50-237 DRESDEN 2 CEC

TECHNICALS SPECIFICATIONS UPGRADE SECTION 3/4.10
BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION

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TSUP SECTION 3/4.10
BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION

Commonwealth Edison has evaluated this proposed amendment and determined that it involves no significant hazards consideration. According to 10 CFR 50.92(c), a proposed amendment to an operating license involves 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.

The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated because:

In general, the proposed amendment represents the conversion of current requirements to a more generic format, or the addition of requirements which are based on the current safety analysis. Implementation of these changes will provide increased reliability of equipment assumed to operate in the current safety analysis, or provide continued assurance that specified parameters remain within their acceptance limits, and as such, will not significantly increase the probability or consequences of a previously evaluated accident.

Some of the proposed changes represent minor curtailments of the current requirements which are based on generic guidance or previously approved provisions for other stations. The proposed amendment for Dresden and Quad Cities Station's Technical Specification Section 3/4.10 are based on STS guidelines or later operating BWR plant's NRC accepted changes. Any deviations from STS requirements 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 has been previously determined to represent 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. As such, these changes will not significantly increase the probability or consequences of a previously evaluated accident.

The associated systems that make up the Refueling Systems are not assumed in any safety analysis to initiate any accident sequence for Dresden or Quad Cities Stations; therefore, the probability of any accident previously evaluated is not increased by the proposed amendment. In addition, the proposed surveillance requirements for the proposed amendments to these systems are generally more prescriptive than the current requirements specified within the Technical Specifications. The additional surveillance requirements improve the reliability and availability of all affected systems and therefore,

reduce the consequences of any accident previously evaluated as the probability of the systems outlined within Section 3/4.10 of the proposed Technical Specifications, performing its intended function is increased by the additional surveillances.

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

In general, the proposed amendment represents the conversion of current requirements to a more generic format, or the addition of requirements which are based on the current safety analysis. Others represent minor curtailments of the current requirements which are based on generic guidance or previously approved provisions for other stations. These changes do not involve revisions to the design of the station. Some of the changes may involve revision in the operation of the station; however, these provide additional restrictions which are in accordance with the current safety analysis, or are to provide for additional testing or surveillances which will not introduce new failure mechanisms beyond those already considered in the current safety analyses.

The proposed amendment for Dresden and Quad Cities Station's Technical Specification Section 3/4.10 is based on STS guidelines or later operating BWR plants' NRC accepted changes. 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 STS or later operating BWRs. Any deviations from STS requirements 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, considering the acceptable operational modes in present specifications, the STS, or later operating BWRs. Surveillance requirements are changed to reflect improvements in technique, frequency of performance or operating experience at later plants. Proposed changes to action statements in many places add requirements that are not in the present technical specifications or adopt requirements that have been used successfully at other operating BWRs with designs similar to Dresden and Quad Cities. The proposed changes maintain at least the present level of operability. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

The associated systems that make up the Refueling Systems are not assumed in any safety analysis to initiate any accident sequence for Dresden or Quad Cities Stations. In addition, the proposed surveillance requirements for affected systems associated with the Refueling Systems are generally more prescriptive than the current requirements specified within the Technical Specifications; therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

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Involve a significant reduction in the margin of safety because:

In general, the proposed amendment represents the conversion of current requirements to a more generic format, or the addition of requirements which are based on the current safety analysis. Others represent minor curtailments of the current requirements which are based on generic guidance or previously approved provisions for other stations. Some of the later individual items may introduce minor reductions in the margin of safety when compared to the current requirements. However, other individual changes are the adoption of new requirements which will provide significant enhancement of the reliability of the equipment assumed to operate in the safety analysis, or provide enhanced assurance that specified parameters remain with their acceptance limits. These enhancements compensate for the individual minor reductions, such that taken together, the proposed changes will not significantly reduce the margin of safety.

The proposed amendment to Technical Specification Section 3/4.10 implements present requirements, or the intent of present requirements in accordance with the guidelines set forth in the STS. Any deviations from STS requirements do not significantly reduce the margin of safety for Dresden or Quad Cities Stations. The proposed changes are intended to improve readability, usability, and the understanding of technical specification requirements while maintaining acceptable levels of safe operation. The proposed changes have been evaluated and found to be acceptable for use at Dresden and Quad Cities based on system design, safety analysis requirements and operational performance. Since the proposed changes are based on NRC accepted provisions at other operating plants that are applicable at Dresden and Quad Cities and maintain necessary levels of system, component or parameter readability, 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 associated with the Refueling Systems when required to mitigate accident conditions; therefore, the proposed changes do not involve a significant reduction in the margin of safety.

ATTACHMENT B

ComEd Response to Generic Question No. 2

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In the NRC staff Request for Additional Information (RAI), Generic Question No. 1 requested the following:

> "In review of proposed Technical Specification Upgrade Program (TSUP) Sections 3.1, 3.2, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, and 5.0, the No Significant Hazards Consideration for these applications are not completely accurate and the wording used in the evaluations are confusing. The considerations did not take into account the relaxation of the current Technical Specification (TS) requirement with the adoption of the proposed Standard Technical Specifications (STS). In addition, the staff discovered typographical errors in the considerations. The staff requests that Commonwealth Edison Company (ComEd) re-evaluate the No Significant Hazards Consideration for each application covering the sections listed above and supplement the applications by providing an accurate and complete No Significant Hazards Consideration."

ComEd's re-evaluation of the original TSUP Section 3/4.10 Significant Hazards Evaluation is provided as an attachment to this letter. Responses to Generic Question No. 1 for other TSUP Sections will be provided separately. ComEd requests NRC staff processing and associated publication of this revised evaluation commensurate with the schedule to implement the TSUP project at ComEd.

In response to the NRC staff Request for Additional Information (RAI), the following discussion compares the current Technical Specification (TS) requirements at Dresden (DR) and Quad Cities (QCS) to those proposed in the Technical Specification Upgrade Program (TSUP). This comparison satisfies RAI Generic Question No. 2. NRC Staff Generic Question No. 2 requested the following:

> In review of proposed TSUP Sections 3.1, 3.2, 3.3, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, and 5.0, ComEd did not evaluate and provide justification for the relaxations and deviations between current TS requirements and the proposed TS. ComEd has compared only the proposed TS to the STS and provided justification for any deviations. To allow the staff to perform a complete and accurate review of the above proposed TSUP TS sections, please provide supplemental evaluations of any changes or deviations between the current TS and the proposed TS. In addition, for each deviation or relaxation between the current TS and the proposed TS an evaluation should be provided which demonstrates that the proposed TS maintains the current licensing basis as described in the Updated Final Safety Analysis Report.

In response to the above NRC staff question, the following evaluation provides a line-by-line comparison of the current DR and QCS TS requirements to the proposed TSUP requirements and includes ComEd's basis for acceptance of the proposed TSUP Section 3/4.10 requirements. All deviations from current DR and QCS TS requirements have been evaluated by ComEd and are discussed below. ComEd requests NRC staff review and approval of all previously submitted TSUP sections in order to effectuate a successful and orderly implementation of the program at Dresden and Quad Cities Stations in the near future.

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Previous comparisons made between the Draft Revision 4, of the BWR/4 Standard Technical Specifications (STS) and the proposed TSUP submittals have been previously provided to the NRC staff. Some but not all information from the previous TSUP submittals may be included below to provide the best response to the NRC staff's RAI.

CTS 3/4.10.A Refueling Interlocks

Applicability

1. The current Applicability and Objective requirements for Section 3/4.10 of both the current Dresden (DR) and Quad Cities (QCS) Refueling Technical Specifications (TS) have been deleted. These requirements are inappropriate for inclusion in the Technical Specifications and have been superseded by Draft Revision 4, BWR/4 Standard Technical Specifications (STS) requirements (NUREG-0123). The proposed applicability for Refueling Interlocks implements the intent of the current Technical Specifications. The proposed requirements do not include Technical Specifications for service platform hoists as this equipment is used on an "as needed" basis and is not required to perform the routine activities in the OPERATIONAL MODE 5. Interlocks associated with the service platform are checked prior to core alterations with the service platform in place. The proposed APPLICABILITY clarifies the present requirements by requiring OPERABILITY in OPERATIONAL MODE 5 during CORE ALTERATIONS with equipment associated with the reactor mode switch "refuel" position interlocks.

2. CTS 3.10.A specifies the applicability as the mode switch in 'Refuel' during core alterations with necessary exceptions for control rod maintenance (CTS 3.10.D and CTS 3.10.E). Proposed TSUP 3.10.A specifies the applicability to be in Mode 5 except during Special Test Exception 3.12.A and 3.12.B. Mode 5 is further clarified in TSUP 3.10.A additionally whenever there is fuel in the vessel. These requirements are based on STS 3.9.1. Special Test Exceptions 3.12.A and 3.12.B are discussed under separate cover

3. The Refueling Interlocks specification addresses the OPERABILITY of the reactor mode switch and the refueling interlocks associated with the Refuel position of the reactor mode switch. STS provisions (STS 3.9.1) were used to develop proposed LCO 3.10.A with the addition of STS guidelines to allow the reactor mode switch to be in either the Shutdown or Refuel position. However, when the reactor mode switch is locked in the Refuel position, specific interlocks and corresponding applicabilities are discussed. TSUP 3.10.A.2 explicitly states that "CORE ALTERATIONS shall not be performed using equipment associated with a Refuel position interlock unless at least the following associated Refuel position interlocks are OPERABLE for such equipment." As discussed in TSUP Section 1.0, the definition of CORE ALTERATION is stated as "CORE ALTERATION shall be the addition, removal, relocation or movement of fuel, sources, incore instruments or reactivity controls within the reactor pressure vessel with the vessel head removed and fuel in the vessel." TSUP Section

1.0, Table 1-2, footnote (c) to MODE REFUELING states "Fuel in the reactor vessel with one or more vessel head closure bolts less than fully tensioned or with the head removed." Therefore, the proposed applicability is equivalent to the current requirements. In addition, the proposed interlocks are equivalent to the current requirements at Dresden Station and are equivalent to the requirements included within the current Quad Cities Technical Specifications as discussed below.

Actions

1. There are no current specific actions delineated in the CTS. The proposed TSUP 3.10.A, Actions are based on STS 3.9.1, Actions. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with the Reactor Mode switch and associated interlocks. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection during refueling activities associated with the reactor mode switch "refuel" position interlocks.

2. TSUP Action requirements provide direct and concise guidance to site operations personnel regarding conditions that may not allow core alterations. Current TS requirements at DR and QCS provide no explicit action requirements. The proposed action requirements are based on industry standards which have been demonstrated through experience to adequately assure the safe operation of the plant during refueling operations. The proposed actions for Specification 3.10.A are based on STS guidelines. The proposed action 3.10.A.1 requires that with the reactor mode switch not locked in the Shutdown or Refuel position, core alterations are suspended and the reactor mode switch is required to be locked in the Shutdown or Refuel position. The proposed action 3.10.A.2 requires that with the one-rod-out interlock inoperable, the reactor mode switch be locked in the Shutdown position. Proposed action 3.10.A.3 requires that with any of the required Refuel position equipment interlocks inoperable, core alterations with equipment associated with the inoperable Refuel position equipment interlock be suspended.

Limiting Condition for Operation (LCO)

1. CTS 3.10.A [mode switch locked in 'Refuel'] is encompassed within proposed TSUP 3.10.A. TSUP 3.10.A is based on STS 3.9.1. The current requirements for 3.10.A for both DR and QCS specify that the mode switch shall be locked in the Refuel position during Core Alterations. The proposed Technical Specifications (3.10.A) provide more explicit guidance for the LCO that is consistent to STS requirements, as further discussed below.

2. CTS 3.10.A [CTS 3.10.D and CTS 3.10.E exceptions] are encompassed within proposed TSUP 3.10.I and 3.10.J. TSUP 3.10.I and 3.10.J are based on STS 3.9.10.1 and 3.9.10.2, respectively and are discussed later in this submittal.

3. CTS 3.10.A.1.a for Quad Cities is encompassed within proposed TSUP 3.10.A.2.b [refuel platform position], which is based on STS 3.9.1.b.2. The CTS and TSUP requirements are equivalent.

4. CTS 3.10.A.1.a [Startup/Hot Standby] for Quad Cities is encompassed within TSUP 4.10.A, footnote (c), which is based on STS 4.9.1.2, footnote '*'. Both requirements continue to ensure that appropriate interlocks are in place and prevents the inappropriate lifting and movement of fuel out of an area where appropriate reactivity management controls exist. The deviation from STS requirements (STS = "technically qualified member of the unit technical staff" vs. TSUP = "technically qualified individual") provides an equivalent level of protection but allows some flexibility in the plant-specific job titles for this function.

5. CTS 3.10.A.1.b for Quad Cities is encompassed within proposed TSUP 3.10.A.2.c [refuel platform hoists fuel loaded] and TSUP 3.10.A.2.a [all rods in] and TSUP 3.10.A.2.b [refuel platform position], which are based on STS 3.9.1.b.3, 3.9.1.b.1 and 3.9.1.b.2, respectively. Implicit within CTS 3.10.A.1.b is the requirement that all rods are inserted which is encompassed within TSUP 3.10.A.2.a as it requires "All rods in." TSUP 3.10.A.2.c provides the fuel-loaded interlocks for the refuel platform hoist. TSUP 3.10.A.2.b provides the interlocks for the refuel platform position. Therefore, the CTS requirements are equivalent.

