

RS-20-115  
November 18, 2020

10 CFR 50.90

U.S. Nuclear Regulatory Commission  
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Washington, DC 20555-0001

Clinton Power Station, Unit 1  
Facility Operating License No. NPF-62  
NRC Docket No. 50-461

Dresden Nuclear Power Station, Units 2 and 3  
Renewed Facility Operating License Nos. DPR-19 and DPR-25  
NRC Docket Nos. 50-237 and 50-249

LaSalle County Station, Units 1 and 2  
Renewed Facility Operating License Nos. NPF-11 and NPF-18  
NRC Docket Nos. 50-373 and 50-374

Quad Cities Nuclear Power Station, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-29 and DPR-30  
NRC Docket Nos. 50-254 and 50-265

Subject: Application to Revise Technical Specifications to Adopt TSTF-582, "Reactor Pressure Vessel Water Inventory Control (RPV WIC) Enhancements"

- References:
1. Letter from Victor G. Cusumano (U.S. NRC) to Technical Specifications Task Force, "Final Safety Evaluation of Technical Specifications Task Force Traveler TSTF-582, Revision 0, 'RPV WIC Enhancements' Using the Consolidated Line Item Improvement Process (EPID L-2019-PMP-0199)," dated August 13, 2020
  2. Letter from Victor G. Cusumano (U.S. NRC) to Technical Specifications Task Force, "Model Safety Evaluation of Technical Specifications Task Force Traveler TSTF-582, Revision 0, 'RPV WIC Enhancements' and TSTF-583-T, Revision 0, 'TSTF-582 Diesel Generator Variation,' Using the Consolidated Line Item Improvement Process," dated October 9, 2020

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC), requests an amendment to Facility Operating License (FOL) No. NPF-62 for Clinton Power Station, Unit 1, Renewed FOL Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station, Units 2 and 3, Renewed FOL Nos. NPF-11 and NPF-18 for LaSalle County Station, Units 1 and 2, and Renewed FOL Nos. DPR-29 and DPR-30 for Quad Cities Nuclear Power Station, Units 1 and 2. The proposed amendment is consistent with previously NRC-approved Industry/Technical Specifications Task Force Traveler 582 (TSTF-582), Revision 0, "Reactor Pressure Vessel Water Inventory Control (RPV WIC) Enhancements," (Reference 1), and also incorporates the variation described in Reference 2.

Attachment 1 provides a description and assessment of the proposed change. Attachment 2 provides the existing TS pages marked up to show the proposed change. Attachment 3 provides TS Bases pages marked up to show the associated TS Bases changes and is provided for information only.

The proposed change has been reviewed by the Plant Operations Review Committees at each station in accordance with the requirements of the EGC Quality Assurance Program.

EGC requests that the amendment be reviewed under the Consolidated Line Item Improvement Process (CLIIP). Approval of the proposed amendment is requested within six months of completion of the NRC's acceptance review. Once approved, the amendment shall be implemented within 60 days.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), EGC is notifying the State of Illinois of this application for license amendment by transmitting a copy of this letter and its attachments to the designated State Officials.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mrs. Linda M. Palutis at (630) 657-2821.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 18th day of November 2020.

Respectfully,



Patrick R. Simpson  
Sr. Manager Licensing

Attachments:

1. Description and Assessment
2. Markup of Proposed Technical Specifications Pages
3. Markup of Proposed Technical Specifications Bases Pages (For Information Only)

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cc: NRC Regional Administrator, Region III  
NRC Senior Resident Inspector – Clinton Power Station  
NRC Senior Resident Inspector – Dresden Nuclear Power Station  
NRC Senior Resident Inspector – LaSalle County Station  
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station (Dan Tesar)  
Illinois Emergency Management Agency – Division of Nuclear Safety

# **ATTACHMENT 1**

## **Description and Assessment**

### **1.0 DESCRIPTION**

Exelon Generation Company, LLC (EGC), requests adoption of Technical Specifications Task Force Traveler 582 (TSTF-582), Revision 0, "Reactor Pressure Vessel Water Inventory Control (RPV WIC) Enhancements," which is an approved change to the Improved Standard Technical Specifications (ISTS), into Clinton Power Station, Unit 1, Dresden Nuclear Power Station, Units 2 and 3, LaSalle County Station, Units 1 and 2, and Quad Cities Nuclear Power Station, Units 1 and 2, Technical Specifications (TS). The Technical Specifications (TS) related to RPV WIC are revised to incorporate operating experience and to correct errors and omissions in TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control." The proposed changes also include the variation described in TSTF-583 and discussed in Reference 3.

### **2.0 ASSESSMENT**

#### **2.1 Applicability of Safety Evaluation**

EGC has reviewed the safety evaluation for TSTF-582 provided to the Technical Specifications Task Force in a letter dated August 13, 2020 (Reference 2). This review included a review of the NRC evaluation, as well as the information provided in TSTF-582 (Reference 1). As described below, EGC has concluded that the justifications presented in TSTF-582 and the safety evaluation prepared by the NRC are applicable to Clinton Power Station, Unit 1, Dresden Nuclear Power Station, Units 2 and 3, LaSalle County Station, Units 1 and 2, and Quad Cities Nuclear Power Station, Units 1 and 2, and justify this amendment for the incorporation of the changes to these plants TS.

EGC verified that the required ECCS injection/spray subsystem can be aligned and the pump started using relatively simple evolutions involving the manipulation of a small number of components. These actions can be performed in a short time (less than the minimum Drain Time of 1 hour) from the control room following plant procedures.

#### **2.2 Variations**

##### **2.2.1 Proposed TS Changes to Adopt TSTF-583-T, "TSTF-582 Diesel Generator Variation"**

TSTF-582, "RPV WIC Enhancements," states:

The ECCS injection/spray subsystem required to be operable by LCO 3.5.2 must be capable of being manually started as defense-in-depth against an unexpected draining event. The changes in TSTF-542 did not assume automatic actuation of the ECCS subsystem. TS 3.5.2, Required Action D.1 requires an additional method of water injection and that the required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power. However, LCO 3.5.2 does not assume that the onsite electrical power source will start automatically on an ECCS or loss of power signal.

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LCO 3.8.2, "AC Sources - Shutdown," requires one offsite circuit and one diesel generator to be operable in Modes 4 and 5. SR 3.8.2.1 lists the TS 3.8.1, "AC Sources - Operating," SRs that are applicable in Modes 4 and 5. In an oversight in TSTF-542, the TS 3.8.1 SRs that test automatic start and loading of a diesel generator on an ECCS or loss of offsite power signal were not excluded from SR 3.8.2.1.

TSTF-582 revises Technical Specification (TS) 3.8.2, "AC Sources – Shutdown," Surveillance Requirement (SR) 3.8.2.1, to exclude SRs that verify the ability of the diesel generators to automatically start and load on an ECCS initiation signal or loss of offsite power signal.

The NRC Safety Evaluation for TSTF-582 (ADAMS Accession No. ML20223A000, dated, August 13, 2020), Section 3.6, "Alternating Current Sources - Shutdown, STS 3.8.2," states:

STS 3.5.2, "Reactor Pressure Vessel Water Inventory Control (RPV WIC)," does not require automatic ECCS initiation to mitigate a draining event in Modes 4 and 5, and the ECCS initiation signal related to the automatic ECCS initiation is removed from the STS. Because the automatic ECCS initiation and related ECCS initial signal in Modes 4 and 5 are eliminated, the automatic start of the DG on an ECCS initiation signal is not required in Modes 4 and 5. ... [T]he NRC staff finds that STS 3.5.2 provides enough time from the onset of the [loss of offsite power] LOOP event for the operator to manually start the DG required to supply power to the water injection equipment to mitigate the draining event in Modes 4 and 5. In addition, STS 3.5.2 does not require the automatic initiation of the ECCS injection/spray subsystem or the additional method of water injection. Therefore, since STS 3.5.2 allows enough time to manually start the DG and the equipment for water injection, the NRC staff finds that the automatic start and loading of the DG are not necessary on a LOOP signal or LOOP concurrent with an ECCS initiation signal to mitigate a draining event in Modes 4 and 5.

Furthermore, the NRC staff notes that other events postulated in Modes 4 and 5 (e.g., FHA, waste gas tank rupture) and during movement of [recently] irradiated fuel assemblies in the [primary and secondary containment] do not assume a LOOP event or an automatic ECCS initiation.

TSTF-582 did not include all of the TS changes needed to reflect that TS 3.8.2 should not require automatic start and loading of a diesel generator within 12 to 13 seconds (12 seconds for Clinton, and 13 seconds for Dresden, LaSalle, and Quad Cities) on an ECCS initiation signal or a loss of offsite power signal.

- TS 3.3.8.1, "Loss of Power (LOP) Instrumentation," is applicable in Modes 1, 2, and 3, and when the associated diesel generator is required to be operable by TS 3.8.2. TSTF-582 revised TS 3.8.2 to no longer require automatic start and loading of a diesel generator on a loss of offsite power signal. Consequently, the LOP instrumentation that generates the loss of offsite power signal should not be required to be operable when the diesel generator is required to be operable by TS 3.8.2. The Applicability of LCO 3.3.8.1 is revised to not include the specified condition "When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, 'AC Sources – Shutdown'."

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- TS SR 3.8.1.7 and SR 3.8.1.15 (for Clinton and LaSalle), and SR 3.8.1.8 and SR 3.8.1.16 (for Dresden and Quad Cities), require that the DG starts from standby or hot conditions, respectively, and achieve required voltage and frequency within 12 to 13 seconds (12 seconds for Clinton, and 13 seconds for Dresden, LaSalle, and Quad Cities). The 12 to 13 second start requirement supports the assumptions in the design basis LOCA analysis. This capability is not required during a manual diesel generator start to respond to a draining event, which has a minimum Drain Time of one hour. Therefore, SR 3.8.1.7 and SR 3.8.1.15 (for Clinton and LaSalle), and SR 3.8.1.8 and SR 3.8.1.16 (for Dresden and Quad Cities), are added to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1. These SRs are not included under SR 3.8.2.1.
- Clinton, Dresden, and Quad Cities TS SR 3.8.1.18 state "Verify interval between each sequenced load block is  $\geq 90\%$  of the design interval for each load sequence time delay relay." TSTF-582 retained SR 3.8.1.18 as a test that must be met but not performed. The relay logic schemes that perform a function equivalent to a load sequencer are only used for the automatic start and loading of the diesel generator and are not used during a manual diesel generator start. Therefore, SR 3.8.1.18 is added to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1. This SR is not included under SR 3.8.2.1
- LaSalle TS SR 3.8.1.18 state "Verify interval between each sequenced load block, for Division 1 and 2 DGs only, is  $\geq 90\%$  of the design interval for each load sequence time delay relay." TSTF-582 retained SR 3.8.1.18 as a test that must be met but not performed. The relay logic schemes that perform a function equivalent to a load sequencer are only used for the automatic start and loading of the diesel generator and are not used during a manual diesel generator start. Therefore, SR 3.8.1.18 is added to the list of TS 3.8.1 SRs that are not applicable under SR 3.8.2.1. This SR is not included under SR 3.8.2.1

The TS 3.8.2 LCO Bases were not updated by TSTF-542 or TSTF-582 to reflect that automatic start and loading of a diesel generator is not required. The LCO 3.8.2 and SR 3.8.2.1 Bases are revised to reflect the TS requirements.

This variation provides consistency within the TS after incorporating the TSTF-582 changes to SR 3.8.2.1.

As an editorial improvement, SR 3.8.2.1 is revised to list the TS 3.8.1 SRs that are applicable instead of listing the TS 3.8.1 SRs that are not applicable. The SR 3.8.2.1 Bases are not affected and explain why the omitted TS 3.8.1 SRs are not applicable to TS 3.8.2.

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**2.2.2 Editorial Variations**

The Clinton, Dresden, LaSalle, and Quad Cities TS utilize different numbering and titles than the Standard Technical Specifications on which TSTF-582 and TSTF-583-T were based. Table 1 describes the differences between the plant-specific TS numbering and titles and the TSTF-582 and TSTF-583T numbering and titles. These differences are administrative and do not affect the applicability of TSTF-582 to these plant's TS.

