITY:

OPERATIONAL MODE(s) 1, 2, and 5[a].

ACTION:

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   a. With one subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

   b. With both standby liquid control subsystems inoperable, restore at least one subsystem to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours.

2. In OPERATIONAL MODE 5[a]:

   a. With one subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 30 days or fully insert all insertable control rods within the next hour.

   b. With both standby liquid control subsystems inoperable, fully insert all insertable control rods within 1 hour.

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   c. The heat tracing circuit is OPERABLE by determining the temperature of the pump suction piping to be greater than or equal to 83°F.

2. At least once per 31 days by:

   a. Verifying the continuity of the explosive charge.

   b. Determining by chemical analysis that the available concentration of boron in solution is 14% by weight to 16.5% by weight.

   c. Verifying that each valve, manual, power operated or automatic, in the flow path that is not locked, sealed, or otherwise secured in the position, is in its correct position, or can be aligned to the correct position.

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a With any control rod withdrawn. Not applicable to control rods removed per Specification 3.10.I or 3.10.J.

b This surveillance shall also be performed anytime water or boron is added to the solution or when the solution temperature drops below the limits specified by Figure 3.4.A-1.

3.4 - LIMITING CONDITIONS FOR OPERATION

4.4 - SURVEILLANCE REQUIREMENTS

3. When tested pursuant to Specification 4.0.E, by demonstrating that the minimum flow requirement of 40 gpm per pump at a pressure of greater than or equal to 1275 psig is met.

4. At least once per 18 months by:

   a. Initiating one of the standby liquid control subsystems, including an explosive valve, and verifying that a flow path from the pumps to the reactor pressure vessel is available by pumping demineralized water into the reactor vessel. The replacement charge for the explosive valve shall be from the same manufactured batch as the one fired or from another batch which has been certified by having one of that batch successfully fired. Both injection loops shall be tested in 36 months. e

   b. Demonstrating that the pump relief valve setpoint is between 1455 and 1545 psig and verifying that the relief valve does not actuate during recirculation to the test tank at normal system pressures. e

Deleted

   c. Demonstrating that the pump suction line from the storage tank is not plugged by manually initiating the system, except the explosive valves, and pumping solution in the recirculation path. e

3/4.4.A STANDBY LIQUID CONTROL SYSTEM

The standby liquid control system consists of an unpressurized tank for low temperature sodium pentaborate solution storage, a pair of full capacity positive displacement pumps, two explosive actuated shear plug valves, the poison sparger ring, and the necessary piping, valves and instrumentation. An OPERABLE standby liquid control system provides backup capability for reactivity control independent of normal reactivity control provisions provided by the control rods. OPERABILITY of the system is based on the conditions of the borated solution in the storage tank and the availability of a flow path to the reactor pressure vessel, including the pumps and valves. Two subsystems are required to be OPERABLE; each contains a pump, an explosive valve, and the associated piping, valves, and necessary instruments and controls to ensure an OPERABLE flow path. Inoperability of a nonredundant component, such as the tank, affects both subsystems.

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The standby liquid control system provides the capability for bringing the reactor from full power to a cold, xenon-free shutdown assuming that none of the withdrawn control rods can be inserted. To meet this objective, it is designed to inject a quantity of boron which produces a concentration of no less than 600 ppm of boron in the reactor core in less than 100 minutes. This boron concentration is required to bring the reactor from full power to a 3% $\Delta k/k$ or more subcritical condition, considering the hot to cold reactivity swing and xenon poisoning. An additional margin of 25% boron is provide to compensate for possible losses and imperfect mixing of the chemical solution in the reactor water. This results in an average concentration of 750 ppm of boron in the reactor core assuming no losses. A net quantity of 3254 gallons of solution at less than or equal to 110°F and having a 14 weight percent sodium pentaborate ($NA_2B_{10}O_{16} \cdot 10H_2O$) concentration is required to meet this shutdown requirement. An additional volume of solution is contained below the pump suction and is not available for injection. Other equivalent combinations of increased concentration and reduced volume are also acceptable provided they have considered required temperatures and net positive suction head.