6. CTS 3.10.A.1.c for Quad Cities is encompassed within proposed TSUP 3.10.A.1 [one-rod-out interlock], which is based on STS 3.9.1.a. These requirements continue to assure that the one rod out interlock is operable. Therefore, the appropriate reactivity management controls related to control rod maintenance during the refuel conditions continue to be controlled within TSUP. The proposed requirements continue to ensure that only one control rod may be withdrawn at a time. Therefore, the CTS and TSUP requirements are equivalent.

7. CTS 3.10.A.2.a for Quad Cities is encompassed within proposed TSUP 3.10.A.2.b [refuel platform position], which is based on STS 3.9.1.b.2. The proposed TSUP and CTS requirements are equivalent.

8. CTS 3.10.A.2.a [Startup/Hot Standby] for Quad Cities is encompassed within proposed TSUP 4.10.A, footnote (c), which is based on STS 4.9.1.2, footnote '*'. Both requirements continue to ensure that appropriate interlocks are in place and prevents the inappropriate lifting and movement of fuel out of an area where appropriate reactivity management controls exist. The deviation from STS requirements (STS = "technically qualified member of the unit technical staff" vs. TSUP = "technically qualified individual") provides an equivalent level of protection but allows some flexibility in the plant-specific job titles for this function.

9. CTS 3.10.A.2.b for Quad Cities is encompassed within proposed TSUP 3.10.A.2.b [refuel platform position] and TSUP 3.10.A.2.c [refuel platform hoists fuel loaded],

which is based on STS 3.9.1.b.2 and 3.9.1.b.3, respectively. The CTS requirement that states "Any control rod out" is encompassed within TSUP 3.10.A.1 [one-rod-out interlock]. The proposed and CTS requirements are equivalent.

10. CTS 3.10.A.3.a for Quad Cities is encompassed within proposed TSUP 3.10.A.2.c [refuel platform hoists fuel-loaded] and 3.10.A.2.b [refuel platform position], which is based on STS 3.9.1.b.3 and 3.9.1.b.2, respectively. The CTS requirement that states "Any control rod out" is encompassed within TSUP 3.10.A.1 [one-rod-out interlock]. The proposed and CTS requirements are equivalent.

11. CTS 3.10.A.3.b for Quad Cities is encompassed within proposed TSUP 3.10.A.2.c [refuel platform hoists fuel-loaded] and TSUP 3.10.A.2.a [all rods in], which are based on STS 3.9.1.b.3 and 3.9.1.b.1, respectively. Implicit within CTS 3.10.A.3.b is the requirement that all rods are inserted which is encompassed within TSUP 3.10.A.2.a, as it requires "All rods in." These requirements continue to assure that appropriate refueling platform hoist interlocks are maintained. The proposed requirements provide continued assurance that fuel maneuvering at the station is adequately controlled in order to reduce the probability of fuel handling events and inadvertent reactivity excursions. The specific design details provided in current QCS TS 3.10.A.3.b are inappropriate for inclusion within the TS.

12. CTS 3.10.A.3.c for Quad Cities is encompassed within proposed TSUP 3.10.A.2.d [fuel grapple position] and 3.10.A.2.a [all rods in], which is based on STS 3.9.1.b.4 and 3.9.1.b.1, respectively. Implicit within CTS 3.10.A.3.c is the requirement that all rods are inserted which is encompassed within TSUP 3.10.A.2.a as it requires "All rods in." These requirements continue to assure that appropriate refueling platform hoist interlocks are maintained. The proposed requirements provide continued assurance that fuel maneuvering at the station is adequately controlled in order to reduce the probability of fuel handling events and inadvertent reactivity excursions. The specific design details provided in current QCS TS 3.10.A.3.c are inappropriate for inclusion within the TS.

Surveillance Requirements

1. CTS 4.10.A is encompassed within proposed TSUP 4.10.A.1 and 4.10.A.3. TSUP 4.10.A.1, 4.10.A.2, and 4.10.A.3. TSUP 4.10.A.1, 4.10.A.2 and 4.10.A.3 are based on STS 4.9.1.1, 4.9.1.2 and 4.9.1.3, respectively. Proposed TSUP 4.10.A.1 provides additional restrictions on mode switch position and provides explicit time requirements that will provide greater assurance that CORE ALTERATIONS will continue to be performed in a safe manner. The periodicity is appropriate and consistent to current industry standards.

2. Proposed TSUP 4.10.A.2 specifies functional tests of the mode switch interlocks on a weekly basis consistent to current DR and QCS TS requirements. In addition, a 24 hour time period prior to the start of control rod withdrawal or Core Alterations is

provided to ensure the test is up to date. This is consistent in periodicity to the current requirements but provides better guidance to site operations personnel for dispositioning potential degraded conditions when compared to the current TS requirements. The current TS requirements only specify a functional test of the interlocks prior to any fuel handling; there is no explicit time requirement. The frequency of the proposed TSUP surveillance is appropriate and consistent to the STS.

3. Proposed SR 4.10.A, footnote (c) states: "The reactor mode switch may be placed in the Run or Startup/Hot Standby position to test the switch interlock functions provided that all control rods are verified to remain fully inserted by a second licensed operator or other technically qualified individual." This requirement is equivalent to current Quad Cities Technical Specification 3.10.A.1.a and 3.10.A.2.a which states: "The reactor mode switch shall be locked in the Refuel position during core alterations, and the refueling interlocks listed below shall be operable . . .1. Control Rod Blocks, item a) Mode switch in Startup/Hot Standby and refueling platform over the reactor. . . .2. Refueling Platform Reverse Motion (toward reactor vessel) Block, item a) Mode switch in Startup/Hot Standby." Both requirements continue to ensure that appropriate interlocks are in place and prevents the inappropriate lifting and movement of fuel out of an area where appropriate reactivity management controls exist.

   The deviation from STS requirements (STS = "technically qualified member of the unit technical staff" vs. TSUP = "technically qualified individual") provides an equivalent level of protection but allows some flexibility in the plant-specific job titles for this function. Therefore, the current safety margin are maintained.

CTS 3/4.10.B Core Monitoring

Applicability

1. CTS 3.10.B specifies that two SRMs shall be operable during core alterations. These requirements are encompassed within TSUP 3.10.B, Applicability. TSUP 3.10.B, Applicability is based on STS 3.9.2, Applicability.

2. The APPLICABILITY of OPERATIONAL MODE 5 is modified using provisions from the current Technical Specifications and the LaSalle Technical Specifications. The proposed APPLICABILITY allows one exception to OPERATIONAL MODE 5: no more than 2 fuel assemblies are present in each quadrant and the assemblies are located adjacent to the SRM and if movable detectors are used, each group is separated by at least two control (core) cells. The exception is retained to allow reactor core loading or unloading without the use of neutron sources to achieve the minimum required SRM count rate at the very start of fuel loading procedures.

Actions

1. There are no current specific actions delineated in the CTS. The proposed TSUP

3.10.B, Actions are based on STS 3.9.2, Actions. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition conditions where core monitoring instrumentation may be incapable of performing the required function. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection for the core monitoring instrumentation during core alterations.

2. Proposed TSUP Section 3.10.B provides specific guidance to site operations personnel by requiring specific action in the event the SRM instrumentation is incapable of performing the required function. The proposed actions enhance the CTS requirements. There are currently no such requirements in the DR or QCS TS. Present TS 3.10.B does not contain remedial action statements, therefore, STS guidelines are appropriate and have been adopted. Proposed ACTION 3.10.B requires that with the provisions of the LCO not met, that all operations involving CORE ALTERATIONS be suspended and that all insertable control rods be fully inserted.

Limiting Condition for Operation (LCO)

1. CTS 3.10.B [2 SRMs operable] is encompassed within proposed TSUP LCO 3.10.B. TSUP LCO 3.10.B is based on STS LCO 3.9.2. Current DR and QCS TS 3.10.B specify that during Core Alteration, two (2) SRMs shall be operable. These requirements are maintained in proposed TSUP Section 3.10.B. TSUP provides footnote (a) related to the use of special moveable detectors in place of normal SRM detectors. These detectors are equivalent to the dunking detectors discussed in current TS 3.10.B.1. Dunking detector may be used in place of SRM channels as long as the circuitry is connected to the normal SRM circuitry.

2. CTS 3.10.B [operable SRM locations] is encompassed within proposed TSUP 3.10.B, LCO 3.10.B.2. TSUP LCO 3.10.B.2 is based on STS 3.9.2.c. Two (2) SRMs will continue to be required operable, one SRM in the core quadrant where CORE ALTERATIONS are being performed and the other SRM required to be operable in an adjacent quadrant. In addition, the SRMs will continue to require full insertion to the appropriate normal operating level.

3. CTS 3.10.B.1 [SRM inserted to normal level] is encompassed within proposed TSUP LCO 3.10.B. TSUP LCO 3.10.B is based on STS LCO 3.9.2. The BWR STS provisions are used for proposed LCO 3.10.B such that at least two source range monitors (SRM) are required to be operable and inserted to the normal operating level. STS restrictions on SRMs are also adopted so that continuous visual indication is provided in the control room (there are no such current TS requirements at DR and QCS), one of the detectors is located in the quadrant where fuel or control rods are being moved and one is in an adjacent quadrant, and the "shorting links" are removed from the RPS circuitry.

4. CTS 3.10.B.1 [dunkers] is encompassed within proposed TSUP LCO 3.10.B, footnote (a). TSUP LCO 3.10.B, footnote (a) is based on STS 3.9.2, footnote '*'. Included in the proposed LCO is the present provision that allows the use of special movable detectors in place of the SRMs provided they are connected to the normal SRM circuits.

5. CTS 3.10.B.2 [3 cps with all rods inserted] is encompassed within proposed TSUP 4.10.B.3. TSUP 4.10.B.3 is based on STS 4.9.2.c. The current requirements specified in 3.10.B.2(a) and 3.10.B.2(b) are encompassed within proposed TSUP Section 3.10.B, APPLICABILITY statement 1 and APPLICABILITY statement 2, respectively. These requirements will continue to assure that the probability of an inadvertent criticality is minimized by requiring appropriate spacing of fuel assemblies and SRMs.

6. CTS 3.10.B.2.a [maximum of 2 fuel assemblies with SRM] is encompassed within proposed TSUP 3.10.B, Applicability. This requirement deviates from STS. The exception is retained to allow reactor core loading or unloading without the use of neutron sources to achieve the minimum required SRM count rate. The proposed requirements are consistent to CTS requirements.

7. CTS 3.10.B.2.b [fuel assemblies adjacent to SRM] is encompassed within proposed TSUP 3.10.B, Applicability. This requirement deviates from STS. The exception is retained to allow reactor core loading or unloading without the use of neutron sources to achieve the minimum required SRM count rate.

8. Dresden and Quad Cities did not adopt STS 3.9.2.b. The CTS and design at Dresden and Quad Cities Stations does not include audible indications for SRMs in the Control Room or on the Refuel floor.

Surveillance Requirement

1. CTS 4.10.B [functionally tested and checked for neutron response prior to core alterations] is encompassed within proposed TSUP 4.10.B.2 and 4.10.B.3. TSUP 4.10.B.2 and 4.10.B.3 are based on STS 4.9.2.b and 4.9.2.c, respectively. The current requirements specify functional testing and checking for neutron response prior to Core Alterations. Proposed TSUP Section 4.10.B.2 provides enhanced guidance to site operations personnel by specifying a time period to perform the functional test 24 hours prior to the start of CORE ALTERATIONS and at least once per seven days thereafter. This periodicity is consistent to the BWR STS.

2. CTS 4.10.B [daily checks] is encompassed within proposed TSUP 4.10.B.3. TSUP 4.10.B.3 is based on STS 4.9.2.c. Proposed TSUP Section 4.10.B.3 requires the verification of SRM channel count rate prior to control rod withdrawal and includes specific time requirements prior to and during CORE ALTERATIONS at a minimum of once per 24 hours. This is consistent to the daily check for response required in current TS Section 4.10.B.

3. CTS 4.10.B [exceptions to CTS 3.10.B.2.a and CTS 3.10.B.2.b] are encompassed within proposed TSUP 3.10.B, Applicability. This requirement deviates from STS. The exception is retained to allow reactor core loading or unloading without the use of neutron sources to achieve the minimum required SRM count rate.

4. Proposed TSUP Section 4.10.B.1 provides enhanced verification and surveillance of the SRM channels not included in the current DR or QCS TS. The periodic verification of operability by the performance of a channel check, the verification of appropriate SRM detector insertion level and the verification of appropriate spacing between fuel and SRM channels provides additional assurance that inadvertent criticality events are averted. The proposed requirements are consistent to the BWR STS.

5. Proposed TSUP 4.10.B.4 adds an additional surveillance not currently included within the DR or QCS TS and is based on STS 4.9.2.d. When the reactor protection system shorting links are removed, the SRMs provide added protection against local criticality by providing an initiating signal for a reactor scram on high neutron flux. The proposed requirements deviate from the BWR STS. Proposed TSUP 4.10.B.4 provides enhanced verification and surveillance of refueling instrumentation. The requirements specified in STS 4.9.2.d regarding RPS circuitry "shorting links" having been removed have been clarified. The requirement to remove the "shorting links" is redundant to the demonstration of SDM and the demonstration of the one-rod-out interlock. The purpose of removing the "shorting links" is to provide additional protection against an inadvertent local criticality. Thus, if SDM has been demonstrated and the one-rod-out interlock is operable, the probability of an inadvertent criticality has been averted. The proposed requirements are new and ensure that if the SDM or one-rod-out interlock has not been demonstrated, removal of the "shorting links" provides additional assurances to preclude the possibility of an inadvertent criticality.