**Table 1. TSTF-582 and TSTF-583-T BWR4 and BWR6 Numbering and Title Variations**

<b>TSTF-582 (BWR4)</b>	<b>Dresden</b>	<b>Quad Cities</b>
Table 3.3.5.2-1 - RHR System Isolation	Table 3.3.5.2-1 – System nomenclature difference - Shutdown Cooling System (SDC) Isolation	Table 3.3.5.2-1 – System nomenclature difference - RHR Shutdown Cooling System (SDC) Isolation
SR 3.5.2.5	Numbering difference - SR 3.5.2.4	Numbering difference - SR 3.5.2.4 -
SR 3.5.2.7	Numbering difference - SR 3.5.2.6 -	Numbering difference - SR 3.5.2.6
TS 3.6.1.3 Condition F	Numbering difference - TS 3.6.1.3 Condition E -	Numbering difference - TS 3.6.1.3 Condition E
<b>TSTF-583-T (BWR4)</b>	<b>Dresden</b>	<b>Quad Cities</b>
SR 3.8.1.9	Numbering difference - SR 3.8.1.10	Numbering difference - SR 3.8.1.10
SR 3.8.1.10	Numbering difference - SR 3.8.1.11	Numbering difference - SR 3.8.1.11
SR 3.8.1.14	Numbering difference - SR 3.8.1.15	Numbering difference - SR 3.8.1.15
SR 3.8.1.16	Numbering difference - SR 3.8.1.17	Numbering difference - SR 3.8.1.17
<b>TSTF-582 (BWR6)</b>	<b>Clinton</b>	<b>LaSalle</b>
Table 3.3.5.2-1 RHR System Isolation	N/A	System nomenclature difference - RHR Shutdown Cooling System Isolation
TS 3.3.6.1 Required Action J.2	Numbering difference - TS 3.3.6.1 Required Action M.2	N/A

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**2.2.3 Other Variations**

**2.2.3.1 Clinton, Dresden, LaSalle, and Quad Cities Additional Variations**

EGC is proposing the following additional variations from the TS changes described in TSTF-582. The variations are described in Table 2. These variations do not affect the applicability of TSTF-582 to the proposed license amendments.

**Table 2. TSTF-582 BWR4 and BWR6 Other Variations**

<b>TSTF-582 (BWR4)</b>	<b>Dresden</b>	<b>Quad Cities</b>	<b>Comments</b>
SR 3.3.5.2.3	No equivalent SR	No equivalent SR	No changes made
TS 3.6.1.3 Condition G	No equivalent condition	No equivalent condition	No changes made
TS 3.6.1.3 Condition H	No equivalent condition	No equivalent condition	No changes made
<b>TSTF-582 (BWR6)</b>	<b>Clinton</b>	<b>LaSalle</b>	<b>Comments</b>
TS 3.3.5.2 Conditions D and E	No equivalent Condition E	No equivalent Conditions D and E	No changes made
SR 3.3.5.2.3	No equivalent SR	No equivalent SR	No changes made
SR 3.5.2.7	No equivalent SR	N/A	No changes made

**2.2.3.2 Clinton Specific Variation**

EGC is proposing the following variations from the TS changes described in TSTF-582 for Clinton Power Station. EGC is proposing to delete TS 3.3.6.1 Required Actions M.3.1, M.3.2, M.3.3, and M.3.4. These are not included in TSTF-582. With the TSTF-582 deletion of TS 3.3.6.1 M.2 for Clinton (J.2 in TSTF-582), TS 3.3.6.1 Required Actions M.3.1, M.3.2, M.3.3, and M.3.4 are no longer applicable. These Clinton specific actions are no longer applicable after adoption of TSTF-542 (Reference 5, 6, and 7). Required Actions M.3.1, M.3.2, M.3.3, and M.3.4 should be deleted with the deletion of TS 3.3.6.1 M.2. This plant specific variation does not impact the applicability of TSTF-582 to the Clinton TS.



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**3.0 REGULATORY ANALYSIS**

**3.1 No Significant Hazards Consideration Determination Analysis**

Exelon Generation Company, LLC (EGC), requests adoption of TSTF 582, "Reactor Pressure Vessel Water Inventory Control (RPV WIC) Enhancements." The Technical Specifications (TS) related to RPV WIC are revised to incorporate operating experience and to correct errors and omissions that were incorporated into the plant TS when adopting TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control." TSTF-582 includes the following changes to the TS:

1. The Drain Time definition is revised to move the examples of common mode failure mechanisms to the Bases and seismic events are no longer considered a common mode failure mechanism.
2. The Drain Time definition exception from considering the Drain Time for penetration flow paths isolated with manual or automatic valves that are "locked, sealed, or otherwise secured" is revised to apply the exception for manual or automatic valves that are "closed and administratively controlled."
3. The TS are revised to permit placing an inoperable isolation channel in trip as an alternative to declaring the associated penetration flow path incapable of automatic isolation.
4. A Surveillance Requirement (SR) that requires operating the required Emergency Core Cooling System (ECCS) injection/spray subsystem for at least 10 minutes through the recirculation line, is modified to permit crediting normal operation of the system to satisfy the SR and to permit operation through the test return line.
5. Dresden, Unit 2 and 3 share secondary containment structures between units. LaSalle, Unit 1 and 2 share secondary containment structures between units. Quad Cities, Unit 1 and 2 share secondary containment structures between units. The TS Actions are revised to recognize that an operable secondary containment and operable secondary containment isolation valves satisfy the Required Actions.
6. The Clinton, Dresden, LaSalle, and Quad Cities designs contain additional isolation instrumentation functions based on low RPV water level that could be credited when calculating Drain Time. Those functions are added to the required functions in TS 3.3.5.2.
7. TS 3.8.2, "AC Sources - Shutdown," SR 3.8.2.1, is revised to not require SRs that test the ability of the automatic diesel generator to start in Modes 4 and 5. Automatic ECCS

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initiation in Modes 4 and 5 was eliminated in TSTF-542. This was an oversight in TSTF-542.

8. TS 3.3.6.1, "Primary Containment Isolation Instrumentation," Required Action J.2 (J.2 for LaSalle and M.2 for Clinton) is deleted. This action is no longer applicable after adoption of TSTF-542. This was an accidental omission in TSTF-542. This change is made for clarity and has no effect on the application of the TS.
9. The Applicability of TS 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," is revised to delete the phrase, "When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, 'Primary Containment Isolation Instrumentation'." This makes TS 3.6.1.3 only applicable Modes 1, 2, and 3. Following adoption of TSTF-542, no functions in LCO 3.3.6.1 are applicable outside of Modes 1, 2, or 3. The Actions and SRs are revised to reflect this change. These changes are made for clarity and have no effect on the application of the TS.
10. The TS are revised to use wording and to define acronyms in a manner consistent with the remainder of the TS. These changes are made for consistency and have no effect on the application of the TS.

EGC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed change incorporates operating experience and corrects errors and omissions that were incorporated into the plant TS when adopting TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control." Draining of RPV water inventory in Mode 4 (i.e., cold shutdown) and Mode 5 (i.e., refueling) is not an accident previously evaluated and, therefore, revising the existing TS controls to prevent or mitigate such an event has no effect on any accident previously evaluated. RPV water inventory control in Mode 4 or Mode 5 is not an initiator of any accident previously evaluated. The existing and revised TS controls are not mitigating actions assumed in any accident previously evaluated.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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2. Does the proposed change create the possibility of a new or different kind of accident from any previously evaluated?

Response: No

The proposed change incorporates operating experience and corrects errors and omissions that were incorporated into the plant TS when adopting TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control." The event of concern under the current requirements and the proposed change is an unexpected draining event. The TS have contained requirements related to an unexpected draining event during shutdown for over 40 years and this event does not appear as an analyzed event in the Updated Final Safety Analysis Report (UFSAR) for any plant or in the NRC's Standard Review Plan (NUREG- 0800). Therefore, an unexpected draining event is not a new or different kind of accident not considered in the design and licensing bases that would have been considered a design basis accident in the UFSAR had it been previously identified.

None of the equipment affected by the proposed change has a design function described in the UFSAR to mitigate an unexpected draining event in Modes 4 or 5, although the equipment may be used for that purpose. Therefore, the proposed amendment will not change the design function of the affected equipment. The proposed change will affect the operation of certain equipment, such as the manual initiation function and related instrumentation to permit initiation of the required ECCS injection/spray subsystem, and the control of valves credited for preventing a draining event. However, these changes provide adequate protection to prevent or mitigate an unexpected draining event and do not create the possibility of a new or different kind of accident due to credible new failure mechanisms, malfunctions, or accident initiators not considered in the design and licensing bases.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No

The proposed change incorporates operating experience and corrects errors and omissions that were incorporated into the plant TS when adopting TSTF-542, Revision 2, "Reactor Pressure Vessel Water Inventory Control." The safety basis for the RPV WIC requirements is to protect Safety Limit 2.1.1.3. The proposed change does not affect any specific values that define a safety margin as established in the licensing basis. The proposed change does not affect a design basis or safety limit, or any controlling value for a parameter established in the UFSAR or the license.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

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Based on the above, EGC concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

#### **3.2 Conclusions**

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

#### **4.0 ENVIRONMENTAL CONSIDERATION**

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

#### **5.0 REFERENCES**

1. Letter from the Technical Specifications Task Force to the U.S. Nuclear Regulatory Commission, "Transmittal of TSTF-582, Revision 0, RPV WIC Enhancements," dated August 28, 2019
2. Letter from Victor G. Cusumano (U.S. NRC) to Technical Specifications Task Force, "Final Safety Evaluation of Technical Specifications Task Force Traveler TSTF-582, Revision 0, 'RPV WIC Enhancements' Using the Consolidated Line Item Improvement Process (EPID L-2019-PMP-0199)," dated August 13, 2020
3. Letter from Victor G. Cusumano (U.S. NRC) to Technical Specifications Task Force, "Model Safety Evaluation of Technical Specifications Task Force Traveler TSTF-582, Revision 0, 'RPV WIC Enhancements' and TSTF-583-T, Revision 0, 'TSTF-582 Diesel Generator Variation,' Using the Consolidated Line Item Improvement Process," dated October 9, 2020
4. NUREG-1433, Standard Technical Specifications, General Electric BWR/4 Plants, Volume 1, Revision 4, dated April 2012

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5. NUREG-1434, Standard Technical Specifications, General Electric BWR/6 Plants, Volume 1, Revision 4, dated April 2012
6. Letter from Alexander R. Klein (U.S. NRC) to Technical Specifications Task Force, "Final Safety Evaluation of Technical Specifications Task Force Traveler TSTF-542, Revision 2, Reactor Pressure Vessel Water Inventory Control," dated December 20, 2016
7. Letter from P. Simpson (EGC) to U.S. NRC, "Application to Revise Technical Specifications Following Adoption of TSTF-542, 'Reactor Pressure Vessel Water Inventory Control,'" dated June 18, 2019

**ATTACHMENT 2**  
**Markup of Proposed Technical Specifications Pages**

**2.1 Clinton Power Station, Unit 1**  
**Facility Operating License No. NPF-62**

**REVISED TECHNICAL SPECIFICATIONS PAGES**

**1.0-3**  
**1.0-4**  
**3.3-43a**  
**3.3-43b**  
**3.3-43c**  
**3.3-43d**  
**3.3-44**  
**3.3-51**  
**3.3-52**  
**3.3-78**  
**3.8-19**

1.1 Definitions (continued)

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CORE OPERATING LIMITS REPORT (COLR)      The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.

DOSE EQUIVALENT I-131      DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same inhalation CEDE dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The inhalation CEDE dose conversion factors used for this calculation shall be those listed in Table 2.1 of Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," ORNL, 1989.

DRAIN TIME      The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

- a. The water inventory above the TAF is divided by the limiting drain rate;
- b. The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure ~~(e.g., seismic event, loss of normal power, single human error),~~ for all

(continued)

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Definitions

closed and administratively controlled

DRAIN TIME  
(continued)

penetration flow paths below the TAF except:

1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are ~~locked, sealed, or otherwise secured~~ in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;
  2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or
  3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation devices without offsite power.
- c. The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;
- d. No additional draining events occur; and
- e. Realistic cross-sectional areas and drain rates are used.

A bounding DRAIN TIME may be used in lieu of a calculated value.

EMERGENCY CORE COOLING  
SYSTEM (ECCS) RESPONSE  
TIME

The ECCS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ECCS initiation setpoint at the channel sensor until the ECCS equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

(continued)



3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.2 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
<del>A. One or more channels inoperable.</del>	<del>A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.</del> <div style="text-align: center; border: 1px solid black; width: 20px; height: 20px; margin: 5px auto;">A</div>	<del>Immediately</del>
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 5px;">A. →</div> <del>B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<div style="text-align: center; border: 1px solid black; width: 20px; height: 20px; margin: 5px auto;">A</div> <div style="margin-left: 20px;">↓</div> <div style="text-align: center; border: 1px solid black; width: 20px; height: 20px; margin: 5px auto;">A</div> <div style="margin-left: 20px;">→</div> <div style="text-align: center; border: 1px solid black; width: 20px; height: 20px; margin: 5px auto;">A</div> <div style="margin-left: 20px;">→</div>	Immediately  Immediately  Immediately
<del>C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<del>C.1 Place channel in trip.</del>	<del>1 hour</del>

One or more channels inoperable.