The specified pumping rate of 40 gpm will meet the above design objective. This insertion rate of boron solution will override the rate of reactivity insertion due to cooldown of the reactor following the xenon peak. Two-pump operation will enable faster reactor shutdown for anticipated transients without scram (ATWS) events. The required minimum flow combined with the solution concentration requirements are sufficient to comply with the requirements of 10 CFR 50.62.

With redundant pumps and explosive injection valves and with a highly reliable control rod scram system, operation of the reactor is permitted to continue for short periods of time with the system inoperable or for longer periods of time with one of the subsystems inoperable.

Surveillance requirements are established on a frequency that assures a high reliability of the system. The standby liquid control system is operated by a five-position control switch which allows single pump operation for surveillance testing. This testing demonstrates the capability of firing the explosive trigger assemblies, and injects clean demineralized water from the test tank to the reactor vessel to demonstrate the injection line is not plugged. Locally controlled testing circulates sodium pentaborate from the storage tank, through one suction line, through a pump, and back into the storage tank. This is done separately for each system to demonstrate that both

Insert to Quad Cities Page B 3/4.4-1

A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position from the control room, or locally by a dedicated operator.

ATTACHMENT C

SIGNIFICANT HAZARDS CONSIDERATION

The Commission has provided standards for determining whether a no significant hazards consideration exists as stated in 10CFR50.92(c). A proposed amendment to an operating license involves a no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

ComEd proposes to amend Appendix A, Technical Specifications 3/4.4.A, "Standby Liquid Control System (SLCS)," of Facility Operating Licenses DPR-19, DPR-25, DPR-29 and DPR-30. The amendment request changes current requirements for the SLCS are consistent with Section 3.1.7 of NUREG-1433.

ComEd has evaluated the proposed Technical Specification Amendment and determined that it does not represent a significant hazards consideration. Based on the criteria for defining a significant hazards consideration established in 10 CFR 50.92, operation of Dresden Units 2 and 3 or Quad Cities Units 1 and 2 in accordance with the proposed amendment will not:

1) **Involve a significant increase in the probability or consequences of an accident previously evaluated because of the following:**

   The proposed changes represent the conversion of current requirements which are based on generic guidance or previously approved provisions for other stations. The proposed changes are consistent with NUREG-1433 and do not significantly increase the probability or consequences of any previously evaluated accidents for Dresden or Quad Cities Stations. The proposed amendment is consistent with the current safety analyses and represents sufficient requirements for the assurance and reliability of equipment assumed to operate in the safety analysis, or provide continued assurance that specified parameters remain within their acceptance limits. The proposed TS continue to ensure sufficient requirements are in place for the SLCS during plant operation. The proposed changes that eliminate Applicability and Actions during refueling operations for the SLCS do not affect the probability of any previously evaluated accident because only one control rod can be withdrawn during refueling operations and Shutdown Margin requirements are maintained in the Technical Specifications. Therefore, the probability of an inadvertent criticality is not increased as reactivity controls are maintained. Because the SLCS is manually initiated and not assumed to mitigate any accident scenario during refueling operations, the proposed changes do not affect the consequences of any previously evaluated accident. As such, these changes will not significantly increase the probability or consequences of a previously evaluated accident.

ATTACHMENT C

SIGNIFICANT HAZARDS CONSIDERATION

The associated systems related to this proposed amendment are not assumed in any safety analysis to initiate any accident sequence for Dresden or Quad Cities Stations. In addition, the revisions proposed to the surveillance requirements are administrative in nature and either relocate procedural details to administrative controls or allow provisions for manual alignment of a manual system to the proper orientation. As such, because there is no effect on any accident scenario, the probability of any accident previously evaluated is not increased by the proposed amendment. Because the proposed changes are administrative in nature, the consequences of any previously evaluated accident are not increased.