6. *ComEd will evaluate the apparent discrepancy in the TSUP Bases regarding the SRM count rate and signal to noise ratio. The proposed changes were based upon STS guidance and precedence from the LaSalle County Technical Specifications for the proposed footnote. This should be left as an open item, contingent upon its implementation and/or correction in the TSUP clean-up package.*

CTS 3/4.10.C Fuel Storage Pool Water Level

Applicability

1. CTS 3.10.C specifies the applicability to be whenever irradiated fuel is in the fuel storage pool. CTS 3.10.C is encompassed within proposed TSUP 3.10.H, Applicability, which is based on STS 3.9.9, Applicability. The proposed TSUP and CTS requirements are equivalent.

TSUP SECTION 3/4.10

Actions

1. There are no current specific actions delineated in the CTS. The proposed TSUP 3.10.H, Actions are based on STS 3.9.9, Actions. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with the water level in the spent fuel storage pool. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection whenever irradiated fuel assemblies are in the spent fuel storage pool. Proposed TSUP ACTION 3.10.H requires that with the spent fuel pool level requirement not met, all operations involving handling of fuel assemblies and crane operations with loads in the spent fuel storage area be suspended, after the fuel assemblies and crane load are placed in a safe condition.

Limiting Condition for Operation (LCO)

1. CTS 3.10.C is encompassed within proposed TSUP 3.10.H. TSUP 3.10.H is based on STS 3.9.9. CTS 3.10.C [33 feet] has been modified in proposed TSUP LCO 3.10.H to specify that the water level shall be 23 feet over the top of the irradiated fuel assemblies in the spent fuel pool racks. Proposed LCO 3.10.H implements STS requirements to maintain at least 23 feet of water above the top of fuel stored in the fuel storage pool. The proposed applicability implements STS provisions of whenever irradiated fuel is stored in the fuel storage pool. Current DR and QCS TS 3.10.C requires the maintenance of water level in the pool water level to be at least 33 feet. The proposed requirements (greater than 23 feet above the top of the fuel) are more conservative than CTS requirements (33 feet in the pool). The proposed requirements are consistent in terminology to the STS and provide a parameter that is directly relevant to bases for the TS requirement. The proposed requirements ensure that sufficient water height is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. The proposed water depth is consistent with the UFSAR.

Surveillance Requirement

1. CTS 4.10.C [daily recordings] is encompassed within proposed TSUP 4.10.H. CTS 4.10.C requires daily recordings of the fuel storage pool. TSUP 4.10.H specifies this frequency to be at least once per seven days. Adoption of the proposed ACTION statement from BWR-STS is more conservative than existing Technical Specification requirements which provide no operator guidance in the event a degraded condition is found to exist. The change in the periodicity does not significantly reduce the margin of safety because the spent fuel pool does not have penetrations for water to be inadvertently lost - water inventory can only be lost by evaporation; or a crack in the liner, or initiated by some catastrophic event. The change does not significantly reduce the margin of safety and is consistent with industry practice that can be

applied to the Dresden and Quad Cities designs.

CTS 3/4.10.D Control Rod and Control Rod Drive Maintenance

Applicability

1. The applicability implied by CTS 3.10.D.1 is encompassed within proposed TSUP 3.10.I, Applicability. TSUP 3.10.I, Applicability is based on STS 3.9.10.1, Applicability. TSUP expands the applicability of this section to include TSUP Mode 4 (Cold Shutdown). The proposed inclusion of locking the mode switch in Shutdown or Refuel has been previously discussed above (see TSUP Section 3/4.10.A). The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with operations involving the removal of a single control rod. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection when performing operations involving the removal of a single control rod.

Actions

1. There are no current specific actions delineated in the CTS. The proposed TSUP 3.10.I, Actions are based on STS 3.9.10.1, Actions. Proposed action 3.10.I is taken from STS guidelines since present specifications do not contain remedial action requirements. Proposed action 3.10.I requires that with the provisions of the LCO not met, removal of the control rod and/or associated control rod drive mechanism from the core and/or reactor vessel be suspended and that action be initiated to comply with the TS provisions. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with operations involving the removal of a single control rod. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection when performing operations involving the removal of a single control rod.

Limiting Condition for Operation (LCO)

1. CTS 3.10.D [2 non-adjacent control rods] is encompassed within proposed TSUP 3.10.I. TSUP 3.10.I is based on STS 3.9.10.1. Present Specification 3.10.D allows two control rods and/or control rod drive mechanisms to be removed for maintenance provided the reactor mode switch is locked in Refuel, shutdown margin requirements are met, and the required SRMs are operable. TSUP 3.10.I implements STS guidelines which are more restrictive than present provisions. The proposed specification will allow only one control rod and/or control rod drive mechanism to be removed for maintenance at a time. Proposed LCO requirements also include requiring the reactor mode switch to be locked in the Shutdown or Refuel position, SRMs to be operable per TSUP 3.10.B,

shutdown margin requirements be met, and all other control rods in a five-by-five array centered on the control rod being removed are inserted and disarmed or the fuel assemblies in the affected core cell are removed.

2. CTS 3.10.D.1 [mode switch locked in 'refuel'] is encompassed within proposed TSUP 3.10.I.1. TSUP 3.10.I.1 is based on STS 3.9.10.1.a. The proposed applicability is OPERATIONAL MODES 4 and 5 in accordance with STS guidelines and clarifies present provisions to lock the reactor mode switch in the Refuel position. The proposed restrictions on a single control rod removal are sufficient to allow this maintenance to be performed in the specified OPERATIONAL MODES.

3. CTS 3.10.D.1 [bypassing one-rod-out interlock] has conservatively been eliminated from proposed TSUP LCO 3.10.I. TSUP LCO 3.10.I is based on STS 3.9.10.1. As previously discussed, CTS 3.10.D allows 2 control rods to be removed for maintenance. The proposed TSUP requirements only allow 1 control rod to be removed from the core. Therefore, the bypass of the one-rod-out interlock is no longer applicable. TSUP 3.10.A provides adequate guidance regarding the operability of the refueling interlocks.

4. CTS 3.10.D.1 [all other refueling interlocks operable] is encompassed within proposed TSUP 3.10.A and 3.10.I.1. TSUP 3.10.A and 3.10.I.1 are based on STS 3.9.1 and 3.9.10.1.a, respectively. TSUP 3.10.A has been previously discussed above.

5. CTS 3.10.D.2 [CTS 3.3.A.1 - SDM shall be met] is encompassed within proposed TSUP 3.10.I.3. TSUP 3.10.I.3 is based on STS 3.9.10.1.c. The CTS and TSUP requirements are equivalent.

6. CTS 3.10.D.2 [8 CRDs] is encompassed within proposed TSUP 3.10.I.4. TSUP 3.10.I.4 is based on STS 3.9.10.1.d. TSUP 3.10.I.4 conservatively enhances CTS requirements by specifying that a five-by-five array of control rods around the control rod to be removed must be fully inserted and disarmed prior to removing the affected control rod. In addition, the four fuel assemblies surrounding the rod to be removed must be removed from the core if TSUP Specification 4.10.I.4.a cannot be satisfied. These changes provide additional restrictions to the plant to reduce the plant's vulnerability to an inadvertent criticality when removing control rods for maintenance. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection against SDM and inadvertent criticality events.

7. CTS 3.10.D.3 [SRM locations] is encompassed within proposed TSUP 3.10.I.2. TSUP 3.10.I.2 is based on STS 3.9.10.1.b. CTS 3.10.D.3 includes a cross-reference to CTS 3.10.B. These requirements have been previously discussed above.

Surveillance Requirement

1. CTS 4.10.D.1 is encompassed within proposed TSUP 4.10.I.3 and 4.10.A. TSUP 4.10.I.3 is based on STS 4.9.10.1.c. TSUP 4.10.A is cross-referenced in TSUP 4.10.I.3. The CTS and TSUP requirements are equivalent.

2. CTS 4.10.D.2 is encompassed within proposed TSUP 4.10.I.1 and 4.10.I.4. TSUP 4.10.I.1 is based on STS 4.9.10.1 and TSUP 4.10.I.4 is based on STS 4.9.10.1.d. The proposed requirements provide enhanced guidance to site operations personnel thus assuring the appropriate SRs are performed and up-to-date prior to moving control rods. The proposed SRs require tests to be performed to demonstrate compliance with the conditions of the LCO within 4 hours prior to the start of a control rod and/or control rod drive mechanism removal from the core and/or reactor pressure vessel, and at least once per 24 hours thereafter until a control rod and associated control rod drive mechanism are reinstalled and the control rod is inserted in the core. The SRs include verifying the reactor mode switch is operable and locked in the Shutdown or Refuel position with the "one-rod-out" interlock operable. The CTS provisions are vague without a specific time requirement. In addition, the proposed SRs include additional verification that the required SRM channels are operable, shutdown margin requirements are met, rods in a five-by-five square array are inserted and disarmed or the affected control cell is defueled, and that all other control rods are inserted. The proposed requirements conservatively expand the required number of control rods to be inserted surrounding the affected cell from eight to a five-by-five array.

3. CTS 4.10.D.3 is encompassed within proposed TSUP 4.10.I.2 which is based on STS 4.9.10.1.b. The CTS and TSUP requirements are equivalent.

CTS 3/4.10.E Extended Core Maintenance

Applicability

1. The applicability stated by CTS 3.10.E.1 is encompassed within proposed TSUP 3.10.J, Applicability. TSUP 3.10.J, Applicability is based on STS 3.9.10.2, Applicability. Proposed applicability of OPERATIONAL MODE 5 follows STS guidelines and present requirement of locking the reactor mode switch in Refuel for these operations. The proposed inclusion of locking the mode switch in Shutdown or Refuel has been previously discussed above. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with operations involving the removal of more than one control rod. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection when performing operations involving the removal of multiple control rods.

TSUP SECTION 3/4.10

Actions

1. There are no current specific actions delineated in the CTS. The proposed TSUP 3.10.J, Actions are based on STS 3.9.10.2, Actions. Proposed action 3.10.J is added from STS guidelines since present specifications do not contain remedial action requirements. Proposed action 3.10.J requires that with the provisions of the LCO not met, removal of the control rods and/or control rod drive mechanisms from the core and/or reactor vessel be suspended and that action be initiated to satisfy the above requirements.The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with operations involving the removal of multiple control rods. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection when performing operations involving the removal of multiple control rods. Proposed TSUP ACTION 3.10.J requires that with the specified conditions not met, suspend removal of the control rods and initiate action to satisfy the requirements.

Limiting Condition for Operation (LCO)

1. CTS 3.10.E [more than 2 rods removed] is encompassed within proposed TSUP 3.10.J. TSUP 3.10.J is based on STS 3.9.10.2. The proposed specification contains provisions addressing the removal for maintenance of more than one control rod and/or control rod drive mechanism. The proposed use of STS guidelines for this specification will provide a more complete set of requirements for this maintenance task than are contained in present provisions. The proposed LCO allows any number of control rods and/or control rod drive mechanisms to be removed from the core and/or reactor vessel provided certain conditions are met. These conditions include having an operable reactor mode switch locked in the Shutdown or Refuel position, SRMs operable per Specification 3.10.B, shutdown margin requirements met, all other control rods inserted or their core cells defueled, and the core cell being worked on defueled.

2. CTS 3.10.E.1 [mode switch locked in 'refuel'] is encompassed within proposed TSUP 3.10.J.1. TSUP 3.10.J.1 is based on STS 3.9.10.2.a. Proposed applicability of OPERATIONAL MODE 5 follows STS guidelines and present implied applicability of locking the reactor mode switch in Refuel for these operations. The proposed inclusion of locking the mode switch in Shutdown or Refuel has been previously discussed above. Therefore, the CTS and TSUP requirements are equivalent.

3. CTS 3.10.E.1 [one-rod-out interlock bypassed] is encompassed within proposed TSUP 3.10.J.1. TSUP 3.10.J.1 is based on STS 3.9.10.2.a. The CTS and TSUP requirements are equivalent.

4. CTS 3.10.E.1 [all other refueling interlocks operable] is encompassed within proposed TSUP 3.10.A and 3.10.J.1, respectively. TSUP 3.10.A and 3.10.J.1 are based on STS

3.9.1 and 3.9.10.2.a, respectively. TSUP 3.10.A has been previously discussed above. The CTS and TSUP requirements are equivalent.

5. CTS 3.10.E.2 [SRMs] is encompassed within proposed TSUP 3.10.J.2. TSUP 3.10.J.2 is based on STS 3.9.10.2.b. The CTS and TSUP requirements are equivalent.