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<del>D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<del>D.1 Declare HPCS system inoperable.</del> <del>OR</del> <del>D.2 Align the HPCS pump suction to the suppression pool.</del>	<del>1 hour</del>  <del>1 hour</del>
<del>E. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<del>E.1 Restore channel to OPERABLE status.</del>	<del>24 hours</del>
<del>F. Required Action and associated Completion Time of Condition C, D, or E not met.</del>	<del>F.1 Declare associated ECCS injection/spray subsystem inoperable.</del>	<del>Immediately</del>



These SRs apply to each Function in

SURVEILLANCE REQUIREMENTS

-----NOTE-----

Refer to Table 3.3.5.2-1 to determine which SRs apply for each ECCS Function.

SURVEILLANCE	FREQUENCY
SR 3.3.5.2.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5.2-1 (page 1 of 2)  
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
<del>1. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems</del>					
<del>a. Reactor Vessel Pressure - Low (Injection Permissive)</del>	<del>4,5</del>	<del>4<sup>(a)</sup></del>	<del>C</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≤ 494 psig</del>
<del>b. LPCS Pump Discharge Flow - Low (Bypass)</del>	<del>4,5</del>	<del>1 per pump<sup>(a)</sup></del>	<del>E</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≥ 750 gpm</del>
<del>c. LPCI Pump A Discharge Flow - Low (Bypass)</del>	<del>4,5</del>	<del>1 per pump<sup>(a)</sup></del>	<del>E</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≥ 900 gpm</del>
<del>2. LPCI B and LPCI C Subsystems</del>					
<del>a. Reactor Vessel Pressure - Low (Injection Permissive)</del>	<del>4,5</del>	<del>4<sup>(a)</sup></del>	<del>C</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≤ 494 psig</del>
<del>b. LPCI Pump B and LPCI Pump C Discharge Flow - Low (Bypass)</del>	<del>4,5</del>	<del>1 per pump<sup>(a)</sup></del>	<del>E</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≥ 900 gpm</del>

(continued)

~~(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "RPV Water Inventory Control."~~

Table 3.3.5.2-1 (page 2 of 2)  
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
<del>3. High Pressure Core Spray (HPCS) System</del>					
<del>a. RCIC Storage Tank Level - Low</del>	<del>4 (b), 5 (b)</del>	<del>2 (a)</del>	<del>D</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≥ 3.0 inches</del>
<del>b. HPCS Pump Discharge Pressure - High (Bypass)</del>	<del>4, 5</del>	<del>1 (a)</del>	<del>E</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≥ 120 psig</del>
<del>c. HPCS System Flow Rate - Low (Bypass)</del>	<del>4, 5</del>	<del>1 (a)</del>	<del>E</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≥ 500 gpm</del>
1. → 4. RHR System Isolation	a ↓ (c)	2 in one trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ 8.3 inches
2. → 5. Reactor Water Cleanup (RWCU) System Isolation	a ↓ (c)	2 in one trip system	B	SR 3.3.5.2.1 SR 3.3.5.2.2	≥ -48.1 inches

(a) ~~Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "RPV Water Inventory Control."~~

(b) ~~When HPCS is OPERABLE for compliance with LCO 3.5.2, "RPV Water Inventory Control," and aligned to the RCIC storage tank while tank water level is not within the limits of SR 3.5.2.3.~~

a ↓  
(c) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	J.1 Isolate the affected penetration flow path(s).	24 hours
K. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.  <u>OR</u>  Required Action and associated Completion Time of Condition I or J not met.	K.1 Be in MODE 3.  <u>AND</u> K.2 Be in MODE 4.	12 hours  36 hours
L. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	L.1 Declare associated standby liquid control subsystem inoperable.  <u>OR</u> L.2 Isolate the Reactor Water Cleanup System.	1 hour  1 hour
M. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	M.1 Initiate action to restore channel to OPERABLE status.  <u>OR</u> <del>M.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling System suction from the reactor vessel.</del>  <u>OR</u>	Immediately  <del>Immediately</del>  (continued)

ACTIONS


CONDITION	REQUIRED ACTION	COMPLETION TIME
M. (Continued)	<del>M.3.1 Initiate action to restore secondary containment to OPERABLE status.</del>  <u>AND</u>	<del>Immediately</del>
	<del>M.3.2 Initiate action to restore one standby gas treatment (SGT) subsystem to OPERABLE status.</del>  <u>AND</u>	<del>Immediately</del>
	<del>M.3.3 Initiate action to restore isolation capability in each required secondary containment and secondary containment bypass penetration flow path not isolated.</del>  <u>AND</u>	<del>Immediately</del>
	<del>M.3.4 -----NOTE-----                      Entry and exit is permissible under administrative control.                      -----</del>  <del>Initiate action to close one door in the upper containment personnel air lock.</del>	<del>Immediately</del>
N. As required by Required Action F.1 and referenced in Table 3.3.6.1-1.	N.1 Isolate the affected penetration flow path(s).	Immediately
	<u>OR</u> N.2 Suspend movement of recently irradiated fuel assemblies in the primary and secondary containment.	Immediately



3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  ~~When the associated diesel generator (DG) is required to be OPERABLE by LCO 3.8.2, "AC Sources-Shutdown."~~

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	1 hour
	<p>AND</p> <p>A.2 -----NOTE----- Only applicable for Functions 1.c, 1.d, 1.e, 2.c, 2.d, and 2.e -----</p> <p>Restore channel to OPERABLE status.</p>	7 days
B. Required Action and associated Completion Time not met.	B.1 Declare associated DG inoperable.	Immediately



SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1 -----NOTE-----                      The following SRs are not required to be performed: <del>SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, and SR 3.8.1.18.</del>                      -----</p> <p>For AC sources required to be OPERABLE, <del>the SRs of Specification 3.8.1, except SR 3.8.1.8, SR 3.8.1.12, SR 3.8.1.17, SR 3.8.1.19, and SR 3.8.1.20 are applicable.</del></p>	<p><b>, SR 3.8.1.10, SR 3.8.1.14, and</b></p> <p><b>:</b></p> <p>In accordance with applicable SRs</p>

The following SRs are applicable for

- |            |             |
|------------|-------------|
| SR 3.8.1.1 | SR 3.8.1.6  |
| SR 3.8.1.2 | SR 3.8.1.9  |
| SR 3.8.1.3 | SR 3.8.1.10 |
| SR 3.8.1.4 | SR 3.8.1.14 |
| SR 3.8.1.5 | SR 3.8.1.16 |

**ATTACHMENT 2**  
**Markup of Proposed Technical Specifications Pages**

**2.2 Dresden Nuclear Power Station, Units 2 and 3**  
**Renewed Facility Operating License Nos. DPR-19 and DPR-25**

**REVISED TECHNICAL SPECIFICATIONS PAGES**

**1.1-4**  
**3.3.5.2-1**  
**3.3.5.2-2**  
**3.3.5.2-3**  
**3.3.8.1-1**  
**3.6.1.3-5**  
**3.8.2-3**

1.1 Definitions (continued)

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DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

- a. The water inventory above the TAF is divided by the limiting drain rate;
- b. The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (~~e.g., seismic event, loss of normal power, single human error~~), for all penetration flow paths below the TAF except:

closed and  
administratively controlled



1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;
2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or
3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.

(continued)

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3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LC0 3.3.5.2 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
<del>A. One or more channels inoperable.</del>	<del>A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.</del> <div style="border: 1px solid red; padding: 2px; display: inline-block; margin-top: 5px;">A.1</div> 	Immediately
<div style="border: 1px solid red; padding: 5px; display: inline-block; margin-bottom: 10px;">A. One or more channels inoperable.</div> <div style="border: 1px solid red; padding: 2px; display: inline-block; margin-bottom: 10px;">B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</div>	B.1 Initiate action to place channel in trip.  OR <div style="border: 1px solid red; padding: 2px; display: inline-block; margin-right: 10px;">A.2.1</div> B.2.1 Declare associated penetration flow path(s) incapable of automatic isolation.  AND <div style="border: 1px solid red; padding: 2px; display: inline-block; margin-right: 10px;">A.2.2</div> B.2.2 Initiate action to calculate DRAIN TIME.	Immediately   Immediately   Immediately
<del>C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<del>C.1 Place channel in trip.</del>	<del>1 hour</del>

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<del>D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<del>D.1 Restore channel to OPERABLE status.</del>	<del>24 hours</del>
<del>E. Required Action and associated Completion Time of Condition C or D not met.</del>	<del>E.1 Declare associated low pressure ECCS injection/spray subsystem inoperable.</del>	<del>Immediately</del>

SURVEILLANCE REQUIREMENTS

**These SRs apply to each Function in**

NOTE

~~Refer to Table 3.3.5.2-1 to determine which SRs apply for each ECCS Function.~~

SURVEILLANCE	FREQUENCY
SR 3.3.5.2.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program



RPV Water Inventory Control Instrumentation  
3.3.5.2

Table 3.3.5.2-1 (Page 1 of 1)  
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
<del>1. Core Spray System</del>					
<del>a. Reactor Steam Dome Pressure Low (Permissive)</del>	<del>4, 5</del>	<del>2 (a)</del>	<del>G</del>	<del>SR 3.3.5.2.2</del>	<del>≤ 341.7 psig</del>
<del>b. Core Spray Pump Discharge Flow Low (Bypass)</del>	<del>4, 5</del>	<del>1 per pump (a)</del>	<del>D</del>	<del>SR 3.3.5.2.2</del>	<del>≥ 802 gpm and ≤ 992 gpm</del>
<del>2. Low Pressure Coolant Injection (LPCI) System</del>					
<del>a. Reactor Steam Dome Pressure Low (Permissive)</del>	<del>4, 5</del>	<del>2 (a)</del>	<del>G</del>	<del>SR 3.3.5.2.2</del>	<del>≤ 341.7 psig</del>
<del>b. Low Pressure Coolant Injection Pump Discharge Flow Low (Bypass)</del>	<del>4, 5</del>	<del>1 per loop (a)</del>	<del>D</del>	<del>SR 3.3.5.2.2</del>	<del>≥ 1107 gpm</del>
<del>3. Shutdown Cooling System (SDC) Isolation</del>					
<del>a. Reactor Vessel Water Level Low</del>	<del>(b)</del>	<del>1 per trip system</del>	<del>B</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≥ 2.65 inches</del>
<del>4. Reactor Water Cleanup System Isolation</del>					
<del>a. Reactor Vessel Water Level Low</del>	<del>(b)</del>	<del>1 per trip system</del>	<del>B</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≥ 2.65 inches</del>

~~(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "RPV Water Inventory Control."~~

~~(b) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.~~

1. ↓

a ↓

2. ↓


a ↓

a ↑

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LCO 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,   
~~When the associated diesel generator is required to be OPERABLE by LCO 3.8.2, "AC Sources Shutdown."~~

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Declare associated diesel generator (DG) inoperable.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	<p>C.2 -----NOTES-----            1. Isolation devices in high radiation areas may be verified by use of administrative means.             2. Isolation devices that are a locked, sealed, or otherwise secured may be verified by use of administrative means.            -----             Verify the affected penetration flow path is isolated.</p>	Once per 31 days
D. MSIV leakage rate not within limit.	D.1 Restore leakage rate to within limit.	8 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met <del>in</del> <del>MODE 1, 2, or 3.</del>	<p>E.1 Be in MODE 3.  <u>AND</u>            E.2 Be in MODE 4.</p>	<p>12 hours             36 hours</p>





ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One required DG inoperable.	B.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	B.2 Suspend movement of recently irradiated fuel assemblies in secondary containment.	Immediately
	<u>AND</u>	
	B.3 Initiate action to restore required DG to OPERABLE status.	Immediately

**SR 3.8.1.3, SR 3.8.1.10, SR 3.8.1.11, SR 3.8.1.15, and SR 3.8.1.17.**

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1 -----NOTE-----                      The following SRs are not required to be performed: <del>SR 3.8.1.3, SR 3.8.1.10 through SR 3.8.1.12, and SR 3.8.1.14 through SR 3.8.1.18.</del></p> <p>For AC sources required to be OPERABLE the SRs of Specification 3.8.1, except <del>SR 3.8.1.9, SR 3.8.1.13, SR 3.8.1.19, SR 3.8.1.20, and SR 3.8.1.21</del> are applicable.</p>	<p>In accordance with applicable SRs</p>