2) **Create the possibility of a new or different kind of accident from any accident previously evaluated because:**

The proposed amendment for Dresden and Quad Cities Station's Technical Specification is based on generic guidance or NRC accepted changes for later operating BWR plants. The proposed amendment has been reviewed for acceptability at the Dresden and Quad Cities Nuclear Power Stations considering similarity of system or component design versus the generic guidance. The proposed changes do not create the possibility of a new or different kind of accident previously evaluated for Dresden or Quad Cities Stations. No new modes of operation are introduced by the proposed changes. SLCS requirements are adequately retained to ensure sufficient controls remain during plant operations. The proposed changes to the Applicability and Actions during refueling operations for the SLCS do not create a new or different kind of previously evaluated accident. Because the SLCS is manually initiated to mitigate accident concerns during power operations, the proposed deletion of Applicability and Actions during refueling operations does not affect the probability of a new or different kind of accident from being created. The changes proposed to the surveillance requirements are administrative in nature and do not affect the system operation; as such, the proposed changes do not affect the probability of a new or different kind of accident being created. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

The associated systems related to this proposed amendment are not assumed in any safety analysis to initiate any accident sequence for Dresden or Quad Cities Stations; therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

ATTACHMENT C

SIGNIFICANT HAZARDS CONSIDERATION

3) Involve a significant reduction in the margin of safety because:

The proposed amendment represents the conversion of current requirements which are based on generic guidance or previously approved provisions for other stations. The proposed changes are consistent with NUREG-1433 and do not adversely affect existing plant safety margins or the reliability of the equipment assumed to operate in the safety analysis. The proposed changes have been evaluated and found to be acceptable for use at Dresden or Quad Cities based on system design, safety analysis requirements and operational performance. SLCS provisions continue to be adequately maintained during plant operation. The proposed changes to the Applicability and Actions during refueling operations for the SLCS do not significantly reduce existing plant safety margins. Because the SLCS is manually initiated to mitigate accident concerns during power operations, the proposed deletion of Applicability and Actions during refueling operations has no effect on existing plant safety margins as this system is not required during this mode of operation. The changes proposed to the surveillance requirements are administrative in nature and do not affect the system operation; as such, the proposed changes do not adversely affect existing plant safety margins as adequate system surveillance requirements are maintained. Since the proposed changes are based on NRC accepted provisions at other operating plants that are applicable at Dresden or Quad Cities and maintain necessary levels of system or component reliability, the proposed changes do not involve a significant reduction in the margin of safety.

The proposed amendment for Dresden and Quad Cities Stations will not reduce the availability of systems required to mitigate accident conditions; therefore, the proposed changes do not involve a significant reduction in the margin of safety.

Guidance has been provided in "Final Procedures and Standards on No Significant Hazards Considerations," Final Rule, 51 FR 7744, for the application of standards to license change requests for determination of the existence of significant hazards considerations. This document provides examples of amendments which are and are not considered likely to involve significant hazards considerations.

This proposed amendment does not involve a significant relaxation of the criteria used to establish safety limits, a significant relaxation of the bases for the limiting safety system settings or a significant relaxation of the bases for the limiting conditions for operations. Therefore, based on the guidance provided in the Federal Register and the criteria established in 10 CFR 50.92(c), the proposed change does not constitute a significant hazards consideration.

ATTACHMENT C

SIGNIFICANT HAZARDS CONSIDERATION

ENVIRONMENTAL ASSESSMENT

ComEd has evaluated the proposed amendment against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. It has been determined that the proposed changes meet the criteria for a categorical exclusion as provided under 10 CFR 51.22 (c)(9). This conclusion has been determined because the changes requested do not pose significant hazards consideration or do not involve a significant increase in the amounts, and no significant changes in the types, of any effluents that may be released off-site. Additionally, this request does not involve a significant increase in individual or cumulative occupational radiation exposure.