Surveillance Requirement

1. CTS 4.10.E for Quad Cities is encompassed within TSUP 4.10.J.1.e. Present provisions at Quad Cities require certification that a control rod's control cell contains no fuel assemblies prior to control rod withdrawal for extended core maintenance. The definition of certification is not specific. The proposed SRs will verify all conditions specified in the LCO within 4 hours prior to the start of removal of control rods and/or control rod drive mechanisms from the core and/or reactor pressure vessel and at least once per 24 hours thereafter until all control rods and control rod drive mechanisms are reinstalled and all control rods are inserted in the core. The conditions verified include that the reactor mode switch is operable and locked in the Shutdown or Refuel position, the SRM channels are operable per Specification 3.10.B, shutdown margin requirements are met, all other control rods are either inserted or have the surrounding four fuel assemblies removed from the core cell, and the core cell on which maintenance is being performed is defueled.

2. CTS 4.10.E.1 for Dresden is encompassed within proposed TSUP 4.10.J and 4.10.A. TSUP 4.10.A is based on STS 4.9.1. TSUP 4.10.A has been previously discussed above. The proposed SRs will verify all conditions specified in the LCO within 4 hours prior to the start of removal of control rods and/or control rod drive mechanisms from the core and/or reactor pressure vessel and at least once per 24 hours thereafter until all control rods and control rod drive mechanisms are reinstalled and all control rods are inserted in the core. The conditions verified include that the reactor mode switch is operable and locked in the Shutdown or Refuel position, the SRM channels are operable per Specification 3.10.B, shutdown margin requirements are met, all other control rods are either inserted or have the surrounding four fuel assemblies removed from the core cell, and the core cell on which maintenance is being performed is defueled.

3. CTS 4.10.E.2 for Dresden is encompassed within proposed TSUP 4.10.J.1.b. TSUP 4.10.J.1.b is based on STS 4.9.10.2.1.b. The proposed SRs will continue to verify that the SRM channels are operable per Specification 3.10.B. Therefore, the CTS and TSUP requirements are equivalent.

4. Dresden and Quad Cities did not adopt STS SR 4.9.10.2.1.f. These requirements are not part of the current licensing basis nor are they included in the Improved Standard Technical Specifications. This option of STS (4.9.10.2.1.f) was added in Draft Revision 4 of the BWR/4 STS. Fuel loading with control rods withdrawn per STS LCO 3.9.10.1 and 3.9.10.2 is specifically restricted in STS Draft Rev. 4 with the added Surveillance

4.9.10.2.1.f. ComEd determined the proposed TSUP Action requirements would suffice to ensure adequate controls are in place to maintain Shutdown Margin requirements. Precedence for not including this requirement in the Technical Specifications is seen at LaSalle County and Perry Station. Therefore, ComEd maintained the current licensing basis for Dresden and Quad Cities by not adopting STS SR 4.9.10.2.1.f.

4. Proposed SR 4.10.J.2 implements STS guidelines and requires the performance of a functional test of the "one-rod-out" interlock following replacement of all control rods and/or control rod drive mechanisms, if this function had been bypassed. The proposed changes conservatively add additional new requirements that assure the appropriate plant refueling interlocks are OPERABLE thus enhancing existing plant safety margins.

CTS 3/4.10.F Spent Fuel Cask Handling

Based on discussions with the NRC staff, ComEd will include the Dresden CTS 3/4.9.H requirements in TSUP 3/4.10.F for both Dresden and Quad Cities. The previous TSUP 3/4.10.F for both Dresden and Quad Cities (based on CTS 3/4.9.F) will be re-located to administrative controls. The revised TSUP 3/4.10.F will be based on STS 3/4.9.7 and will incorporate the loadings of the CTS requirements (loads no heavier than the weight of a single fuel assembly and handling tool). These changes should be left as an open item, contingent upon its implementation, review and approval in the TSUP clean-up package.

CTS 3/4.10.G Fuel Storage Reactivity Limit (Dresden only)

Current Technical Specification requirements outlined in Dresden Technical Specification 3/4.10.G, "Fuel Storage Reactivity Limit," have not been included within proposed TSUP Section 3/4.10. The applicable requirements specifying fuel storage limits have been relocated to TSUP Section 5.6. ComEd's evaluation of TSUP 5.0 is provided under separate cover. The CTS requirements associated with the K_{inf}/K_{eff} limits have not fully been retained within TSUP 5.0. Portions of this type of information are more appropriately controlled in the UFSAR. K_{inf}/K_{eff} limits are fuel type dependent, which also could be cycle dependent and should be contained within the UFSAR. The design of the fuel racks is to ensure that a maximum K_{eff} is not exceeded and the fuel cycle is not necessary to be analyzed for such limits. Per STS requirements, TSUP Section 5.6 does not include the specific Surveillance Requirements specified in current Dresden Technical Specification 3.10.G.1 and 3.10.G.2. These surveillances are implicit per the requirements of 10 CFR 50.59 where potential new fuel designs and associated fuel storage rack reactivity limits may constitute an Unreviewed Safety Question thus necessitating NRC staff review and approval prior to their implementation and usage; however such design features are not appropriate for inclusion into the Technical Specifications as evidenced by their exclusion from the BWR-STS and the Improved Standard Technical Specifications (ITS - NUREG-1433). In addition, the requirements outlined by current Dresden Technical Specifications 3.10.G.1 and 3.10.G.2 are design parameters more appropriate for inclusion within the UFSAR and will be administratively controlled in owner-controlled

documentation.

Applicability

1. CTS 3.10.G.1 and 3.10.G.2 specify that the reactivity limits are applicable whenever there is a fuel assembly stored in the spent fuel storage pool. As previously discussed, CTS 3/4.10.G have been relocated to TSUP 5.0, where applicable. ComEd's evaluation of TSUP 5.0 is provided under separate cover.

Actions

1. There are no CTS actions.

Limiting Condition for Operation (LCO)

1. As previously discussed, CTS 3.10.G.1 [K_{eff}] and CTS 3.10.G.2 [K_{inf}] have been relocated to TSUP 5.0, where applicable. ComEd's evaluation of TSUP 5.0 is provided under separate cover.

Surveillance Requirement

1. CTS 4.10.G.1 [K_{eff} analysis] and CTS 4.10.G.2 [K_{inf} analysis] have not been retained within TSUP. As previously discussed, these surveillances are implicit per the requirements of 10 CFR 50.59 where potential new fuel designs and associated fuel storage rack reactivity limits may constitute an Unreviewed Safety Question thus necessitating NRC staff review and approval prior to their implementation and usage. ComEd's evaluation of TSUP 5.0 is provided under separate cover.

CTS 3/4.10.H Loads Over Spent Fuel Storage Pool (Dresden only)

Based on discussions with the NRC staff, ComEd will include the Dresden CTS 3/4.9.H requirements in TSUP 3/4.10.F for both Dresden and Quad Cities. The previous TSUP 3/4.10.F for both Dresden and Quad Cities (based on CTS 3/4.9.F) will be re-located to administrative controls. The revised TSUP 3/4.10.F will be based on STS 3/4.9.7 and will incorporate the loadings of the CTS requirements (loads no heavier than the weight of a single fuel assembly and handling tool). These changes should be left as an open item, contingent upon its implementation, review and approval in the TSUP clean-up package.

TSUP 3/4.10.C Control Rod Position

The current DR and QCS TS do not contain TS that are consistent to proposed TSUP Section 3/4.10.C, "Control Rod Position." As such, the proposed changes enhance the current licensing basis by providing additional assurances the control rod positioning during refueling operations are adequately controlled.

TSUP SECTION 3/4.10

Applicability

1. The current DR and QCS TS do not contain explicit provisions requiring that all control rods be inserted while in OPERATIONAL MODE 5 during CORE ALTERATIONS. Proposed Specification 3/4.10.C, based on STS guidelines, is added in order to address the necessary requirements for these conditions. Proposed LCO 3.10.C provides the explicit requirement that all control rods be inserted while in OPERATIONAL MODE 5 during CORE ALTERATIONS. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with the position of control rods during refueling operations. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection when performing operations involving the positioning of control rods.

Actions

1. The proposed TSUP 3.10.C requirements are based on STS 3.9.3. With all control rods not inserted, proposed action 3.10.C requires suspension of all CORE ALTERATIONS, except that one control rod may be withdrawn under the control of the reactor mode switch Refuel position one-rod-out interlock. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with the position of control rods during refueling operations. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection when performing operations involving the positioning of control rods.

Limiting Condition for Operation (LCO)

1. The proposed TSUP 3.10.C requirements are based on STS 3.9.3. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with the position of control rods during refueling operations. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection when performing operations involving the positioning of control rods. Per Draft Revision 4 of the NUREG-0123, ComEd has added a clarification to STS footnote '*' which correctly cross-references STS LCO 3.9.3 to necessary allowances for the one-rod-out interlock. Without this clarification, STS 3.9.3 contradicts STS 3.9.1.1.

Surveillance Requirement

1. In accordance with STS 4.9.3, proposed SR 4.10.C requires that all control rods be verified to be fully inserted within 2 hours prior to: a) the start of core alterations;

and b) the withdrawal of one control rod under the control of the reactor mode switch Refuel position one-rod-out interlock. Proposed SR 3.10.C further requires that this verification be re-performed at least once every 12 hours. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with the position of control rods during refueling operations. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection when performing operations involving the positioning of control rods. The proposed changes enhance the CTS which does provide similar restriction and therefore, does not significantly reduce existing plant safety margin.

TSUP 3/4.10.D Decay Time

The current DR and QCS TS do not contain TS that are consistent to proposed TSUP Section 3/4.D, "Decay Time." As such, proposed Specification 3/4.10.D, based on STS 3/4.9.4, is added to ensure sufficient control is present to prevent CORE ALTERATIONS prior to the decay of short lived fission products.

The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to ensure sufficient control is present to prevent CORE ALTERATIONS prior to the decay of short lived fission products. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection regarding operations during refueling outages.

TSUP 3/4.10.E Communications

Applicability

1. Present Dresden and Quad Cities Technical Specifications do not contain requirements that direct communication be maintained between the control room and refueling floor personnel while in OPERATIONAL MODE 5 during CORE ALTERATIONS. The proposed requirements are based on STS 3.9.5, Applicability. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with communications during refueling operations. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection regarding communications between the control room and the refueling area when performing core alterations during refueling outages.

2. Proposed TSUP 3.10.E, Applicability footnote (a) did not fully incorporate STS 3.9.5, Applicability footnote '*'. The definition of CORE ALTERATIONS in TSUP already excludes normal movement of the SRMs, so this exclusion did not need to be included

in the footnote (a).

Actions

1. When direct communication cannot be maintained between the control room and refueling floor personnel, proposed action 3.10.E requires immediate suspension of CORE ALTERATIONS. The proposed requirements are based on STS 3.9.5, Applicability. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with communications during refueling operations. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection regarding communications between the control room and the refueling area when performing operations during refueling outages.

Limiting Condition for Operation (LCO)

1. Proposed Specification 3/4.10.E, based on STS 3.9.5, is added in order to address the necessary requirements for these conditions. Proposed LCO 3.10.E requires that direct communication be maintained between the control room and refueling floor personnel while in operational mode 5 during core alterations. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection regarding communications between the control room and the refueling area when performing CORE ALTERATIONS in REFUEL MODE.

Surveillance Requirement

1. In accordance with STS 4.9.5, proposed SR 4.10.E requires that direct communications between the control room and refueling floor personnel be demonstrated within one hour prior to the start of and at least once per 12 hours during core alterations. The proposed changes enhance the current plant safety margins. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection regarding communications between the control room and the refueling area when performing operations during refueling outages.

TSUP 3/4.10.G Water Level - Reactor Vessel

Applicability

1. Present Dresden and Quad Cities Technical Specifications do not contain provisions for reactor vessel water level during handling of fuel assemblies or control rods within the reactor pressure vessel while in OPERATIONAL MODE 5. Proposed Specification 3/4.10.G, based on STS 3.9.8, is added in order to address the necessary requirements

for these conditions. ComEd proposes a clarification to STS 3.9.8, Applicability by specifying a minimum water level when handling control rods. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with the position of control rods during refueling operations. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection when performing operations involving the positioning of control rods.

Actions

1. Proposed LCO 3.10.G requires that 23 feet of water be maintained over the top of the reactor pressure vessel flange. The proposed LCO provides the minimum water level required during handling of fuel assemblies or control rods within the reactor pressure vessel while in OPERATIONAL MODE 5. When this minimum reactor vessel water level cannot be satisfied, proposed action 3.10.G requires suspension of all operations involving handling of fuel assemblies or control rods within the reactor pressure vessel, after all fuel assemblies and control rods have been placed in a safe condition. The proposed requirements are applicable to the Dresden and Quad Cities plant design and provide enhanced guidance to site operations personnel to appropriately disposition potential degraded conditions associated with the level of water in the reactor vessel during refueling operations. The proposed requirements are based on industry standards which have been shown by industry experience to provide an adequate level of protection when performing operations involving reactor vessel water level during refueling operations.

Limiting Condition for Operation (LCO)

1. Proposed LCO 3.10.G requires that 23 feet of water be maintained over the top of the reactor pressure vessel flange. The proposed LCO provides the minimum water level required during handling of fuel assemblies or control rods within the reactor pressure vessel while in OPERATIONAL MODE 5.