**The following SRs are applicable for**

- SR 3.8.1.1**
- SR 3.8.1.2**
- SR 3.8.1.3**
- SR 3.8.1.4**
- SR 3.8.1.5**
- SR 3.8.1.6**
- SR 3.8.1.10**
- SR 3.8.1.11**
- SR 3.8.1.15**
- SR 3.8.1.17**

**ATTACHMENT 2**  
**Markup of Proposed Technical Specifications Pages**

**2.3 LaSalle County Station, Units 1 and 2**  
**Renewed Facility Operating License Nos. NPF-11 and NPF-18**

**REVISED TECHNICAL SPECIFICATIONS PAGES**

**1.1-4**  
**3.3.5.2-1**  
**3.3.5.2-2**  
**3.3.5.2-3**  
**3.3.5.2-4**  
**3.3.6.1-4**  
**3.3.8.1-1**  
**3.5.1-1**  
**3.5.1-2**  
**3.5.2-2**  
**3.5.2-3**  
**3.5.2-5**  
**3.8.2-4**

1.1 Definitions

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DOSE EQUIVALENT I-131 (continued)	30, Supplement to Part 1, pages 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity."
DRAIN TIME	<p>The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:</p> <ol style="list-style-type: none"><li>a. The water inventory above the TAF is divided by the limiting drain rate;</li><li>b. The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure <del>(e.g., seismic event, loss of normal power, single human error)</del>, for all penetration flow paths below the TAF except:<ol style="list-style-type: none"><li>1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are <del>locked, sealed, or otherwise secured</del> in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;</li><li>2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or</li></ol></li></ol>

closed and administratively controlled



(continued)

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3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LC0 3.3.5.2 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

A.1 Initiate action to place channel in trip.  
OR

-----NOTE-----

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<del>A. One or more channels inoperable.</del>	<del>A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.</del>	<del>Immediately</del>
<del>B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<del>B.1 Declare associated penetration flow path(s) incapable of automatic isolation.</del>	<del>Immediately</del>
<del>C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<del>C.1 Place channel in trip.</del>	<del>1 hour</del>

A. One or more channels inoperable.

Immediately

A.2.1

Initiate action to calculate

A.2.2

AND

Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<del>D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<del>D.1 Restore channel to OPERABLE status.</del>	<del>24 hours</del>
<del>E. Required Action and associated Completion Time of Condition C or D not met.</del>	<del>E.1 Declare associated ECCS injection/spray subsystem inoperable.</del>	<del>Immediately</del>

These SRs apply to each Function in

SURVEILLANCE REQUIREMENTS

NOTE

~~Refer to Table 3.3.5.2-1 to determine which SRs apply for each ECCS Function.~~

SURVEILLANCE	FREQUENCY
SR 3.3.5.2.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

Table 3.3.5.2-1 (page 1 of 2)  
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
<del>1. Low Pressure Coolant Injection A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems</del>					
<del>a. Reactor Steam Dome Pressure Low (Injection Permissive)</del>	<del>4,5</del>	<del>1<sup>(a)</sup></del>	<del>G</del>	<del>SR 3.3.5.2.2</del>	<del>≤ 522 psig</del>
<del>b. LPCS Pump Discharge Flow Low (Bypass)</del>	<del>4,5</del>	<del>1 per pump<sup>(a)</sup></del>	<del>D</del>	<del>SR 3.3.5.2.2</del>	<del>≥ 1240 gpm and ≤ 1835 gpm</del>
<del>c. LPCI Pump A Discharge Flow Low (Bypass)</del>	<del>4,5</del>	<del>1 per pump<sup>(a)</sup></del>	<del>D</del>	<del>SR 3.3.5.2.2</del>	<del>≥ 1330 gpm and ≤ 2144 gpm</del>
<del>d. LPCS and LPCI A Injection Line Pressure Low (Injection Permissive)</del>	<del>4,5</del>	<del>1 per valve<sup>(a)</sup></del>	<del>G</del>	<del>SR 3.3.5.2.2</del>	<del>≤ 522 psig</del>
<del>2. LPCI B and LPCI C Subsystems</del>					
<del>a. Reactor Steam Dome Pressure Low (Injection Permissive)</del>	<del>4,5</del>	<del>1<sup>(a)</sup></del>	<del>G</del>	<del>SR 3.3.5.2.2</del>	<del>≤ 522 psig</del>
<del>b. LPCI Pump B and LPCI Pump C Discharge Flow Low (Bypass)</del>	<del>4,5</del>	<del>1 per pump<sup>(a)</sup></del>	<del>D</del>	<del>SR 3.3.5.2.2</del>	<del>≥ 1330 gpm and ≤ 2144 gpm</del>
<del>c. LPCI B and LPCI C Injection Line Pressure Low (Injection Permissive)</del>	<del>4,5</del>	<del>1 per valve<sup>(a)</sup></del>	<del>G</del>	<del>SR 3.3.5.2.2</del>	<del>≤ 522 psig</del>

(continued)

~~(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "RPV Water Inventory Control."~~

Table 3.3.5.2-1 (page 2 of 2)  
RPV Water Inventory Control Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
<del>3. High Pressure Core Spray (HPCS) System</del>					
<del>a. HPCS Pump Discharge Pressure High (Bypass)</del>	<del>4, 5</del>	<del>1(a)</del>	<del>Ø</del>	<del>SR 3.3.5.2.2</del>	<del>≥ 113.2 psig</del>
<del>b. HPCS System Flow Rate Low (Bypass)</del>	<del>4, 5</del>	<del>1(a)</del>	<del>Ø</del>	<del>SR 3.3.5.2.2</del>	<del>≥ 1380 gpm and ≤ 2194 gpm</del>
1. → 4. RHR Shutdown Cooling System Isolation	a. <input type="checkbox"/> (b)	2 in one trip system	B	SR <del>3.3.5.2.1</del> SR <del>3.3.5.2.2</del>	≥ 11.0 inches
2. → 5. Reactor Water Cleanup (RWCU) System Isolation	a. <input type="checkbox"/> (b)	2 in one trip system	B	SR <del>3.3.5.2.2</del>	≥ -58.0 inches

(a)  Associated with an ~~ECCS subsystem required to be OPERABLE by LCO 3.5.2, "RPV Water Inventory Control."~~

(b)  When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.

Primary Containment Isolation Instrumentation  
3.3.6.1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	J.1 Initiate action to restore channel to OPERABLE status.	Immediately
	<del>J.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling (SDC) System.</del>	<del>Immediately</del>

SURVEILLANCE REQUIREMENTS

- NOTES-----
1. Refer to Table 3.3.6.1-1 to determine which SRs apply for each Primary Containment Isolation Function.
  2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains isolation capability.
- 

SURVEILLANCE	FREQUENCY
SR 3.3.6.1.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.6.1.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

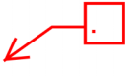
(continued)



3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LC0 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,   
~~When the associated diesel generator (DG) is required to be OPERABLE by LC0 3.8.2, "AC Sources Shutdown."~~

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Declare associated DG inoperable.	Immediately

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), REACTOR PRESSURE VESSEL (RPV) WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM



3.5.1 ECCS—Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of six safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1, MODES 2 and 3, except ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ 150 psig.

ACTIONS High Pressure Core Spray (HPCS)

-----NOTE-----  
LCO 3.0.4.b is not applicable to ~~HPCS~~.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. <del>High Pressure Core Spray (HPCS)</del> System inoperable.</p>	<p>B.1 Verify by administrative means RCIC System is OPERABLE when RCIC is required to be OPERABLE.</p> <p><u>AND</u></p> <p>B.2 Restore HPCS System to OPERABLE status.</p>	<p>Immediately</p> <p>14 days</p>
<p>C. Two low pressure ECCS injection/spray subsystems inoperable.</p>	<p>C.1 Restore one low pressure ECCS injection/spray subsystem to OPERABLE status.</p>	<p>72 hours</p>
<p>D. Required Action and associated Completion Time of Condition A, B, or C not met.</p>	<p>D.1 Be in MODE 3.</p>	<p>12 hours</p>
<p>E. One required ADS valve inoperable.</p>	<p>E.1 Restore required ADS valve to OPERABLE status.</p>	<p>14 days</p>
<p>F. Required Action and associated Completion Time of Condition E not met.</p>	<p>F.1 Be in MODE 3.</p>	<p>12 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. DRAIN TIME < 36 hours and ≥ 8 hours.	C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.	4 hours
	<u>AND</u>	
	C.2 Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	4 hours
	<u>AND</u>	
	C.3 Verify one standby gas treatment subsystem is capable of being placed in operation in less than the DRAIN TIME.	4 hours

(SGT)

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. DRAIN TIME &lt; 8 hours.</p>	<p>D.1 -----NOTE-----                      Required ECCS injection/spray subsystem or additional method of water injection shall be capable of operating without offsite electrical power.                      -----</p>	
	<p>Initiate action to establish an additional method of water injection with water sources capable of maintaining RPV water level &gt; TAF for ≥ 36 hours.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>D.2 Initiate action to establish secondary containment boundary.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>D.3 Initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>D.4 Initiate action to verify one <del>standby gas treatment</del> subsystem is capable of being placed in operation.</p>	<p>Immediately</p>

automatically or



SGT



(continued)

**NOTES**

- 1. Operation may be through the test return line.
- 2. Credit may be taken for normal system operation to satisfy this SR.

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.2.5	<p style="text-align: center;"><del>NOTE</del></p> <p><del>Not required to be met for system vent flow paths opened under administrative control.</del></p> <p><del>Verify, for the required ECCS injection/spray subsystem, each manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</del></p>	<p><del>In accordance with the Surveillance Frequency Control Program</del></p>
SR 3.5.2.6	<p>Operate the required ECCS injection/spray subsystem through the recirculation line for ≥ 10 minutes.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
SR 3.5.2.7	<p>Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
SR 3.5.2.8	<p style="text-align: center;">-----NOTE-----</p> <p>Vessel injection/spray may be excluded.</p> <p>Verify the required ECCS injection/spray subsystem can be manually operated.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required offsite circuit or DG of LCO Item d. inoperable.	D.1 Declare associated standby gas treatment subsystem, control room area filtration subsystem, and control room area ventilation air conditioning subsystem inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1</p> <p>-----NOTES-----</p> <p>1. The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through <del>SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, SR 3.8.1.18, and SR 3.8.1.19.</del></p> <p>2. <del>SR 3.8.1.12 and SR 3.8.1.19 are not required to be met.</del></p> <p>-----</p> <p>For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, except <del>SR 3.8.1.8, SR 3.8.1.17, and SR 3.8.1.20,</del> are applicable.</p>	<p>, SR 3.8.1.10, SR 3.8.1.14, and</p> <p>:</p> <p>In accordance with applicable SRs</p>

The following SRs are applicable for

- |            |             |
|------------|-------------|
| SR 3.8.1.1 | SR 3.8.1.6  |
| SR 3.8.1.2 | SR 3.8.1.9  |
| SR 3.8.1.3 | SR 3.8.1.10 |
| SR 3.8.1.4 | SR 3.8.1.14 |
| SR 3.8.1.5 | SR 3.8.1.16 |

**ATTACHMENT 2**  
**Markup of Proposed Technical Specifications Pages**

**2.4 Quad Cities Nuclear Power Station, Units 1 and 2**  
**Renewed Facility Operating License Nos. DPR-29 and DPR-30**

**REVISED TECHNICAL SPECIFICATIONS PAGES**

**1.1-4**  
**3.3.5.2-1**  
**3.3.5.2-2**  
**3.3.5.2-3**  
**3.3.8.1-1**  
**3.5.2-2**  
**3.5.2-4**  
**3.5.2-5**  
**3.5.2-6**  
**3.6.1.3-1**  
**3.6.1.3-4**  
**3.8.2-5**



1.1 Definitions (continued)

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DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

a. The water inventory above the TAF is divided by the limiting drain rate;

b. The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (~~e.g., seismic event, loss of normal power, single human error~~), for all penetration flow paths below the TAF except:

1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are ~~locked, sealed, or otherwise secured~~ in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;
2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or
3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.

closed and administratively controlled



(continued)

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3.3 INSTRUMENTATION

3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control Instrumentation

LCO 3.3.5.2 The RPV Water Inventory Control instrumentation for each Function in Table 3.3.5.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.2-1.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

CONDITION	ACTION	COMPLETION TIME
<del>A. One or more channels inoperable.</del> <div style="border: 1px solid red; padding: 2px; display: inline-block; color: red; font-weight: bold;">A. One or more channels inoperable.</div>	<del>A.1 Enter the Condition referenced in Table 3.3.5.2-1 for the channel.</del> <div style="border: 1px solid red; padding: 2px; display: inline-block; color: red; font-weight: bold;">A.1 Initiate action to place channel in trip OR</div>	<del>Immediately</del> <div style="border: 1px solid red; padding: 2px; display: inline-block; color: red; font-weight: bold;">Immediately</div>
<del>B. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<del>B.1 Declare associated penetration flow path(s) incapable of automatic isolation.</del> <div style="border: 1px solid red; padding: 2px; display: inline-block; color: red; font-weight: bold;">A.2.1</div> <div style="border: 1px solid red; padding: 2px; display: inline-block; color: red; font-weight: bold; border-radius: 50%; text-align: center;">AND</div> <del>B.2 Calculate DRAIN TIME.</del> <div style="border: 1px solid red; padding: 2px; display: inline-block; color: red; font-weight: bold;">A.2.2</div>	<del>Immediately</del>           <del>Immediately</del> <div style="border: 1px solid red; padding: 2px; display: inline-block; color: red; font-weight: bold;">Initiate action to calculate</div>
<del>C. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<del>C.1 Place channel in trip.</del>	<del>1 hour</del>
<del>D. As required by Required Action A.1 and referenced in Table 3.3.5.2-1.</del>	<del>D.1 Restore channel to OPERABLE status.</del>	<del>24 hours</del>

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<del>E. Required Action and associated Completion Time of Condition C or D not met.</del>	<del>E.1 Declare associated low pressure ECCS injection/spray subsystem inoperable.</del>	<del>Immediately</del>

These SRs apply to each Function in

SURVEILLANCE REQUIREMENTS

NOTE

~~Refer to Table 3.3.5.2-1 to determine which SRs apply for each ECCS Function.~~

SURVEILLANCE	FREQUENCY
SR 3.3.5.2.1 Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program
SR 3.3.5.2.2 Perform CHANNEL FUNCTIONAL TEST.	In accordance with the Surveillance Frequency Control Program

RPV Water Inventory Control Instrumentation  
3.3.5.2

Table 3.3.5.2-1 (Page 1 of 1)  
RPV Water Inventory Control Instrumentation


FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM <del>REQUIRED</del> <del>ACTION A.1</del>	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
<del>1. Core Spray System</del>					
<del>a. Reactor Steam Dome Pressure Low (Permissive)</del>	<del>4, 5</del>	<del>2 (a)</del>	<del>G</del>	<del>SR 3.3.5.2.2</del>	<del>≤ 342 psig</del>
<del>b. Core Spray Pump Discharge Flow Low (Bypass)</del>	<del>4, 5</del>	<del>1 per pump (a)</del>	<del>D</del>	<del>SR 3.3.5.2.2</del>	<del>≥ 577 gpm and ≤ 830 gpm</del>
<del>2. Low Pressure Coolant Injection (LPCI) System</del>					
<del>a. Reactor Steam Dome Pressure Low (Permissive)</del>	<del>4, 5</del>	<del>2 (a)</del>	<del>G</del>	<del>SR 3.3.5.2.2</del>	<del>≤ 342 psig</del>
<del>b. Low Pressure Coolant Injection Pump Discharge Flow Low (Bypass)</del>	<del>4, 5</del>	<del>1 per loop (a)</del>	<del>D</del>	<del>SR 3.3.5.2.2</del>	<del>≥ 2526 gpm</del>
<del>3. RHR Shutdown Cooling System (SDC) Isolation</del>					
<del>a. Reactor Vessel Water Level-Low</del>	<del>(b)</del>	<del>1 per trip system</del>	<del>B</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≥ 3.8 inches</del>
<del>4. Reactor Water Cleanup (RWCU) System Isolation</del>					
<del>a. Reactor Vessel Water Level-Low</del>	<del>(b)</del>	<del>1 per trip system</del>	<del>B</del>	<del>SR 3.3.5.2.1 SR 3.3.5.2.2</del>	<del>≥ 3.8 inches</del>

~~(a) Associated with an ECCS subsystem required to be OPERABLE by LCO 3.5.2, "RPV Water Inventory Control."~~  
~~(b) When automatic isolation of the associated penetration flow path(s) is credited in calculating DRAIN TIME.~~

3.3 INSTRUMENTATION

3.3.8.1 Loss of Power (LOP) Instrumentation

LC0 3.3.8.1 The LOP instrumentation for each Function in Table 3.3.8.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  ~~When the associated diesel generator is required to be OPERABLE by LC0 3.8.2, "AC Sources Shutdown."~~

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Declare associated diesel generator (DG) inoperable.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. DRAIN TIME < 36 hours and ≥ 8 hours.	C.1 Verify secondary containment boundary is capable of being established in less than the DRAIN TIME.	4 hours
	<u>AND</u>	
	C.2 Verify each secondary containment penetration flow path is capable of being isolated in less than the DRAIN TIME.	4 hours
	<u>AND</u>	
	C.3 Verify one standby gas treatment subsystem is capable of being placed in operation in less than the DRAIN TIME.	4 hours

(SGT)

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	<p>D.3 Initiate action to isolate each secondary containment penetration flow path or verify it can be manually isolated from the control room.</p> <p><b>automatically or</b> →</p> <p><u>AND</u></p> <p>D.4 Initiate action to verify one <del>standby gas treatment</del> subsystem is capable of being placed in operation.</p> <p>← <b>SGT</b></p>	<p>Immediately</p> <p>Immediately</p>
<p>E. Required Action and associated Completion Time of Condition C or D not met.</p> <p><u>OR</u></p> <p>DRAIN TIME &lt; 1 hour.</p>	<p>E.1 Initiate action to restore DRAIN TIME to ≥ 36 hours.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.2.1 Verify DRAIN TIME ≥ 36 hours.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.2.2 Verify, for the required ECCS injection/spray subsystem, the:</p> <p>a. Suppression pool water level is <math>\geq</math> 8.5 ft; or</p> <p>b. Contaminated condensate storage tank(s) water volume is <math>\geq</math> 140,000 available gallons.</p>	<p>In accordance with the Surveillance Frequency Control Program <del>+</del></p>
<p>SR 3.5.2.3 Verify, for the required ECCS injection/spray subsystem, locations susceptible to gas accumulation are sufficiently filled with water.</p>	<p>In accordance with the Surveillance Frequency Control Program <del>+</del></p>
<p>SR <del>3.5.2.4</del> <del>NOTE</del></p> <p><del>Not required to be met for system vent flow paths opened under administrative control.</del></p> <p><del>Verify, for the required ECCS injection/spray subsystem, each manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</del></p>	<p><del>In accordance with the Surveillance Frequency Control Program</del> <del>+</del></p>

(continued)



**NOTES**  
 1. Operation may be through the test return line.  
 2. Credit may be taken for normal system operation to satisfy this SR.

SR 3.5.2.4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR <del>3.5.2.5</del>	Operate the required ECCS injection/spray subsystem <del>through the recirculation line</del> for ≥ 10 minutes.	In accordance with the Surveillance Frequency Control Program
SR <del>3.5.2.6</del>	Verify each valve credited for automatically isolating a penetration flow path actuates to the isolation position on an actual or simulated isolation signal.	In accordance with the Surveillance Frequency Control Program
SR <del>3.5.2.7</del>	<p>-----NOTE-----                      Vessel injection/spray may be excluded.                      -----</p> <p>Verify the required ECCS injection/spray subsystem can be manually operated.</p>	In accordance with the Surveillance Frequency Control Program

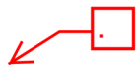
SR 3.5.2.5

SR 3.5.2.6

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV, except reactor building-to-suppression chamber vacuum breakers, shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,   
~~When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."~~

ACTIONS

- NOTES -----
1. Penetration flow paths may be unisolated intermittently under administrative controls.
  2. Separate Condition entry is allowed for each penetration flow path.
  3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
  4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Only applicable to penetration flow paths with two or more PCIVs. ----- One or more penetration flow paths with one PCIV inoperable for reasons other than Condition D.</p>	<p>A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.</p> <p><u>AND</u></p>	<p>4 hours except for main steam line <u>AND</u> 8 hours for main steam line</p> <p>(continued)</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	<p>C.2 -----NOTES-----            1. Isolation devices in high radiation areas may be verified by use of administrative means.             2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.            -----             Verify the affected penetration flow path is isolated.</p>	Once per 31 days
D. MSIV leakage rate not within limit.	D.1 Restore leakage rate to within limit.	8 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met <del>in MODE 1, 2, or 3.</del>	<p>E.1 Be in MODE 3.  <u>AND</u>            E.2 Be in MODE 4.</p>	<p>12 hours             36 hours</p>



**SR 3.8.1.3, SR 3.8.1.10, SR 3.8.1.11, SR 3.8.1.15, and SR 3.8.1.17.**

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1 -----NOTE-----                      The following SRs are not required to be performed: <del>SR 3.8.1.3, SR 3.8.1.10 through SR 3.8.1.12, and SR 3.8.1.14 through SR 3.8.1.19.</del></p> <p>For AC sources required to be OPERABLE the SRs of Specification 3.8.1, except <del>SR 3.8.1.9, SR 3.8.1.13, SR 3.8.1.19, SR 3.8.1.20, and SR 3.8.1.21,</del> are applicable.</p>	<p>In accordance with applicable SRs</p>

**The following SRs are applicable for**

- SR 3.8.1.1**
- SR 3.8.1.2**
- SR 3.8.1.3**
- SR 3.8.1.4**
- SR 3.8.1.5**
- SR 3.8.1.6**
- SR 3.8.1.10**
- SR 3.8.1.11**
- SR 3.8.1.15**
- SR 3.8.1.17**

**ATTACHMENT 3**  
**Markup of Proposed Technical Specifications Bases Pages**  
**(Information Only)**

**3.1 Clinton Power Station, Unit 1**  
**Facility Operating License No. NPF-62**

**REVISED TECHNICAL SPECIFICATIONS BASES PAGES**

**B 3.3-122a**  
**B 3.3-122b**  
**B 3.3-122c**  
**B 3.3-122d**  
**B 3.3-122e**  
**B 3.3-122f**  
**B 3.3-122g**  
**B 3.3-122h**  
**B 3.3-122i**  
**B 3.3-122j**  
**B 3.3-168**  
**B 3.3-169**  
**B 3.3-225**  
**B 3.3-228**  
**B 3.3-229**  
**B 3.5-17**  
**B 3.5-18**  
**B 3.5-19**  
**B 3.5-22**  
**B 3.5-23**  
**B 3.5-24**  
**B 3.8-35**  
**B 3.8-36**  
**B 3.8-39**

B 3.3 INSTRUMENTATION

B 3.3.5.2 Reactor Pressure Vessel (RPV) Water Inventory Control  
Instrumentation

BASES

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BACKGROUND

The RPV contains penetrations below the top of the active fuel (TAF) that have the potential to drain the reactor coolant inventory to below the TAF. If the water level should drop below the TAF, the ability to remove decay heat is reduced, which could lead to elevated cladding temperatures and clad perforation. Safety Limit 2.1.1.3 requires the RPV water level to be above the top of the active irradiated fuel at all times to prevent such elevated cladding temperatures.

Technical Specifications are required by 10 CFR 50.36 to include limiting safety system settings (LSSS) for variables that have significant safety functions. LSSS are defined by the regulation as "Where a LSSS is specified for a variable on which a safety limit has been placed, the setting must be chosen so that automatic protective actions will correct the abnormal situation before a Safety Limit (SL) is exceeded." The Analytical Limit is the limit of the process variable at which a safety action is initiated to ensure that a SL is not exceeded. Any automatic protection action that occurs on reaching the Analytical Limit therefore ensures that the SL is not exceeded. However, in practice, the actual settings for automatic protection channels must be chosen to be more conservative than the Analytical Limit to account for instrument loop uncertainties related to the setting at which the automatic protective action would actually occur. The actual settings for the automatic isolation channels are the same as those established for the same functions in MODES 1, 2, and 3 in LCO 3.3.5.1, "~~Emergency Core Cooling System (ECCS) Instrumentation,~~" or LCO 3.3.6.1, "Primary Containment Isolation instrumentation."

With the unit in MODE 4 or 5, RPV water inventory control is not required to mitigate any events or accidents evaluated in the safety analyses. RPV water inventory control is required in MODES 4 and 5 to protect Safety Limit 2.1.1.3 and the fuel cladding barrier to prevent the release of radioactive material should a draining event occur. Under the definition of DRAIN TIME, some penetration flow paths may be excluded from the DRAIN TIME calculation if they will be isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation.

(continued)

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BASES

BACKGROUND  
(continued)

The purpose of the RPV Water Inventory Control Instrumentation is to support the requirements of LCO 3.5.2, "RPV Water Inventory Control," and the definition of DRAIN TIME. There are functions that ~~are required for manual initiation or operation of the ECCS injection/spray subsystem required to be OPERABLE by LCO 3.5.2 and other functions that~~ support automatic isolation of Residual Heat Removal subsystem and Reactor Water Cleanup system penetration flow path(s) on low RPV water level.