Surveillance Requirement

1. The proposed SR is equivalent to the BWR-STS SR, and represents a new SR relative to current Technical Specifications. The proposed TSUP package adds additional more conservative restrictions and as such, does not reduce the margin of safety for Dresden and Quad Cities Stations. The storage pool is connected to the vessel during refueling operations and therefore, water is only displaced (not lost) during the removal of fuel or blades from the vessel (i.e., there should be no affect on water level). The proposed changes are more restrictive than the current licensing basis and are consistent to industry practice regarding the Technical Specification surveillance periodicity of reactor vessel water level during fuel handling activities.

2. In accordance with STS guidelines, proposed SR 4.10.G requires that the reactor vessel water level be at least at its minimum required height within 2 hours prior to the start of and verified at least once per 24 hours during handling of fuel assemblies or control rods within the reactor pressure vessel. The proposed changes add additional conservative requirements and as such, do not significantly reduce existing plant safety margins.

TSUP 3/4.10.K SDC Coolant Circulation - High Water Level (Dresden)
TSUP 3/4.10.K RHR Coolant Circulation - High Water Level (Quad Cities)

Dresden and Quad Cities have different systems that are used for shutdown cooling purposes and therefore, the proposed specifications are slightly different. Dresden has a separate shutdown cooling system with 3 pumps and 3 heat exchangers per unit to remove decay heat from the reactor. Quad Cities utilizes the RHR system to remove decay heat. The predominant difference within the proposed specifications is that the Dresden system is capable of being throttled and can be configured to maintain a constant temperature. The RHR system at Quad Cities is not designed to permit throttling flow to maintain constant temperatures.

Applicability

1. Proposed TSUP 3/4.10.K and 3/4.10.L for Dresden are added to the Technical Specifications in accordance with STS 3/4.9.11.1 and 3/4.9.11.2, respectively, to ensure that the required Shutdown Cooling subsystems are available for decay heat removal. The proposed LCO requires that at least one shutdown cooling system be operable and in operation in OPERATIONAL MODE 5 when irradiated fuel is in the reactor vessel and water level must be greater than 23 feet above the top of the reactor vessel flange.

Actions

1. Proposed TSUP 3.10.K.1, Action for Dresden requires that with no shutdown cooling loops operable, within one hour demonstrate the operability of at least one alternate method capable of decay heat removal. TSUP 3.10.K.1, Action is based on STS 3.9.11.1, Actions. In addition, proposed action 3.10.K.2 requires reactor coolant circulation by an alternate method when no shutdown cooling loops are available. The proposed SR is adopted from the STS. The proposed changes are consistent to the current licensing basis and do not significantly reduce existing plant safety margin.

2. For TSUP 3.10.K, Action 2 and TSUP 3.10.L, Action 2, Dresden conservatively added the additional Action verification of reactor coolant circulation at least once per 12 hours with no SDC loop in operation to clarify STS Actions. Although this requirement is an additional action not discussed in STS 3.9.11.1 and 3.9.11.2, it appropriately connects the TSUP 3.10.K and 3.10.L Action Statements to the TSUP

4.10.K and 4.10.L surveillances. In addition, these requirements are enhancements of the current licensing basis for Dresden Station.

Limiting Condition for Operation (LCO)

1. The proposed TSUP 3.10.K and 3.10.L, and specifically Note "a" for Dresden is consistent with BWR-STS, and represents additional requirements for Dresden Station. The proposed specifications, including Note "a", provide an additional margin of safety during refueling operations.

2. Proposed TSUP 3/4.10.L for Dresden is identical to TSUP 3/4.10.K except that two shutdown cooling loops are required to be operable in accordance with the STS. The proposed changes do not significantly reduce existing plant safety margin.

3. Proposed TSUP 3/4.10.K and 3/4.10.L for Quad Cities are added to the Technical Specifications in accordance with STS to ensure that the required residual heat removal (RHR) Shutdown Cooling subsystems are available for decay heat removal. The proposed LCO requires that at least one RHR shutdown cooling system be operable in operational mode 5 when irradiated fuel is in the reactor vessel and water level is greater than 23 feet above the top of the reactor vessel flange. The proposed changes do not significantly reduce existing plant safety margin.

4. The proposed TSUP LCO for Quad Cities is different from the STS in that the LCO only requires the RHR shutdown cooling equipment to be operable and not necessarily in operation. Quad Cities' SDC mode of RHR is not designed to be throttled. The system configuration does not allow either the shutdown cooling flow or the service water cooling flow to be throttled sufficiently to maintain constant temperature. The system is cycled on and off as needed to maintain the reactor coolant temperature below the required limits. Proposed action 3.10.K.1 requires that with no RHR shutdown cooling loops operable, within one hour demonstrate the operability of at least one alternate method capable of decay heat removal. In addition, proposed action 3.10.K.2 requires reactor coolant circulation by an alternate method when no shutdown cooling loops are available. The proposed SR is adopted from the STS. The proposed changes do not significantly reduce existing plant safety margin.

Surveillance Requirement

1. In TSUP 4.10.K.2 and 4.10.L.2, Quad Cities added the monitoring of reactor coolant temperature at least once per hour. If no RHR Shutdown Cooling System is in operation, an alternate method of coolant circulation is required to be established within 1 hour. Due to the system design constraints at Quad Cities (system cannot be throttled), ComEd decided to conservatively add an additional surveillance requirement (TSUP 4.10.K.2 and 4.10.L.2). These SRs ensure an appropriate periodicity to review reactor coolant temperature to ensure the RHR and Coolant Circulation System is adequately maintaining reactor coolant temperature. This

additional requirement is consistent to the intent of the Improved Standard Technical Specifications which specify that during the period when the reactor coolant is being circulated by an alternate method (other than by the required RHR Shutdown Cooling System), the reactor coolant temperature must be periodically monitored to ensure proper functioning of the alternate method. The once per hour Completion Time in the ITS was deemed appropriate to adopt for the Quad Cities licensing basis. Additionally, it should be noted that ComEd did not adopt the STS 3/4.9.11 Bases statements regarding the purpose of RHR to distribute and prevent stratification of the poison in the event it becomes necessary to actuate the standby liquid control system. ComEd's proposed requirements for the standby liquid control system included within TSUP 3/4.4 should suffice to ensure that that system is operationally ready to perform its intended design function.

2. In TSUP 3.10.K and 3.10.L Quad Cities did not adopt STS 3.9.11.2, Action b and 3.9.11.2, Action b. Each RHR shutdown cooling subsystem is considered OPERABLE if it can be manually aligned (remote or local) in the shutdown cooling mode for removal of decay heat. Operation (either continuous or intermittent) of one subsystem can maintain and reduce the reactor coolant temperature as required. However, to ensure adequate core flow to allow for accurate average reactor coolant temperature monitoring, nearly continuous operation is required. However, at Quad Cities, the RHR system was not designed to throttle flow to maintain constant temperature in the reactor and thus, nearly continuous operation cannot be maintained without over-cooling. Therefore, the STS requirements were deemed inappropriate as the system cannot be maintained in operation - however, the intent of STS 3.9.11.1, Action b and 3.9.11.2, Action b is maintained in the proposed TSUP as within one hour, reactor coolant recirculation is to be established by an alternate method and at least once per hour, reactor coolant temperature monitored.

TSUP 3/4.10.L SDC Coolant Circulation - Low Water Level (Dresden)
TSUP 3/4.10.L RHR Coolant Circulation - Low Water Level (Quad Cities)

Dresden and Quad Cities have different systems that are used for shutdown cooling purposes and therefore, the proposed specifications are slightly different. Dresden has a separate shutdown cooling system with 3 pumps and 3 heat exchangers per unit to remove decay heat from the reactor. Quad Cities utilizes the RHR system to remove decay heat. The predominate difference within the proposed specifications is that the Dresden system is capable of being throttled and can be configured to maintain a constant temperature. The RHR system at Quad Cities is not designed to permit throttling flow to maintain constant temperatures.

Applicability

1. Proposed TSUP 3/4.10.K and 3/4.10.L for Dresden are added to the Technical Specifications in accordance with STS to ensure that the required Shutdown Cooling subsystems are available for decay heat removal. The proposed LCO requires that at

least one shutdown cooling system be operable and in operation in OPERATIONAL MODE 5 when irradiated fuel is in the reactor vessel and water level must be greater than 23 feet above the top of the reactor vessel flange.

Actions

1. Proposed TSUP 3.10.K.1, Action for Dresden requires that with no shutdown cooling loops operable, within one hour demonstrate the operability of at least one alternate method capable of decay heat removal. In addition, proposed action 3.10.K.2 requires reactor coolant circulation by an alternate method when no shutdown cooling loops are available. The proposed SR is adopted from the STS. The proposed changes do not significantly reduce existing plant safety margin.

2. For TSUP 3.10.K, Action 2 and TSUP 3.10.L, Action 2, Dresden added the additional Action verification of reactor coolant circulation at least once per 12 hours with no SDC loop in operation to clarify STS Actions. The proposed requirement appropriately connects the TSUP 3.10.K and 3.10.L Action Statements to the TSUP 4.10.K and 4.10.L surveillances. This proposed deviation from STS requirements is administrative in nature and clarifies the appropriate actions to take in the event no SDC loops are operable.

Limiting Condition for Operation (LCO)

1. The proposed TSUP 3.10.K and 3.10.L, and specifically Note "a" for Dresden is consistent with BWR-STS, and represents additional requirements for Dresden Station. The proposed specifications, including Note "a", provide an additional margin of safety during refueling operations.

2. Proposed TSUP 3/4.10.L for Dresden is identical to TSUP 3/4.10.K except that two shutdown cooling loops are required to be operable in accordance with the STS. The proposed changes do not significantly reduce existing plant safety margin.

3. Proposed TSUP 3/4.10.K and 3/4.10.L for Quad Cities are added to the Technical Specifications in accordance with STS to ensure that the required residual heat removal (RHR) Shutdown Cooling subsystems are available for decay heat removal. The proposed LCO requires that at least one RHR shutdown cooling system be operable in operational mode 5 when irradiated fuel is in the reactor vessel and water level is greater than 23 feet above the top of the reactor vessel flange. The proposed changes do not significantly reduce existing plant safety margin.

4. The proposed TSUP LCO for Quad Cities is different from the STS in that the LCO only requires the RHR shutdown cooling equipment to be operable and not necessarily in operation. Quad Cities' shutdown cooling system is not designed to be a throttled. The system configuration does not allow either the shutdown cooling flow or the service water cooling flow to be throttled sufficiently to maintain constant

temperature. The system is cycled on and off as needed to maintain the reactor coolant temperature below the required limits. Proposed action 3.10.K.1 requires that with no RHR shutdown cooling loops operable, within one hour demonstrate the operability of at least one alternate method capable of decay heat removal. In addition, proposed action 3.10.K.2 requires reactor coolant circulation by an alternate method when no shutdown cooling loops are available. The proposed SR is adopted from the STS. The proposed changes do not significantly reduce existing plant safety margin.

Surveillance Requirement

1. In TSUP 4.10.K.2 and 4.10.L.2, Quad Cities added the monitoring of reactor coolant temperature at least once per hour. If no RHR Shutdown Cooling System is in operation, an alternate method of coolant circulation is required to be established within 1 hour. Due to the system design constraints at Quad Cities (system cannot be throttled), ComEd decided to conservatively add an additional surveillance requirement (TSUP 4.10.K.2 and 4.10.L.2). These SRs ensure an appropriate periodicity to review reactor coolant temperature to ensure the RHR and Coolant Circulation System is adequately maintaining reactor coolant temperature. This additional requirement is consistent to the intent of the Improved Standard Technical Specifications which specify that during the period when the reactor coolant is being circulated by an alternate method (other than by the required RHR Shutdown Cooling System), the reactor coolant temperature must be periodically monitored to ensure proper functioning of the alternate method. The once per hour Completion Time in the ITS was deemed appropriate to adopt for the Quad Cities licensing basis.

2. In TSUP 3.10.K and 4.10.K Quad Cities did not adopt STS 3.9.11.1, Action b and 3.9.11.2, Action b. Each RHR shutdown cooling subsystem is considered OPERABLE if it can be manually aligned (remote or local) in the shutdown cooling mode for removal of decay heat. Operation (either continuous or intermittent) of one subsystem can maintain and reduce the reactor coolant temperature as required. However, to ensure adequate core flow to allow for accurate average reactor coolant temperature monitoring, nearly continuous operation is required. However, at Quad Cities, the RHR system is not capable of throttling flow to maintain constant temperature in the reactor and thus, nearly continuous operation cannot be maintained without over-cooling the system temperature. Therefore, the STS requirements were deemed inappropriate as the system cannot be maintained in operation - however, the intent of STS 3.9.11.1, Action b and 3.9.11.2, Action b is maintained in the proposed TSUP as within one hour, reactor coolant recirculation is to be established by an alternate method and at least once per hour, reactor coolant temperature monitored.

ATTACHMENT C

Marked-Up Current Dresden Unit 2 and Quad Cities Unit 2
Technical Specifications

FOR INFORMATION ONLY

3.10 LIMITING CONDITIONS FOR OPERATION

REFUELING

Applicability:

Applies to fuel handling and core reactivity limitations.

Objective:

To assure core reactivity is within capability of the control rods and to prevent criticality during refueling.

Specification:

A. Refueling Interlocks

The reactor mode switch shall be locked in the "Refuel" position during core alterations and the refueling interlocks shall be operable except as specified in Specifications 3.10.D and 3.10.E.

B. Core Monitoring

During core alterations two SRM's shall be operable, one in the core quadrant where fuel or control rods are being moved and one in an adjacent quadrant. For an SRM to be considered operable, the following conditions shall be satisfied:

1. The SRM shall be inserted to the normal

4.10 SURVEILLANCE REQUIREMENTS

REFUELING

Applicability:

Applies to the periodic testing of those interlocks and instruments used during refueling.

Objective:

To verify the operability of instrumentation and interlocks used in refueling.

Specification:

A. Refueling Interlocks

Prior to any fuel handling, with the head off the reactor vessel, the refueling interlocks shall be functionally tested. They shall also be tested at weekly intervals thereafter until no longer required and following any repair work associated with the interlocks.

B. Core Monitoring

Prior to making any alterations to the core the SRM's shall be functionally tested and checked for neutron response. Thereafter, the SRM's will be checked daily for response, except when the conditions of 3.10.B.2.a and 3.10.B.2.b are met.

3.10 LIMITING CONDITIONS FOR OPERATION (Cont'd.)

4.10 SURVEILLANCE REQUIREMENTS (Cont'd.)

operating level. (Use of special moveable, dunking type detectors during initial fuel loading and major core alterations in place of normal detectors are permissible as long as the detector is connected into the normal SRM circuit.)

TS ref 4.10.B.1.b

TS ref 3.10.B, Applicability 3 & Note (2)

2. The SRM or dunking type detector shall have a minimum of 3 cps with all rods fully inserted in the core except when both of the following conditions are fulfilled:

TS ref 4.10.B.3

a) No more than two fuel assemblies are present in the core quadrant associated with the SRM.

TS ref 3.10.B, Applicability 1

b) While in core, these fuel assemblies are in locations adjacent to the SRM.

TS ref 3.10.B, Applicability 2

C. Fuel Storage Pool Water Level

Whenever irradiated fuel is stored in the fuel storage pool, the pool water level shall be maintained at a level of 33 feet.

23' over top of assemblies

TS ref 3.10.H

C. Fuel Storage Pool Water Level

Whenever irradiated fuel is stored in the fuel storage pool, the pool level shall be recorded daily.

TS ref 4.10.H

7 days

FOR INFORMATION ONLY

3.10 LIMITING CONDITIONS FOR OPERATION (Cont'd.)

D. Control Rod and Control Rod Drive Maintenance

* A maximum of two non-adjacent control rods separated by more than two control cells in any direction, may be withdrawn from the core for the purpose of performing control rod and/or control rod drive maintenance provided the following conditions are satisfied:

1. The reactor mode switch shall be locked in the "re-fuel" position. The re-fueling interlock which prevents more than one control rod from being withdrawn may be bypassed for one of the control rods on which maintenance is being performed. All other re-fueling interlocks shall be operable.

* 2. Specification 3.3.A.1 shall be met or, the control rod directional control valves for a minimum of eight control rods surrounding each drive out of service for maintenance will be disarmed electrically and sufficient margin to criticality demonstrated.

4.10 SURVEILLANCE REQUIREMENTS (Cont'd.)

D. Control Rod Drive and Control Rod Drive Maintenance

1. This surveillance requirement is the same as given in 4.10.A.

* 2. Sufficient control rods shall be withdrawn prior to performing this maintenance to demonstrate with a margin of 0.25 percent delta k that the core can be made subcritical at any time during the maintenance with the strongest operable control rod fully withdrawn and all other

*Revised with change 17 to DPR-19 dated 3/17/72
Revised with change 9 to DPR-25 dated 3/17/72

3.10 LIMITING CONDITIONS FOR OPERATION (Cont'd.)	4.10 SURVEILLANCE REQUIREMENTS (Cont'd.)
	operable rods fully inserted. Alternately, if a minimum of eight control rods surrounding each control rod out of service for maintenance are to be fully inserted and have their directional control valves electrically disarmed, the 0.25 percent delta k margin will be met with the strongest control rod remaining in service during the maintenance period fully withdrawn.
3. SRM's shall be operable (a) in each core quadrant containing a control rod on which maintenance is being performed, and (b) in a quadrant adjacent to one of the quadrants specified in 3.10.D.3.a above. Requirements for an SRM to be considered operable are given in 3.10.B.	3. This surveillance requirement is the same as that given in 4.10.B.
E. Extended Core Maintenance More than two control rods may be withdrawn from the reactor core provided the following conditions are satisfied: 1. The reactor mode switch shall be locked in the "re-fuel"	E. Extended Core Maintenance 1. This surveillance requirement is the same as that given in 4.10.A.

BWR 4.10.I.3

5×5 array

TSUP 4.10.I.4

BWR 3.10.I.2

TSUP 4.10.I.2

BWR 3.10.J.1 "shutdown or Refuel"

TSUP 4.10.J

3.10 LIMITING CONDITIONS FOR OPERATION (Cont'd.)

position. The refueling interlock which prevents more than one control rod from being withdrawn may be bypassed on a withdrawn control rod after the fuel assemblies in the cell containing (controlled by) that control rod have been removed from the reactor core. All other re-fueling interlocks shall be operable.

TS up 3.10.J 1, 2, 3, 4, 5

2. SRM's shall be operable in the core quadrant where fuel or control rods are being moved and in an adjacent quadrant. The requirements for an SRM to be considered operable are given in 3.10.B.

TS up 3.10.J.2

F. Spent Fuel Cask Handling

1. Fuel cask handling above the 545' elevation will be done with the reactor building crane in the RESTRICTED MODE only except as specified in 3.10.F.2.

TS up 3.10.F

4.10 SURVEILLANCE REQUIREMENTS (Cont'd.)

TS up 4.10.J.1.b

2. This surveillance requirement is the same as that given in 4.10.B.

F. Spent Fuel Cask Handling

1. Prior to fuel cask handling operations, the redundant crane including the rope, hooks, slings, shackles and other operating mechanisms will be inspected.

The rope will be replaced if any of the following conditions exist:

TS up 4.10.F.1

3.10 LIMITING CONDITIONS FOR OPERATION (Cont'd.)

4.10 SURVEILLANCE REQUIREMENTS (Cont'd.)

a. Twelve (12) randomly distributed broken wires in one lay or four (4) broken wires in one strand of one rope lay.

b. Wear of one-third the original diameter of outside individual wire.

c. Kinking, crushing, or any other damage resulting in distortion of the rope.

d. Evidence of any type of heat damage.

e. Reductions from nominal diameter of more than 1/16 inch for a rope diameter from 7/8" to 1 1/4" inclusive.

TSUP 4.10.F.2

DELETED

2. Fuel cask handling in other than the RESTRICTED MODE will be permitted in emergency or equipment failure situations only to the extent necessary to get the cask to the closest acceptable stable location.

2. Prior to operation in the RESTRICTED MODE

a. the controlled area limit switches will be tested:

b. the "two-block" limit switches will be tested;

DELETED TSUP 4.10.F.1

3.10 LIMITING CONDITIONS FOR OPERATION (Cont'd.)

3. Operation with a failed controlled area limit switch is permissible for 48 hours providing an operator is on the refueling floor to assure the crane is operated within the restricted zone painted on the floor.

Bup 3.10.F, Action 1

4.10 SURVEILLANCE REQUIREMENTS (Cont'd.)

DELETED Bup 4.10.F.1

c. ~~the "inching hoist" controls will be tested.~~

3. The empty spent fuel cask will be lifted free of all support by a maximum of 1 foot and left hanging for 5 minutes prior to any series of fuel cask handling operations.

Bup 4.10.F.3

FOR INFORMATION ONLY

3.10 LIMITING CONDITIONS FOR OPERATION (Cont'd.)

G. Fuel Storage Reactivity Limit

1. The new fuel storage facility shall be such that the K_{eff} dry is less than 0.90 and flooded is less than 0.95.

2. Whenever a fuel assembly is stored in the spent fuel storage pool, the peak assembly reactivity in a reactor lattice distribution shall be limited to less than or equal to the following values:

Assembly Type	K_{inf}
GE 7x7	1.26
GE 8x8	1.32
ANF 8x8	1.33
ANF 9x9	1.27

Whenever storing other assembly types or fuel rods in the spent fuel storage pool, their peak reactivity shall be bounded by the most limiting K_{inf} value listed above.

H. ~~Loads Over Spent Fuel Storage Pool~~

~~No loads heavier than the weight of a single spent fuel assembly and handling tool shall be carried over fuel stored in the spent fuel storage pool.~~

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4.10 SURVEILLANCE REQUIREMENTS (Cont'd.)

G. Fuel Storage Reactivity Limit

1. Prior to storing Fuel in the new fuel storage facility, an analysis must be performed to demonstrate that the criteria in 3.10.G.1 are satisfied.

2. Prior to storing Fuel in the spent fuel storage pool, an analysis must be performed to demonstrate that the criteria in 3.10.G.2 are satisfied.

MOVED to Bases Section 5.0

ATTACHMENT D

Marked-Up Draft Revision 4 of the BWR/4 Standard Technical Specifications

QUAD-CITIES
DPR-30

FOR INFORMATION ONLY

3.10/4.10 REFUELING

LIMITING CONDITIONS FOR OPERATION

Applicability:

Applies to fuel handling and core reactivity limitations.

Objective:

To assure core reactivity is within capability of the control rods and to prevent criticality during refueling.

SURVEILLANCE REQUIREMENTS

Applicability:

Applies to the periodic testing of those interlocks and instruments used during refueling.

Objective:

To verify the operability of instrumentation and interlocks used in refueling.

SPECIFICATIONS

TSUP 3.10.A

A. Refueling Interlocks

The reactor mode switch shall be locked in the Refuel position during core alterations, and the refueling interlocks listed below shall be operable except as specified in Specifications 3.10.D and 3.10.E.

TSUP Shutdown or

3.10.I

1. Control Rod Blocks
   a. Mode switch in Startup/Hot Standby and refueling platform over the reactor.
   b. Fuel on any refueling hoist and refueling platform over the reactor.
   c. Mode switch in Refuel with one control rod withdrawal permit.
2. Refueling Platform Reverse Motion (toward reactor vessel) Block
   a. Mode switch in Startup/Hot Standby.
   b. Any control rod out and fuel on any refueling hoist.
3. Refueling Platform Hoist Blocks
   a. Any control rod out and fuel on any refueling hoist over the vessel.

TSUP 3.10.J

TSUP 3.10.A.2.b

TSUP 3.10.A.1 Shutdown

TSUP 4.10.A.3, footnote (c)

TSUP 3.10.A.2.b

TSUP 3.10.A.2.b, 2.c

TSUP 3.10.A.2.c & 2.b

A. Refueling Interlocks

Prior to any fuel handling, with the head off the reactor vessel, the refueling interlocks shall be functionally tested. They shall also be tested at weekly intervals thereafter until no longer required and following any repair work associated with the interlocks.

TSUP 4.10.A

TSUP 4.10.A.3, footnote (c)

TSUP 3.10.A.2.c 2.b. & 2.a

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TSUP 3.10.B

b. Hoist overload.

c. High position limitation.

TSUP 3.10.A.2.c&d

B. Core Monitoring

During core alterations, two SRM's shall be operable, one in the core quadrant where fuel or control rods are being moved and one in an adjacent quadrant. For an SRM to be considered operable, the following conditions shall be satisfied:

TSUP 3.10.B.2

1. The SRM shall be inserted to the normal operating level (use of special movable, dunking type detectors during initial fuel loading and major core alterations in place of normal detectors is permissible as long as the detector is connected into the proper circuitry which contains the required rod blocks).

BUP 4.10.B.1.b

TSUP 3.10.B, Applicability 3 Note (2)

2. The SRM or dunking type detector shall have a minimum of 3 cps with all rods fully inserted in the core except when both of the following conditions are fulfilled:

BUP 4.10.B.3

a) No more than two fuel assemblies are present in the core quadrant associated with the SRM.

b) While in core, these fuel assemblies are in locations adjacent to the SRM.

TSUP 3.10.B, Applicability 1

TSUP 3.10.B, Applicability 2

C. Fuel Storage Pool Water Level

Whenever irradiated fuel is stored in the fuel storage pool, the pool water level shall be maintained at a level of at least 33 feet.

TSUP 3.10.H

D. Control Rod and Control Drive Maintenance

A maximum of two nonadjacent control rods separated by more than two control cells in any direction may be withdrawn from the core for the purpose of performing control rod and/or control rod drive maintenance provided the following conditions are satisfied:

23' away of 2SSV's

one

TSUP 3.10.I.5

1. The reactor mode switch shall be locked in the Refuel position. The refueling interlock which prevents more than one control rod from being withdrawn may be bypassed for one of the control rods on which maintenance is being performed. All other refueling interlocks shall be operable.

"TSUP Shutdown"

TSUP 3.10.I.4 & TSUP 3.10.A

TSUP 3.10.I.5 & 3.10.I.4 & TSUP 3.10.A

2. Specification 3.3.A.1 shall be met, or the control rod directional control valves for a minimum of eight control rods surrounding each drive out of service for maintenance will be disarmed electrically and sufficient mar-

5x5 array

TSUP 3.10.I.3

TSUP 3.10.I.4

TSUP 4.10.H

C. Fuel Storage Pool Water Level

Whenever irradiated fuel is stored in the fuel storage pool, the pool level shall be recorded daily.