~~The RPV Water Inventory Control Instrumentation supports operation of low pressure core spray (LPCS), low pressure coolant injection (LPCI), and high pressure core spray (HPCS). The equipment involved with each of these systems is described in the Bases for LCO 3.5.2.~~

APPLICABLE  
SAFETY  
ANALYSES, LCO,  
and APPLICABILITY

With the unit in MODE 4 or 5, RPV water inventory control is not required to mitigate any events or accidents evaluated in the safety analyses. RPV water inventory control is required in MODES 4 and 5 to protect Safety Limit 2.1.1.3 and the fuel cladding barrier to prevent the release of radioactive material should a draining event occur.

considered

considered

A double-ended guillotine break of the Reactor Coolant System (RCS) is not ~~postulated~~ in MODES 4 and 5 due to the reduced RCS pressure, reduced piping stresses, and ductile piping systems. Instead, an event is ~~postulated~~ in which a ~~single operator error or~~ initiating event allows draining of the RPV water inventory through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error). It is assumed, based on engineering judgment, that while in MODES 4 and 5, one ECCS injection/spray subsystem can be manually initiated to maintain adequate reactor vessel water level.

an

As discussed in References 1, 2, 3, 4, and 5, operating experience has shown RPV water inventory to be significant to public health and safety. Therefore, RPV Water Inventory Control satisfies Criterion 4 of 10 CFR 50.36(c) (2) (ii).

Permissive and interlock setpoints are generally considered as nominal values without regard to measurement accuracy.

The specific Applicable Safety Analyses, LCO, and Applicability discussions are listed below on a Function by Function basis.

(continued)

BASES

APPLICABLE  
SAFETY  
ANALYSES, LCO,  
and APPLICABILITY  
(continued)

Low Pressure Core Spray and Low Pressure Coolant Injection Systems

~~1.a. 2.a. Reactor Vessel Pressure = low (Injection Permissive)~~

Low reactor vessel pressure signals are used as permissives for the low pressure ECCS subsystems. This ensures that prior to opening the injection valves of the low pressure ECCS subsystems, the reactor pressure has fallen to a value below these subsystems' maximum design pressure. While it is assured during Modes 4 and 5 that the reactor vessel pressure will be below the ECCS maximum design pressure, the Reactor vessel Pressure = low signals are assumed to be operable and capable of permitting initiation of the ECCS.

The Reactor Vessel Pressure = low signals are initiated from four pressure transmitters that sense the reactor dome pressure. The four pressure transmitters each drive ATMS (with a total of eight trip channels).

The Allowable Value is low enough to prevent overpressurizing the equipment in the low pressure ECCS.

Four channels of Reactor Vessel Pressure = low Function per associated ECCS Division are required to be OPERABLE in MODES 4 and 5 when ECCS Manual Operation is required, since these channels support the manual operation of the LPCS and LPCI systems. In addition, the channels are only required when the associated ECCS subsystem is required to be OPERABLE by LCO 3.5.2.

~~1.b. 1.c. 2.b. Low Pressure Coolant Injection and Low Pressure Core Spray Pump Discharge Flow = low (Bypass)~~

The minimum flow instruments are provided to protect the associated low pressure ECCS pump from overheating when the pump is operating and the associated injection valve is not fully open. The minimum flow line valve is opened when low flow is sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump.

One flow transmitter per ECCS pump is used to detect the associated subsystems' flow rates. The logic is arranged such that each transmitter causes its associated minimum flow valve to open. The logic will close the minimum flow valve once the closure setpoint is exceeded. The LPCI minimum flow valves are time delayed such that the valves will not open for 8 seconds after the ATMS detect lowflow. The time delay is provided to limit reactor vessel inventory loss during the startup of the Residual Heat Removal (RHR) shutdown cooling mode (for RHR A and RHR B).

(continued)



BASES

APPLICABLE  
SAFETY  
ANALYSES, LCO,  
and APPLICABILITY  
(continued)

~~The Pump Discharge Flow = Low Allowable Values are high enough to ensure that the pump flow rate is sufficient to protect the pump, yet low enough to ensure that the closure of the minimum flow valve is initiated to allow full flow into the core.~~

~~One channel of the Pump Discharge Flow = Low Function is required to be OPERABLE in MODES 4 and 5 when the associated LPCS or LPCI pump is required to be OPERABLE by LCO 3.5.2 to ensure the pumps are capable of injecting into the Reactor Pressure Vessel when manually initiated.~~

High Pressure Core Spray System

3.a. Reactor Core Isolation Cooling (RCIC) Storage Tank Level = Low

~~Low level in the RCIC Storage Tank indicates the unavailability of an adequate supply of makeup water from this normal source. Normally the suction valves between HPCS and the RCIC Storage Tank are open and water for HPCS injection would be taken from the RCIC Storage Tank. However, if the water level in the RCIC Storage Tank falls below a preselected level, first the suppression pool suction valve automatically opens, and then the RCIC Storage Tank suction valve automatically closes. This ensures that an adequate supply of makeup water is available to the HPCS pump. To prevent losing suction to the pump, the suction valves are interlocked so that the suppression pool suction valve must be open before the RCIC Storage Tank suction valve automatically closes.~~

~~RCIC Storage Tank Level = Low signals are initiated from two level transmitters. The logic is arranged such that either transmitter and associated ATM can cause the suppression pool suction valve to open and the RCIC Storage Tank suction valve to close.~~

~~The RCIC Storage Tank Level = Low Function Allowable Value is high enough to ensure adequate pump suction head while water is being taken from the RCIC Storage Tank.~~

~~Two channels of the RCIC Storage Tank Level = Low Function are only required to be OPERABLE when HPCS is required to be OPERABLE to fulfill the requirements of LCO 3.5.2, HPCS is aligned to the RCIC Storage Tank, and the RCIC Storage Tank water level is not within the limits of SR 3.5.2.3.~~

(continued)

BASES

APPLICABLE  
SAFETY  
ANALYSES, LCO,  
and APPLICABILITY  
(continued)

3.b, 3.c. HPCS Pump Discharge Pressure = High (Bypass) and  
HPCS System Flow Rate = Low (Bypass).

The minimum flow instruments are provided to protect the HPCS pump from overheating when the pump is operating and the associated injection valve is not fully open. The minimum flow line valve is opened when low flow and high pump discharge pressure are sensed, and the valve is automatically closed when the flow rate is adequate to protect the pump or the discharge pressure is low (indicating the HPCS pump is not operating).

One flow transmitter is used to detect the HPCS System's flow rate. The logic is arranged such that the transmitter causes the minimum flow valve to open, provided the HPCS pump discharge pressure, sensed by another transmitter, is high enough (indicating the pump is operating). The logic will close the minimum flow valve once the closure setpoint is exceeded. (The valve will also close upon HPCS pump discharge pressure decreasing below the setpoint.)

The HPCS System Flow Rate = Low and HPCS Pump Discharge Pressure = High Allowable Value is high enough to ensure that pump flow rate is sufficient to protect the pump, yet low enough to ensure that the closure of the minimum flow valve is initiated to allow full flow into the core.

The HPCS Pump Discharge Pressure = High Allowable Value is set high enough to ensure that the valve will not be open when the pump is not operating.

One channel of each Function is required to be OPERABLE when HPCS is required to be OPERABLE by LCO 3.5.2 in MODES 4 and 5.

(continued)

1.a

BASES

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APPLICABLE  
SAFETY  
ANALYSES, LCO,  
and APPLICABILITY  
(continued)

RHR System Isolation

4.a - Reactor Vessel Water Level - Low, Level 3

The definition of DRAIN TIME allows crediting the closing of penetration flow paths that are capable of being automatically isolated by RPV water level isolation instrumentation prior to the RPV water level being equal to the TAF. The Reactor Vessel Water Level - Low, Level 3 Function is only required to be OPERABLE when automatic isolation of the associated RHR penetration flow path is credited in calculating DRAIN TIME.

Reactor Vessel Water Level - Low, Level 3 signals are initiated from four level transmitters (two per trip system) that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. While four channels (two channels per trip system) of the Reactor Vessel Water Level - Low, Level 3 Function are available, only two channels (all in the same trip system) are required to be OPERABLE.

The Reactor Vessel Water Level - Low, Level 3 Allowable Value was chosen to be the same as the RPS Reactor Vessel Water Level - Low, Level 3 Allowable Value (LCO 3.3.1.1), since the capability to cool the fuel may be threatened.

(continued)

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2.a

BASES

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APPLICABLE  
SAFETY  
ANALYSES, LCO,  
and APPLICABILITY  
(continued)

Reactor Water Cleanup (RWCU) System Isolation

5.a - Reactor Vessel Water level - Low Low, Level 2

The definition of DRAIN TIME allows crediting the closing of penetration flow paths that are capable of being automatically isolated by RPV water level isolation instrumentation prior to the RPV water level being equal to the TAF. The Reactor Vessel Water Level - Low Low, Level 2 Function associated with RWCU System isolation may be credited for automatic isolation of penetration flow paths associated with the RWCU System.

Reactor Vessel Water Level - Low Low, Level 2 is initiated from two channels per trip system that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. While four channels (two channels per trip system) of the Reactor Vessel Water Level - Low, Level 2 Function are available, only two channels (all in the same trip system) are required to be OPERABLE.

The Reactor Vessel Water Level - Low Low, Level 2 Allowable Value was chosen to be the same as the ECCS Reactor Vessel Water Level - Low Low, Level 2 Allowable Value (LCO 3.3.5.1), since the capability to cool the fuel may be threatened.

The Reactor Vessel Water Level - Low Low, Level 2 Function is only required to be OPERABLE when automatic isolation of the associated penetration flow path is credited in calculating DRAIN TIME.

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ACTIONS

A Note has been provided to modify the ACTIONS related to RPV Water Inventory Control instrumentation channels. Section 1.3, Completion Times, specifies that once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits will not result in separate entry into the Condition. Section 1.3 also specifies that Required Actions continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for inoperable RPV Water Inventory Control instrumentation channels provide appropriate compensatory measures for separate inoperable Condition entry for each inoperable RPV Water Inventory Control instrumentation channel.

(continued)

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BASES

ACTIONS  
(continued)

A.1

~~Required Action A.1 directs entry into the appropriate Condition referenced in Table 3.3.5.2-1. The applicable Condition referenced in the Table is Function dependent. Each time a channel is discovered inoperable, Condition A is entered for that channel and provides for transfer to the appropriate subsequent Condition.~~

A.1, A.2.1, and A.2.2

~~B.1, B.2.1, and B.2.2~~

RHR System Isolation, Reactor Vessel Water Level - Low Level 3, and Reactor Water Cleanup System, Reactor Vessel Water Level - Low Low, Level 2 functions are applicable when automatic isolation of the associated penetration flow path is credited in calculating Drain Time. If the instrumentation is inoperable, Required Action ~~B.1~~ A.1 directs immediate action to place the channel in trip. With the inoperable channel in the tripped condition, the remaining channel will isolate the penetration flow path on low water level. If both channels are inoperable and placed in trip, the penetration flow path will be isolated. Alternatively, Required Action ~~B.2.1~~ A.2.1 ~~requires~~ that the associated penetration flow path(s) to be immediately declared incapable of automatic isolation. Required Action ~~B.2.2~~ A.2.2 directs initiating action to calculate DRAIN TIME. The calculation cannot credit automatic isolation of the affected penetration flow path(s).

C.1

~~Low reactor vessel pressure signals are used as permissives for the low pressure ECCS injection/spray subsystem manual initiation functions. If this permissive is inoperable, manual initiation of ECCS is prohibited. Therefore, the permissive must be placed in the trip condition within 1 hour. With the permissive in the trip condition, manual initiation may be performed. Prior to placing the permissive in the tripped condition, the operator can take manual control of the pump and the injection valve to inject water into the RPV.~~

~~The Completion Time of 1 hour is intended to allow the operator time to evaluate any discovered inoperabilities and to place the channel in trip.~~

(continued)

BASES

ACTIONS  
(continued)

D.1 and D.2

Required Actions D.1 and D.2 are intended to ensure that appropriate actions are taken if multiple, inoperable channels within the same Function result in a loss of automatic suction swap for the HPCS system from the RCIC storage tank to the suppression pool. The HPCS system must be declared inoperable within 1 hour or the HPCS pump suction must be aligned to the suppression pool, since, if aligned, the function is already performed.

The 1 hour Completion Time is acceptable because it minimizes the risk of HPCS being needed without an adequate water source while allowing time for restoration or alignment of HPCS pump suction to the suppression pool.