7 days

D. Control Rod and Control Rod Drive Maintenance

TSUP 4.10.I.3

1. Sufficient control rods shall be withdrawn prior to performing this maintenance to demonstrate with a margin of 0.25% Δk that the core can be made subcritical at any time during the maintenance with the strongest operable control rod fully withdrawn and all other operable rods fully inserted.

5x5 array

Alternately, if a minimum of eight control rods surrounding each control rod out of service for maintenance are to be fully inserted and have their directional control valves electrically disarmed, the 0.25% Δk margin will

TSUP 4.10.B.4

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BWP 3.10.I.4

BWP 3.10.J.2

BWP 4.10.I.4

gin to criticality demonstrated.

3. SRM's shall be operable (a) in each core quadrant containing a control rod on which maintenance is being performed, and (b) in a quadrant adjacent to one of the quadrants specified in Specification 3.10.D.3.(a) above. Requirements for an SRM to be considered operable are given in Specification 3.10.B.

be met with the strongest control rod remaining in service during the maintenance period fully withdrawn.

BWP 3.10.J, 1, 2, 3.4.5

BWP 4.10.J.1.e

E. **Extended Core Maintenance**

More than two control rods may be withdrawn from the reactor core provided the following conditions are satisfied:

1. The reactor mode switch shall be locked in the Refuel position. The refueling interlock which prevents more than one control rod from being withdrawn may be bypassed on a withdrawn control rod after the fuel assemblies in the cell containing (controlled by) that control rod have been removed from the reactor core. All other refueling interlocks shall be operable.

2. SRM's shall be operable in the core quadrant where fuel or control rods are being moved and in an adjacent quadrant. The requirements for an SRM to be considered operable are given in Specification 3.10.B.

E. **Extended Core Maintenance**

Prior to control rod withdrawal for extended core maintenance, that control rod's control cell shall be certified to contain no fuel assemblies.

5.7.B.1

BWP 3.10.J.2

F. **Spent Fuel Cask Handling**

1. Fuel cask handling above the 623' level of the Reactor Building will be done with the reactor building crane in the RESTRICTED MODE only, except as specified in 3.10.F.2.

2. Fuel cask handling in other than the RESTRICTED MODE will be permitted in emergency or equipment failure situations only to the extent necessary to get the cask to the closest acceptable stable location.

BWP 3.10.F

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F. **Spent Fuel Cask Handling**

1. Prior to fuel cask handling operations, the redundant crane including the rope, hooks, slings, shackles and other operating mechanisms will be inspected.

   The rope will be replaced if any of the following conditions exist:

   a. Twelve (12) randomly distributed broken wires in one lay or four (4) broken wires in one strand of rope lay.

   b. Wear of one-third the original diameter or outside individual wire.

   c. Kinking, crushing, or any other damage resulting in distortion of the rope.

BWP 4.10.F.2

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TSUP 4.10.F.2

d. Evidence of any type of heat damage.

e. Reductions from nominal diameter of more than 1/16 inch for a rope diameter from 7/8" to 1 1/4" inclusive.

3. Operation with a failed controlled area limit switch is permissible for 48 hours providing an operator is on the refueling floor to assure the crane is operated within the restricted zone painted on the floor.

TSUP 3.10.F, Action 1

2. Prior to operations in the RESTRICTED MODE

a. the controlled area limit switches will be tested;

b. the "two-block" limit switches will be tested;

c. the "inching hoist" controls will be tested.

3. The empty spent fuel cask will be lifted free of all support by a maximum of 1 foot and left hanging for 5 minutes prior to any series of fuel cask handling operations.

TSUP 4.10.F.3

ATTACHMENT D

Marked-Up Draft Revision 4 of the BWR/4 Standard Technical Specifications

3/4.9 REFUELING OPERATIONS

3/4.9.1 REACTOR MODE SWITCH

FOR INFORMATION ONLY

LIMITING CONDITION FOR OPERATION

3.9.1 The reactor mode switch shall be OPERABLE and locked in the Shutdown or Refuel position. When the reactor mode switch is locked in the Refuel position:

a. A control rod shall not be withdrawn unless the Refuel position one-rod-out ~~interlock~~ is OPERABLE.

b. CORE ALTERATIONS shall not be performed using equipment associated with a Refuel position interlock unless at least the following associated Refuel position interlocks are OPERABLE for such equipment.

1. All rods in.
2. Refuel platform position.
3. Refuel platform hoists fuel-loaded.
4. Fuel grapple position.
5. Service platform hoist fuel-loaded.

APPLICABILITY: OPERATIONAL ~~CONDITION~~ MODE 5#(a)(b)

ACTION:

a. With the reactor mode switch not locked in the Shutdown or Refuel position as specified, suspend CORE ALTERATIONS and lock the reactor mode switch in the Shutdown or Refuel position.

b. With the one-rod-out interlock inoperable, lock the reactor mode switch in the Shutdown position.

c. With any of the above required Refuel position equipment interlocks inoperable, suspend CORE ALTERATIONS with equipment associated with the inoperable Refuel position equipment interlock.

(a) * See Special Test Exceptions 3.10.1 and 3.10.3.

(b) # The reactor shall be maintained in OPERATIONAL ~~CONDITION~~ MODE 5 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

FOR INFORMATION ONLY

SURVEILLANCE REQUIREMENTS

4.9.1.1 The reactor mode switch shall be verified to be locked in the Shutdown or Refuel position as specified:

a. Within 2 hours prior to:

1. Beginning CORE ALTERATIONS, and

2. Resuming CORE ALTERATIONS when the reactor mode switch has been unlocked.

b. At least once per 12 hours.

4.9.1.2 Each of the above required reactor mode switch Refuel position interlocks shall be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST within 24 hours prior to the start of and at least once per 7 days during control rod withdrawal or CORE ALTERATIONS, as applicable.

4.9.1.3 Each of the above required reactor mode switch Refuel position interlocks that is affected shall be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST prior to resuming control rod withdrawal or CORE ALTERATIONS, as applicable, following repair, maintenance or replacement of any component that could affect the Refuel position interlock.

(c) The reactor mode switch may be placed in the Run or Startup/Hot Standby position to test the switch interlock functions provided that all control rods are verified to remain fully inserted by a second licensed operator or other technically qualified member of the unit technical staff.

individual

FOR INFORMATION ONLY

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 At least 2 source range monitor* (SRM) channels shall be OPERABLE and inserted to the normal operating level with:

a. Continuous visual indication in the control room,

b. At least one with audible indication in the control room and on the refueling floor,

c. One of the required SRM detectors located in the quadrant where CORE ALTERATIONS are being performed and the other required SRM detector located in an adjacent quadrant, and

d. The "shorting links" removed from the RPS circuitry prior to and during the time any control rod is withdrawn# and shutdown margin demonstrations are in progress.

APPLICABILITY: OPERATIONAL ~~CONDITION~~ MODE 5, unless the following conditions are met:
1. No more than two fuel assemblies are present in each core quadrant associated with an SRM;
2. While in the core these 2 fuel assemblies are in locations adjacent to the SRM; and
3. In the case of movable detectors, each group of assemblies shall be separated by at least 2 cell locations from any other fuel assembly.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS** and insert all insertable control rods.

SURVEILLANCE REQUIREMENTS

4.9.2 Each of the above required SRM channels shall be demonstrated OPERABLE by:

a. At least once per 12 hours:

1. Performance of a CHANNEL CHECK,
2. Verifying the detectors are inserted to the normal operating level, and
3. During CORE ALTERATIONS, verifying that the detector of an OPERABLE SRM channel is located in the core quadrant where CORE ALTERATIONS are being performed and another is located in an adjacent quadrant.

*The use of special neutron movable detectors during CORE ALTERATIONS in place of the normal SRM ~~nuclear~~ detectors is permissible as long as these special detectors are connected to the normal SRM circuits.

**Except movement of IRM, SRM or special movable detectors.

#Not required for control rods removed per Specification 3.9.10.1 and 3.9.10.2.

FOR INFORMATION ONLY

SURVEILLANCE REQUIREMENTS (Continued)

b. Performance of a CHANNEL FUNCTIONAL TEST:

1. Within 24 hours prior to the start of CORE ALTERATIONS, and

2. At least once per 7 days.

c. Verifying that the channel count rate is at least 3 cps:

1. Prior to control rod withdrawal,

2. Prior to and at least once per 12 hours during CORE ALTERATIONS, and

3. At least once per 24 hours.

d. Verifying, within 8 hours prior to and at least once per 12 hours during, that the RPS circuitry "shorting links" have been removed during:

1. The time any control rod is withdrawn, ## or *

2. Shutdown margin demonstrations per 3.3.A and the one-rod out interlock has been demonstrated operable per Spec. 3.10.A unless has been

Not required for control rods removed per Specification 3.9.10.1 or 3.9.10.2.

3/4.9.3 CONTROL ROD POSITION

FOR INFORMATION ONLY

LIMITING CONDITION FOR OPERATION

3.9.3 All control rods shall be inserted.*

APPLICABILITY: OPERATIONAL ~~CONDITION~~ MODE 5, during CORE ALTERATIONS.**

ACTION:

With all control rods not fully inserted, suspend all other CORE ALTERATIONS, except that one control rod may be withdrawn under control of the reactor mode switch Refuel position one-rod-out interlock.

SURVEILLANCE REQUIREMENTS

4.9.3 All control rods shall be verified to be fully inserted, except as above specified:

a. Within 2 hours prior to:

1. The start of CORE ALTERATIONS.

2. The withdrawal of one control rod under the control of the reactor mode switch Refuel position one-rod-out interlock.

b. At least once per 12 hours.

(a) *Except control rods removed per Specification 3.9.10.1 or 3.9.10.2.

(b) **See Special Test Exception 3.10.3.

or one control withdrawn under control of the reactor mode switch refuel position one-rod-out interlock

FOR INFORMATION ONLY

3/4 9.4 DECAY TIME

LIMITING CONDITION FOR OPERATION

3.9.4 The reactor shall be subcritical for at least (24) hours.

APPLICABILITY: OPERATIONAL ~~CONDITION~~ MODE 5, during movement of irradiated fuel in the reactor pressure vessel.

ACTION:

With the reactor subcritical for less than (24) hours, suspend all operations involving movement of irradiated fuel in the reactor pressure vessel.

SURVEILLANCE REQUIREMENTS

4.9.4 The reactor shall be determined to have been subcritical for at least (24) hours by verification of the date and time of subcriticality prior to movement of irradiated fuel in the reactor pressure vessel.

FOR INFORMATION ONLY

3/4.9.5 COMMUNICATIONS

LIMITING CONDITION FOR OPERATION

3.9.5 Direct communication shall be maintained between the control room and refueling (platform) (floor) personnel.

APPLICABILITY: OPERATIONAL ~~CONDITION~~ MODE 5, during CORE ALTERATIONS.* (a)

ACTION:

When direct communication between the control room and refueling (platform) (floor) personnel cannot be maintained, immediately suspend CORE ALTERATIONS.*

SURVEILLANCE REQUIREMENTS

4.9.5 Direct communication between the control room and refueling (platform) (floor) personnel shall be demonstrated within one hour prior to the start of and at least once per 12 hours during CORE ALTERATIONS.*

*Except movement of incore instrumentation and control rods with their normal drive system.

N/A to D/Q

FOR INFORMATION ONLY

3/4.9.6 REFUELING PLATFORM

LIMITING CONDITION FOR OPERATION

3.9.6 The refueling platform shall be OPERABLE and used for handling fuel assemblies or control rods within the reactor pressure vessel.

APPLICABILITY: During handling of fuel assemblies or control rods within the reactor pressure vessel.

ACTION:

With the requirements for refueling platform OPERABILITY not satisfied, suspend use of any inoperable refueling platform equipment from operations involving the handling of control rods and fuel assemblies within the reactor pressure vessel after placing the load in a safe condition.

SURVEILLANCE REQUIREMENTS

4.9.6 Each refueling platform crane or hoist used for handling of control rods or fuel assemblies within the reactor pressure vessel shall be demonstrated OPERABLE within 7 days prior to the start of such operations with that crane or hoist by:

a. Demonstrating operation of the overload cutoff on the main hoist when the load exceeds (1200 ± 50) pounds.

b. Demonstrating operation of the overload cutoff on the frame mounted and monorail hoists when the load exceeds (500 ± 50) pounds.

c. Demonstrating operation of the uptravel mechanical stop on the frame mounted and monorail hoists when uptravel brings the top of (active) fuel assembly to (8) feet below the (normal fuel storage pool) water level.

d. Demonstrating operation of the downtravel mechanical cutoff on the main hoist when grapple hook down travel reaches (4) inches below fuel assembly handle.

e. Demonstrating operation of the slack cable cutoff on the main hoist when the load is less than (50 ± 10) pounds.

f. Demonstrating operation of the loaded interlock on the main hoist when the load exceeds (485 ± 50) pounds.

g. Demonstrating operation of the redundant loaded interlock on the main hoist when the load exceeds (550 ± 50) pounds.

FOR INFORMATION ONLY

3/4.9.7 CRANE TRAVEL-SPENT FUEL STORAGE POOL

LIMITING CONDITION FOR OPERATION

3.9.7 Loads in excess of (1100) pounds shall be prohibited from travel over fuel assemblies in the spent fuel storage pool racks.