E.1

If an LPCI or LPCS Discharge Flow = Low bypass function or HPCS System Discharge Pressure = High or Flow Rate = Low bypass function is inoperable, there is a risk that the associated ECCS pump could overheat when the pump is operating and the associated injection valve is not fully open. In this condition, the operator can take manual control of the pump and the injection valve to ensure the pump does not overheat.

The 24 hour Completion Time was chosen to allow time for the operator to evaluate and repair any discovered inoperabilities prior to declaring the affected subsystem inoperable. The Completion Time is appropriate given the ability to manually start the ECCS pumps and open the injection valves as necessary to ensure the affected pump does not overheat.

F.1

With the Required Action and associated Completion Time of Conditions C, D, or E not met, the associated ECCS injection/spray subsystem may be incapable of performing the intended function, and must be declared inoperable immediately.

(continued)

BASES (continued)

The following SRs apply to

SURVEILLANCE  
REQUIREMENTS

~~As noted in the beginning of the SRs, the SRs for each RPV Water Inventory Control instrument Function are found in the SRs column of Table 3.3.5.2-1.~~

SR 3.3.5.2.1

Performance of the CHANNEL CHECK ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK guarantees that undetected outright channel failure is limited; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL FUNCTIONAL TEST.

Agreement criteria are determined by the plant staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

(continued)

BASES

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ACTIONS  
(continued)

K.1 and K.2

If the channel is not restored to OPERABLE status or placed in trip, or any Required Action of Condition I or J is not met and the associated Completion Time has expired, the plant must be placed in a MODE or other specified condition in which the LCO does not apply. This is done by placing the plant in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

L.1 and L.2

If the channel is not restored to OPERABLE status within the allowed Completion Time, the associated SLC subsystem(s) is declared inoperable or the RWCU System is isolated. Since this Function is required to ensure that the SLC System performs its intended function, sufficient remedial measures are provided by declaring the associated SLC subsystem inoperable or isolating the RWCU System.

The Completion Time of 1 hour is acceptable because it minimizes risk while allowing sufficient time for personnel to isolate the RWCU System. RWCU isolation is achieved by closing 1G33F001 or 1G33F004, which are the containment isolation valves associated with this isolation function.

M.1, M.2, M.3.1, M.3.2, M.3.3, and M.3.4

If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated penetration flow path should be isolated (i.e., closing either 1E12-F008 or 1E12-F009). However, if the shutdown cooling function is needed to provide core cooling, these Required Actions allow the penetration flow path to remain unisolated provided action is immediately initiated to restore the channel to OPERABLE status ~~or to provide means for control of potential radioactive releases. This includes ensuring secondary containment is OPERABLE; at least one Standby Gas Treatment (SGT) subsystem is OPERABLE; and secondary containment isolation capability (i.e., at least one isolation valve and associated instrumentation are OPERABLE or other acceptable administrative controls to assure isolation capability) in each secondary containment and secondary containment bypass penetration flow path not isolated that is assumed to be isolated to mitigate~~

(continued)

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BASES

ACTIONS

~~M.1, M.2, M.3.1, M.3.2, M.3.3, and M.3.4~~ (continued)

~~radioactivity releases. This may be performed as an administrative check, by examining logs or other information, to determine if the components are out of service for maintenance or other reasons. It is not necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the components. If, however, any required component is inoperable, then it must be restored to OPERABLE status. In this case, the Surveillances may need to be performed to restore the component to OPERABLE status. In addition, at least one door in the upper containment personnel air lock must be closed. The closed air lock door completes the boundary for control of potential radioactive releases. With the appropriate administrative controls however, the closed door can be opened intermittently for entry and exit. This allowance is acceptable due to the need for containment access and due to the slow progression of events which may result from a reactor vessel draindown event. Reactor vessel draindown events would not be expected to result in the immediate release of appreciable fission products to the containment atmosphere. Actions must continue until all requirements of this Condition are satisfied.~~

the channel is restored to OPERABLE status.

~~N.1, N.2.1, and N.2.2~~

~~If the channel is not restored to OPERABLE status or placed in trip within the allowed Completion Time, the associated penetration flow path(s) should be isolated (Required Action N.1). Isolating the affected penetration flow path(s) accomplishes the safety function of the inoperable instrumentation. Alternately, the plant must be placed in a condition in which the LCO does not apply. If applicable, movement of recently irradiated fuel assemblies (i.e., fuel that has occupied part of a critical reactor core within the previous 24 hours) must be immediately suspended. Suspension of these activities shall not preclude completion of movement of a component to a safe condition.~~

(continued)

BASES

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY 1.a, 1.b, 2.a, 2.b. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage) (continued)  
The Division 3 4.16 kV Emergency Bus Loss of Voltage Function 120-volt Basis trip setpoint is  $\geq 67$  volts and  $\leq 78$  volts.

Six channels of 4.16 kV Emergency Bus Undervoltage (Loss of Voltage) Function per associated emergency bus for Divisions 1 and 2 and four channels for Division 3 are only required to be OPERABLE when the associated DG is required to be OPERABLE to ensure that no single instrument failure can preclude the DG function. (Six channels input to each of the Division 1 and Division 2 DGs and four channels input to the Division 3 DG. Each of the six channels for Division 1 and six channels for Division 2 is an inverse time delay relay. Each of these time delays are considered to be separate channels. For Division 3, the Loss of Voltage Function logic inputs to a single time delay relay. Thus, only one time delay channel is associated with Division 3.) Refer to LCO 3.8.1, "~~AC Sources-Operating,~~" and LCO 3.8.2, "~~AC Sources-Shutdown,~~" for Applicability Bases for the DGs.

1.c, 1.d, 1.e, 2.c, 2.d, 2.e. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)

A reduced voltage condition on a 4.16 kV emergency bus indicates that while offsite power may not be completely lost to the respective emergency bus, power may be insufficient for starting large motors without risking damage to the motors that could disable the ECCS function. Therefore, power supply to the bus is transferred from offsite power to onsite DG power when the voltage on the bus drops below the Degraded Voltage Function Allowable Values (degraded voltage with a time delay). This ensures that adequate power will be available to the required equipment.

The Bus Undervoltage Allowable Values are low enough to prevent inadvertent power supply transfer, but high enough to ensure that sufficient power is available to the required equipment. As stated above, the purpose of this instrumentation is to ensure that sufficient power will be available to support the ECCS function during a LOCA. During a LOCA, the ECCS and other safety systems will be initiated at the start of the event. This large loading of the safety buses results in a voltage transient of

(continued)

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BASES

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ACTIONS  
(continued)

B.1

If any Required Action and associated Completion Time is not met, the associated Function may not be capable of performing the intended function. Therefore, the associated DG(s) are declared inoperable immediately. This requires entry into applicable Conditions and Required Actions of LCO 3.8.1 and ~~LCO 3.8.2~~, which provide appropriate actions for the inoperable DG(s).

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SURVEILLANCE  
REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each LOP Instrumentation Function are located in the SRs column of Table 3.3.8.1-1.

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 2 hours provided the associated Function maintains DG initiation capability. Upon completion of the Surveillance, or expiration of the 2 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken.

SR 3.3.8.1.1

This SR has been deleted.

SR 3.3.8.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. For series Functions, i.e., for the degraded voltage relays in series with their associated delay timers, a separate CHANNEL FUNCTIONAL TEST is not required for each Function, provided each Function is tested. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)

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BASES

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SURVEILLANCE  
REQUIREMENTS  
(continued)

SR 3.3.8.1.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.3.8.1.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel. The system functional testing performed in LCO 3.8.1 and ~~LCO 3.8.2~~ overlaps this Surveillance to provide complete testing of the assumed safety functions.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

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REFERENCES

1. USAR, Section 8.3.1.1.2.
  2. USAR, Section 5.2.2.
  3. USAR, Section 6.3.3.
  4. USAR, Chapter 15.
  5. IP Calculation 19-AN-19.
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B 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS), REACTOR PRESSURE VESSEL (RPV) WATER INVENTORY CONTROL, AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

B 3.5.2 RPV Water Inventory Control

BASES

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BACKGROUND The RPV contains penetrations below the top of the active fuel (TAF) that have the potential to drain the reactor coolant inventory to below the TAF. If the water level should drop below the TAF, the ability to remove decay heat is reduced, which could lead to elevated cladding temperatures and clad perforation. Safety Limit 2.1.1.3 requires the RPV water level to be above the top of the active irradiated fuel at all times to prevent such elevated cladding temperatures.

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APPLICABLE SAFETY ANALYSES With the unit in MODE 4 or 5, RPV water inventory control is not required to mitigate any events or accidents evaluated in the safety analyses. RPV water inventory control is required in MODES 4 and 5 to protect Safety Limit 2.1.1.3 and the fuel cladding barrier to prevent the release of radioactive material to the environment should an unexpected draining event occur.

considered

an

an event that creates a drain path through multiple vessel penetrations located below top of active fuel, such as

or

A double-ended guillotine break of the Reactor Coolant System (RCS) is not ~~postulated~~ in MODES 4 and 5 due to the reduced RCS pressure, reduced piping stresses, and ductile piping systems. Instead, an event is considered in which ~~single operator error or~~ initiating event allows draining of the RPV water inventory through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., ~~seismic event,~~ loss of normal power, single human error). It is assumed, based on engineering judgment, that while in MODES 4 and 5, one low pressure ECCS injection/spray subsystem can maintain adequate reactor vessel water level.

As discussed in References 1, 2, 3, 4, and 5, operating experience has shown RPV water inventory to be significant to public health and safety. Therefore, RPV Water Inventory Control satisfies Criterion 4 of 10 CFR 50.36(c) (2) (ii).

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LCO The RPV water level must be controlled in MODES 4 and 5 to ensure that if an unexpected draining event should occur, the reactor coolant water level remains above the top of the active irradiated fuel as required by Safety Limit 2.1.1.3.

The Limiting Condition for Operation (LCO) requires the DRAIN TIME of RPV water inventory to the TAF to be  $\geq 36$  hours. A DRAIN TIME of 36 hours is considered reasonable to

(continued)

BASES

LCO  
(continued)

identify and initiate action to mitigate unexpected draining of reactor coolant. An event that could cause loss of RPV water inventory and result in the RPV water level reaching the TAF in greater than 36 hours does not represent a significant challenge to Safety Limit 2.1.1.3 and can be managed as part of normal plant operation.

aligned and

from the control room

**OPERABILITY of the ECCS injection/spray subsystem includes any necessary valves, instrumentation, or controls needed to manually align and start the subsystem from the control room.**

One ECCS injection/spray subsystem is required to be OPERABLE and capable of being manually started to provide defense-in-depth should an unexpected draining event occur. An ECCS injection/spray subsystem is defined as either one of the three Low Pressure Coolant Injection (LPCI) subsystems, one Low Pressure Core Spray (LPCS) System, or one High Pressure Core Spray (HPCS) System. The LPCI subsystem and the LPCS System consist of one motor driven pump, piping, and valves to transfer water from the suppression pool to the reactor pressure vessel (RPV). The HPCS System consists of one motor driven pump, piping, and valves to transfer water from the suppression pool or RCIC storage tank to the RPV. Management of gas voids is important to ECCS injection/spray subsystem OPERABILITY.

The LCO is modified by a Note that allows a LPCI subsystem to be inoperable during alignment and operation for decay heat removal with reactor steam dome pressure less than the residual heat removal cut-in permissive pressure. This is necessary since the RHR system is required to operate in the shutdown cooling mode to remove decay heat and sensible heat from the reactor, and manual realignment from the shutdown cooling mode to the LPCI mode could result in pump cavitation and voiding in the suction piping, resulting in the potential to damage the RHR system, including water hammer. One LPCI subsystem is allowed to be considered inoperable for this temporary period, because in shutdown cooling mode it is fulfilling a decay heat removal capacity function. At these low pressures and decay heat levels, a reduced complement of ECCS subsystems should provide the required core cooling, thereby allowing operation of RHR shutdown cooling when necessary. Because of the restrictions on DRAIN TIME, sufficient time will be available following an unexpected draining event to manually align and operate the required LPCI subsystem to maintain RPV water inventory prior to the RPV water level reaching the TAF.

(continued)

BASES (continued)

"Instrumentation,"

APPLICABILITY

"ECCS, RPV Water Inventory Control, and RCIC System."

RPV water inventory control is required in MODES 4 and 5. Requirements on water inventory control in other MODES are contained in LCOs in Section 3.3, ~~Instrumentation,~~ and other LCOs in Section 3.5, ~~ECCS, RCIC, and RPV Water Inventory Control.~~ RPV water inventory control is required to protect Safety Limit 2.1.1.3 which is applicable whenever irradiated fuel is in the reactor vessel.

ACTIONS

A.1 and B.1

If the required ECCS injection/spray subsystem is inoperable, it must be restored to OPERABLE status within 4 hours. In this Condition, the LCO controls on DRAIN TIME minimize the possibility that an unexpected draining event could necessitate the use of the ECCS injection/spray subsystem, however the defense-in-depth provided by the ECCS injection/spray subsystem is lost. The 4 hour Completion Time for restoring the required ECCS injection/spray subsystem to OPERABLE status is based on engineering judgment that considers the LCO controls on DRAIN TIME and the low probability of a an unexpected draining event that would result in a loss of RPV water inventory.

If the inoperable ECCS injection/spray subsystem is not restored to OPERABLE status within the required Completion Time, action must be initiated immediately to establish a method of water injection capable of operating without offsite electrical power. The method of water injection includes the necessary instrumentation and controls, water sources, and pumps and valves needed to add water to the RPV or refueling cavity should an unexpected draining event occur. The method of water injection may be manually operated and may consist of one or more systems or subsystems, and must be able to access water inventory capable of maintaining the RPV water level above the TAF for  $\geq 36$  hours. If recirculation of injected water would occur, it may be credited in determining the necessary water volume.

(continued)

BASES

ACTIONS

D.1, D.2, D.3, and D.4 (continued)

operated and may consist of one or more additional method of water injection must be able to access water inventory capable of being injected to maintain the RPV water level above the TAF for  $\geq 36$  hours. The additional method of water injection and the ECCS injection/spray subsystem may share all or part of the same water sources. If recirculation of injected water would occur, it may be credited in determining the required water volume.

Should a draining event lower the reactor coolant level to below the TAF, there is potential for damage to the reactor fuel cladding and release of radioactive material. Additional actions are taken to ensure that radioactive material will be contained, diluted, and processed prior to being released to the environment.

The secondary containment provides a control volume into which fission products can be contained, diluted, and processed prior to release to the environment. Required Action D.2 requires that actions be immediately initiated to establish the secondary containment boundary. With the secondary containment boundary established, one SGT subsystem is capable of maintaining a negative pressure in the secondary containment with respect to the environment.

The secondary containment penetrations form a **automatically or** secondary containment boundary. Required Action D.3 requires that actions be immediately initiated to verify that each secondary containment penetration flow path is isolated or to verify that it can be manually isolated from the control room. Examples of manual isolation from the control room could include the use of manual isolation pushbuttons, control switches, or placing a sufficient number of radiation monitor channels in trip. A secondary containment penetration flow path can be considered isolated when one barrier in the flow path is in place. Examples of suitable barriers include, but are not limited to, a closed secondary containment isolation damper (SCID), a closed manual valve, a blind flange, or another sealing device that sufficiently seals the penetration flow path. The primary containment upper personnel airlock and other primary containment penetrations that bypass secondary containment are considered part of the secondary containment boundary; therefore, they must be considered when completing this action.

One SGT subsystem is capable of maintaining the secondary containment at a negative pressure with respect to the environment and filter gaseous releases. Required Action D.4 requires that actions be immediately initiated to verify that at least one SGT subsystem is capable of being placed in operation. The required verification is an administrative activity and does not require manipulation or testing of equipment.

(continued)

Required Actions D.2, D.3, and D.4 are considered to be met when secondary containment, secondary containment penetrations, and the Standby Gas Treatment System are OPERABLE in accordance with LCO 3.6.4.1, LCO 3.6.4.2, and LCO 3.6.4.3.



BASES

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ACTIONS  
(continued)

E.1

If the Required Actions and associated Completion times of Conditions C or D are not met or if the DRAIN TIME is less than 1 hour, actions must be initiated immediately to restore the DRAIN TIME to  $\geq 36$  hours. In this condition, there may be insufficient time to respond to an unexpected draining event to prevent the RPV water inventory from reaching the TAF. Note that Required Actions D.1, D.2, D.3, and D.4 are also applicable when DRAIN TIME is less than 1 hour.

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SURVEILLANCE  
REQUIREMENTS

SR 3.5.2.1

This Surveillance verifies that the DRAIN TIME of RPV water inventory to the TAF is  $\geq 36$  hours. The period of 36 hours is considered reasonable to identify and initiate action to mitigate draining of reactor coolant. Loss of RPV water inventory that would result in the RPV water level reaching the TAF in greater than 36 hours does not represent a significant challenge to Safety Limit 2.1.1.3 and can be managed as part of normal plant operation.

The definition of DRAIN TIME states that realistic cross-sectional areas and drain rates are used in the calculation. A realistic drain rate may be determined using a single, step-wise, or integrated calculation considering the changing RPV water level during a draining event. For a Control Rod RPV penetration flow path with the Control Rod Drive Mechanism removed and not replaced with a blank flange, the realistic cross-sectional area is based on the control rod blade seated in the control rod guide tube. If the control rod blade will be raised from the penetration to adjust or verify seating of the blade, the exposed cross-sectional area of the RPV penetration flow path is used.


The definition of DRAIN TIME excludes from the calculation those penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are ~~locked, sealed, or otherwise secured in the closed position,~~ blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths. A blank flange or other bolted device must be connected with a sufficient number of bolts to prevent draining ~~in the event of an Operating Basis Earthquake.~~ Normal or expected leakage from closed systems or past isolation devices is permitted. Determination that a system is intact and closed or isolated must consider the status of branch lines ~~and ongoing plant maintenance and testing activities.~~

The Residual Heat Removal (RHR) Shutdown Cooling System is only considered an intact closed system when misalignment

(continued)

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closed and  
administratively  
controlled



BASES

SURVEILLANCE  
REQUIREMENTS

SR 3.5.2.1 (continued)

issues (Reference 6) have been precluded by functional valve interlocks or by isolation devices, such that redirection of RPV water out of an RHR, RHR Shutdown Cooling System, or other closed system if its control system fails to initiate Remote Shutdown, which is initiated by isolation signals.

path, or multiple penetration flow paths susceptible to a common mode failure,

a single should

temporary alterations in support of maintenance

If reasonable controls are implemented to prevent

temporary alterations from causing

The exclusion of penetration flow paths from the determination of DRAIN TIME must consider the potential effects of a single operator error or initiating event on items supporting maintenance and testing (rigging, scaffolding, temporary shielding, piping plugs, snubber removal, freeze seals, etc.). If failure of such items could result and would cause a draining event from a closed system or between the RPV and the isolation device, the penetration flow path may not be excluded from the DRAIN TIME calculation.

Surveillance Requirement 3.0.1 requires SRs to be met between performances. Therefore, any changes in plant conditions that would change the DRAIN TIME requires that a new DRAIN TIME be determined.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.5.2.2 and SR 3.5.2.3

The minimum water level of 12 ft 8 inches required for the suppression pool is periodically verified to ensure that the suppression pool will provide adequate net positive suction head (NPSH) for the ECCS pump, recirculation volume, and vortex prevention. With the suppression pool water level less than the required limit, the required ECCS injection/spray subsystem is inoperable unless it is aligned to an OPERABLE RCIC storage tank.

With regard to suppression pool water level values obtained pursuant to this SR, as read from plant indication instrumentation, the specified limit is not considered to be a nominal value with respect to instrument uncertainties. This requires additional margin to be added to the limit to compensate for instrument uncertainties, for implementation in the associated plant procedures (Ref. 2).

When the suppression pool level is < 12 ft 8 inches, the HPCS System is considered OPERABLE only if it can take suction from the RCIC storage tank and the RCIC storage tank

(continued)

the effect of the temporary alterations on DRAIN TIME need not be considered. Reasonable controls include, but are not limited to controls consistent with the guidance in NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 4, NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," or commitments to NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants."

BASES

the ability to manually start a

LCO  
(continued)

ensures

electrical power support, assuming a loss of the offsite circuit. Similarly, when the high pressure core spray (HPCS) is required to be OPERABLE, a separate offsite circuit to the Division 3 Class 1E onsite electrical power distribution subsystem, or an OPERABLE Division 3 DG, ensure an additional source of power for the HPCS. Together, OPERABILITY of the required offsite circuit(s) and DG(s) ensure the availability of sufficient AC sources to operate the plant in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents).

The qualified offsite circuit(s) must be capable of maintaining rated frequency and voltage while connected to their respective ESF bus(es), and accepting required loads during an accident. Qualified offsite circuits are those that are described in the USAR and are part of the licensing basis for the plant. The offsite circuit consists of incoming breaker and disconnect to the respective reserve auxiliary transformer (RAT) or emergency reserve auxiliary transformer (ERAT), and the respective circuit path including feeder breakers to all 4.16 kV ESF buses required by LCO 3.8.10. In addition, an onsite, permanently installed static VAR compensator (SVC) is available for connection to the offsite circuits to support required voltage for the ESF busses. Connection of the SVC to the offsite circuit is via circuit breakers to the secondary side of the RAT and/or ERAT.

Connection and operation of the SVC(s) is dictated by the existing need for voltage support of the offsite electrical power source(s) based on prevailing grid conditions. Thus, OPERABILITY of the offsite electrical power source(s) is normally supported by, but is not necessarily dependent on, connection and operation of the SVC(s). The resultant impact on OPERABILITY of the offsite electrical source(s) from disconnecting the SVC(s) from the offsite circuit(s) can be determined by analysis based on use of an established model of the offsite transmission network and existing grid conditions, including available generating sources, which can be updated on a daily or more frequent basis. The model provides the capability to predict or determine what the onsite voltages would be at the RAT and/or ERAT (while connected to the offsite electrical sources) under maximum postulated load conditions.

(continued)

BASES

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being manually  
started



LCO  
(continued)

The required DG must be capable of ~~starting~~, accelerating to rated speed and voltage, and connecting to its respective ESF bus ~~on detection of bus undervoltage~~, and accepting required loads. ~~This sequence must be accomplished within 12 seconds. Each DG must also be capable of accepting required loads within the assumed loading sequence intervals, and must continue to operate until offsite power can be restored to the ESF buses. These capabilities are required to be met from a variety of initial conditions such as: DG in standby with the engine hot and DG in standby with the engine at ambient conditions. Additional DG capabilities must be demonstrated to meet required Surveillances, e.g., capability of the DG to revert to standby status on an ECCS signal while operating in parallel test mode.~~

~~Proper sequencing of loads, including tripping of nonessential loads, is a required function for DG OPERABILITY.~~

It is acceptable for divisions to be cross tied during shutdown conditions, permitting a single offsite power circuit to supply all required AC electrical power distribution subsystems. No fast transfer capability is required for offsite circuits to be considered OPERABLE for this LCO.

As described in Applicable Safety Analyses, in the event of an accident during shutdown, the TS are designed to maintain the plant in a condition such that, ~~even with a single failure~~, the plant will not be in immediate difficulty.

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APPLICABILITY

The AC sources required to be OPERABLE in MODES 4 and 5 and during movement of irradiated fuel assemblies in the primary or secondary containment provide assurance that:

- a. Systems that provide core cooling are available;
- b. Systems needed to mitigate a fuel handling accident are available;

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BASES

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ACTIONS

C.1 (continued)

additional required AC source is inoperable, and power is still supplied to HPCS, 72 hours is allowed to restore the additional required AC source to OPERABLE. This is reasonable considering HPCS will still perform its function, absent an additional single failure.

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SURVEILLANCE  
REQUIREMENTS

SR 3.8.2.1

SR 3.8.1.7, SR 3.8.1.11, SR 3.8.1.12, SR 3.8.1.13, SR 3.8.1.15, SR 3.8.1.18, and SR 3.8.1.19 are not required to be met because DG start and load within a specified time and response on an offsite power or ECCS initiation signal is not required.

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, and 3. SR 3.8.1.8 is not required to be met since only one offsite circuit is required to be OPERABLE. In MODES 4 and 5 ECCS injection/spray subsystems are manually controlled in accordance with LCO 3.5.2, "Reactor Pressure Vessel (RPV) Water Inventory Control." No ECCS initiation signals are credited for initiation of these subsystems. Adequate time is available to manually start and load DGs from the Main Control Room in support of RPV inventory control, if required. Therefore, SR 3.8.1.12 and SR 3.8.1.19, which verify the DG's capability to start automatically on actual or simulated ECCS initiation signals, are not required to be met in MODES 4 and 5. SR 3.8.1.17 is not required to be met because the required OPERABLE DG(s) is not required to undergo periods of being synchronized to the offsite circuit. SR 3.8.1.20 is excepted because starting independence is not required with the DG(s) that is not required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR.

which precludes

This SR is modified by a Note. ~~The reason for the Note is to preclude~~ requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during the performance of SRs, and preclude de-energizing a required 4.16 kV ESF bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required for any DG or offsite circuit.

REFERENCES

None.

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