APPLICABILITY: With fuel assemblies in the spent fuel storage pool racks.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.7 Crane interlocks and physical stops which prevent crane travel with loads in excess of (1100) pounds over fuel assemblies in the spent fuel storage pool racks shall be demonstrated OPERABLE within 7 days prior to and at least once per 7 days during crane operation.

See D/A: BWR 3/4.10.F

FOR INFORMATION ONLY

10.G

3/4.9.8 WATER LEVEL - REACTOR VESSEL

LIMITING CONDITION FOR OPERATION

10.G

3.9.8 At least (23) feet of water shall be maintained over the top of the reactor pressure vessel flange.

APPLICABILITY: During handling of fuel assemblies or control rods within the reactor pressure vessel while in OPERATIONAL ~~CONDITION~~ MODE 5 when the fuel assemblies being handled are irradiated or the fuel assemblies seated within the reactor vessel are irradiated.

or control rods

or control rods

ACTION:

With the requirements of the above specification not satisfied, suspend all operations involving handling of fuel assemblies or control rods within the reactor pressure vessel after placing all fuel assemblies and control rods in a safe condition.

SURVEILLANCE REQUIREMENTS

10.G

4.9.8 The reactor vessel water level shall be determined to be at least its minimum required depth within 2 hours prior to the start of and at least once per 24 hours during handling of fuel assemblies or control rods within the reactor pressure vessel.

FOR INFORMATION ONLY

3/4.9.9 WATER LEVEL - SPENT FUEL STORAGE POOL

LIMITING CONDITION FOR OPERATION

3.9.9 At least (23) feet of water shall be maintained over the top of irradiated fuel assemblies seated in the spent fuel storage pool racks.

APPLICABILITY: Whenever irradiated fuel assemblies are in the spent fuel storage pool.

ACTION:

With the requirements of the above specification not satisfied, suspend all movement of fuel assemblies and crane operations with loads in the spent fuel storage pool area after placing the fuel assemblies and crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.9 The water level in the spent fuel storage pool shall be determined to be at least at its minimum required depth at least once per 7 days.

FOR INFORMATION ONLY

3/4.9.10 CONTROL ROD REMOVAL

SINGLE CONTROL ROD REMOVAL

LIMITING CONDITION FOR OPERATION

3.9.10.1 One control rod and/or the associated control rod drive mechanism may be removed from the core and/or reactor pressure vessel provided that at least the following requirements are satisfied until a control rod and associated control rod drive mechanism are reinstalled and the control rod is fully inserted in the core.

a. The reactor mode switch is OPERABLE and locked in the Shutdown position or in the Refuel position per Table 1.2 and Specification 3.9.1.

b. The source range monitors (SRM) are OPERABLE per Specification 3.9.2.

c. The SHUTDOWN MARGIN requirements of Specification 3.1.1 are satisfied, except that the control rod selected to be removed;

1. May be assumed to be the highest worth control rod required to be assumed to be fully withdrawn by the SHUTDOWN MARGIN test, and

2. Need not be assumed to be immovable or untrippable.

d. All other control rods in a five-by-five array centered on the control rod being removed are inserted and electrically or hydraulically disarmed or the four fuel assemblies surrounding the control rod or control rod drive mechanism to be removed from the core and/or reactor vessel are removed from the core cell.

e. All other control rods are inserted.

APPLICABILITY: OPERATIONAL ~~CONDITIONS~~ MODES 4 and 5.

ACTION:

With the requirements of the above specification not satisfied, suspend removal of the control rod and/or associated control rod drive mechanism from the core and/or reactor pressure vessel and initiate action to satisfy the above requirements.

FOR INFORMATION ONLY

SURVEILLANCE REQUIREMENTS

4.9.10.1 Within 4 hours prior to the start of removal of a control rod and/or the associated control rod drive mechanism from the core and/or reactor pressure vessel and at least once per 24 hours thereafter until a control rod and associated control rod drive mechanism are reinstalled and the control rod is inserted in the core, verify that:

a. The reactor mode switch is OPERABLE per Surveillance Requirement 4.3.1.1 or 4.9.1.2, as applicable, and locked in the Shutdown position or in the Refuel position with the "one rod out" Refuel position interlock OPERABLE per Specification 3.9.1.

b. The SRM channels are OPERABLE per Specification 3.9.2.

c. The SHUTDOWN MARGIN requirements of Specification 3.1.1 are satisfied per Specification 3.9.10.1.c.

d. All other control rods in a five-by-five array centered on the control rod being removed are inserted and electrically or hydraulically disarmed or the four fuel assemblies surrounding the control rod or control rod drive mechanism to be removed from the core and/or reactor vessel are removed from the core cell.

e. All other control rods are inserted.

MULTIPLE CONTROL ROD REMOVAL

FOR INFORMATION ONLY

LIMITING CONDITION FOR OPERATION

10.J

3.9.10.2 Any number of control rods and/or control rod drive mechanisms may be removed from the core and/or reactor pressure vessel provided that at least the following requirements are satisfied until all control rods and control rod drive mechanisms are reinstalled and all control rods are inserted in the core.

1 → a. The reactor mode switch is OPERABLE and locked in the Shutdown position or in the Refuel position per Specification 3.9.1, except that the Refuel position "one-rod-out" interlock may be bypassed, as required, for those control rods and/or control rod drive mechanisms to be removed, after the fuel assemblies have been removed as specified below. (3.10.A)

2 → b. The source range monitors (SRM) are OPERABLE per Specification 3.9.2. (3.10.B)

3 → c. The SHUTDOWN MARGIN requirements of Specification 3.1.1 are satisfied. (3.3.A)

4 → d. All other control rods are either fully inserted or have the surrounding four fuel assemblies removed from the core cell.

5 → e. The four fuel assemblies surrounding each control rod or control rod drive mechanism to be removed from the core and/or reactor vessel are removed from the core cell.

APPLICABILITY: OPERATIONAL ~~CONDITION~~ MODE 5.

ACTION:

With the requirements of the above specification not satisfied, suspend removal of control rods and/or control rod drive mechanisms from the core and/or reactor pressure vessel and initiate ~~action~~ ACTION to satisfy the above requirements.

FOR INFORMATION ONLY

SURVEILLANCE REQUIREMENTS

4.9.10.2.1 Within 4 hours prior to the start of removal of control rods and/or control rod drive mechanisms from the core and/or reactor pressure vessel and at least once per 24 hours thereafter until all control rods and control rod drive mechanisms are reinstalled and all control rods are inserted in the core, verify that:

a. The reactor mode switch is OPERABLE per Surveillance Requirement 4.3.1.1 or 4.9.1.2, as applicable, and locked in the Shutdown position or in the Refuel position per Specification 3.9.1.

b. The SRM channels are OPERABLE per Specification 3.9.2.

c. The SHUTDOWN MARGIN requirements of Specification 3.1.1 are satisfied.

d. All other control rods are either inserted or have the surrounding four fuel assemblies removed from the core cell.

e. The four fuel assemblies surrounding each control rod and/or control rod drive mechanism to be removed from the core and/or reactor vessel are removed from the core cell.

4.9.10.2.2 Following replacement of all control rods and/or control rod drive mechanisms removed in accordance with this specification, perform a functional test of the "one-rod-out" Refuel position interlock, if this function had been bypassed.

If ... fuel handling operations are suspended ... all control rods are inserted in the core.

DRESDEN ONLY

REFUELING OPERATIONS

10.K

3/4.9.11 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION (SHUTDOWN COOLING)

HIGH WATER LEVEL

FOR INFORMATION ONLY

LIMITING CONDITION FOR OPERATION

10.K

3.9.11.1 At least one shutdown cooling mode (SDC) loop of the residual heat removal (RHR) system shall be OPERABLE and in operation* with at least:

1. a. One OPERABLE RHR (SDC) pump, and
2. b. One OPERABLE RHR (SDC) heat exchanger.

APPLICABILITY: OPERATIONAL ~~CONDITION~~ MODE 5, when irradiated fuel is in the reactor vessel and the water level is greater than or equal to ~~(23)~~ feet above the top of the reactor pressure vessel flange.

ACTION:

1. a. With no ~~RHR shutdown cooling mode~~ SDC loop OPERABLE, within one hour and at least once per 24 hours thereafter, demonstrate the operability of at least one alternate method capable of decay heat removal. Otherwise, suspend all operations involving an increase in the reactor decay heat load and establish SECONDARY CONTAINMENT INTEGRITY within 4 hours.
2. b. With no ~~RHR shutdown cooling mode~~ SDC loop in operation, within one hour establish reactor coolant circulation by an alternate method and monitor reactor coolant temperature at least once per hour.

and verify reactor coolant circulation at least once per 12 hours.

SURVEILLANCE REQUIREMENTS

10.K

4.9.11.1 At least one ~~shutdown cooling mode~~ SDC loop of the residual heat removal system or alternate method shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

---

(2) The shutdown cooling pump may be removed from operation for up to 2 hours per 8-hour period.

SHUTDOWN COOLING AND COOLANT CIRCULATION

REFUELING OPERATIONS

LOW WATER LEVEL

FOR INFORMATION ONLY

DRESDEN ONLY

LIMITING CONDITION FOR OPERATION

10.L

3.9.11.2 Two shutdown cooling mode (SDC) loops of the residual heat removal (RHR) system shall be OPERABLE and at least one loop shall be in operation,* with each loop consisting of at least:

(2)

a. One OPERABLE RHR (SDC) pump, and

b. One OPERABLE RHR (SDC) heat exchanger.

APPLICABILITY: OPERATIONAL ~~CONDITION~~ MODE 5, when irradiated fuel is in the reactor vessel and the water level is less than (23) feet above the top of the reactor pressure vessel flange.

ACTION:

(1) a. With less than the above required shutdown cooling (SDC) mode loops of the RHR system OPERABLE, within one hour and at least once per 24 hours thereafter, demonstrate the ~~operability~~ of at least one alternate method capable of decay heat removal for each inoperable RHR shutdown cooling (SDC) mode loop.

(2) b. With no RHR shutdown cooling (SDC) mode loop in operation, within one hour establish reactor coolant circulation by an alternate method and monitor reactor coolant temperature at least once per hour. and verify reactor coolant circulation at least once per 12 hours.

SURVEILLANCE REQUIREMENTS

10.L

4.9.11.2 At least one shutdown cooling (SDC) mode loop of the residual heat removal system or alternate method shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

(2) *The shutdown cooling pump may be removed from operation for up to 2 hours per 8-hour period.

QUAD CITIES ONLY

REFUELING OPERATIONS

10.K

3/4.9.11 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

HIGH WATER LEVEL

FOR INFORMATION ONLY

LIMITING CONDITION FOR OPERATION

10.K

3.9.11.1 At least one shutdown cooling mode loop of the residual heat removal (RHR) system shall be OPERABLE and in operation* with at least:

1 → a. One OPERABLE RHR pump, and

2 → b. One OPERABLE RHR heat exchanger.

APPLICABILITY: OPERATIONAL ~~CONDITION~~ MODE 5, when irradiated ~~fuel~~ is in the reactor vessel and the water level is greater than or equal to (23) feet above the top of the reactor pressure vessel flange.

ACTION:

a. With no RHR shutdown cooling mode loop OPERABLE, within one hour and at least once per 24 hours thereafter, demonstrate the operability of at least one alternate method capable of decay heat removal. Otherwise, suspend all operations involving an increase in the reactor decay heat load and establish SECONDARY CONTAINMENT INTEGRITY within 4 hours.

b. With no RHR shutdown cooling mode loop in operation, within one hour establish reactor coolant circulation by an alternate method and monitor reactor coolant temperature at least once per hour.

SURVEILLANCE REQUIREMENTS

10.K.1

4.9.11.1 At least one shutdown cooling mode loop of the residual heat removal system or alternate method shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

capable of

2. Monitor the reactor coolant temperature at least once per hour.

* The shutdown cooling pump may be removed from operation for up to 2 hours per 8-hour period.

Residual Heat Removal and Coolant Circulation –

REFUELING OPERATIONS

LOW WATER LEVEL

FOR INFORMATION ONLY

QUAD CITIES ONLY

LIMITING CONDITION FOR OPERATION

10.L

3.9.11.2 Two shutdown cooling mode loops of the residual heat removal (RHR) system shall be OPERABLE and at least one loop shall be in operation,* with each loop consisting of at least:

a. One OPERABLE RHR pump, and

b. One OPERABLE RHR heat exchanger.

APPLICABILITY: OPERATIONAL ~~CONDITION~~ MODE 5, when irradiated fuel is in the reactor vessel and the water level is less than (23) feet above the top of the reactor pressure vessel flange.

ACTION:

a. With less than the above required shutdown cooling mode loops of the RHR system OPERABLE, within one hour and at least once per 24 hours thereafter, demonstrate the operability of at least one alternate method capable of decay heat removal for each inoperable RHR shutdown cooling mode loop.

b. With no RHR shutdown cooling mode loop in operation, within one hour establish reactor coolant circulation by an alternate method and monitor reactor coolant temperature at least once per hour.

SURVEILLANCE REQUIREMENTS

10.L.1

4.9.11.2 At least one shutdown cooling mode loop of the residual heat removal system or alternate method shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

capable of

2. Monitor the reactor coolant temperature at least once per hour.

*The shutdown cooling pump may be removed from operation for up to 2 hours per 8-hour period.