Entergy Nuclear Northeast
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249
Tel 914 254 6700

John A Ventosa
Site Vice President
Administration

NL-13-119

October 11, 2013

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

SUBJECT: Response to Request for Additional Information Regarding License Amendment To Adopt TSTF-432-A, Rev 1, "Change in Technical Specifications End States WCAP-16294" (TAC NOS. MF1898 AND MF1899)
Indian Point Unit Numbers 2 & 3
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

REFERENCES:
1. NRC Letter to Entergy, Request for Additional Information Regarding License Amendment To Adopt TSTF-432-A, Rev 1, "Change in Technical Specifications End States WCAP-16294" (TAC NOS. MF1898 AND MF1899), dated August 13, 2013
2. Entergy Letter NL-13-078 to NRC, Proposed License Amendment Regarding Technical Change Traveler TSTF-432-A Revision 1, dated May 23, 2013

Dear Sir or Madam:

Entergy Nuclear Operations, Inc (Entergy) is hereby providing the attached response to the NRC request for additional information, Reference 1, associated with the proposed changes to the Indian Point 2 & 3 Technical Specifications in Reference 2. In response to the RAIs, Entergy is proposing a change to the IP2 and IP3 TS 3.5.3 as submitted in Reference 2. The previously proposed IP2 TS 3.5.3 is being retained with the exception that Condition A is changed to refer to the "Required ECCS subsystem" rather than "train" for consistency with the LCO (the required action is similarly changed). For consistency with the Standard TS 3.5.3 of TSTF-432-A, Rev 1 and IP2, Entergy is proposing to revise IP3 TS 3.5.3 to make it identical to the above described IP2

A001
NRR

TS 3.5.3. The responses to the request for additional information are in Attachment 1 and the proposed Technical Specification 3.5.3 changes are provided in Attachment 2. The proposed changes for the associated Bases changes are provided in Attachment 3.

A copy of this response is being submitted to the designated New York State official in accordance with 10 CFR 50.91.

There are no new commitments being made in this submittal. If you have any questions or require additional information, please contact Mr. Robert Walpole, Manager, Licensing at (914) 254-6710.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 11, 2013.

Sincerely,

JAV/ai

Attachments:
1. Response to Request for Additional Information Regarding License Amendment to Adopt TSTF-432-A, Rev1, "Change in Technical Specifications End States WCAP-16294"
2. Markup of Technical Specification 3.5.3 Pages for Proposed Changes Regarding Traveler TSTF-432-A, Rev1
3. Markup of Technical Specification 3.5.3 Bases Pages Associated with the Proposed Changes Regarding Traveler TSTF-432-A, Rev1

cc: Mr. Douglas Pickett, Senior Project Manager, NRC NRR DORL
Mr. William Dean, Regional Administrator, NRC Region 1
NRC Resident Inspector's Office
Mr. Francis J. Murray, Jr., President and CEO, NYSERDA
Ms. Bridget Frymire, New York State Dept. of Public Service

ATTACHMENT 1 TO NL-13-119

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

REGARDING LICENSE AMENDMENT TO ADOPT TSTF-432-A, REV1,

"CHANGE IN TECHNICAL SPECIFICATIONS END STATES WCAP-16294"

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 & 3
DOCKET NOS. 50-247 & 50-286

Response To Request For Additional Information

By letter dated May 23, 2013, Entergy Nuclear Operations, Inc., (Entergy), submitted a license amendment request for Indian Point Nuclear Generating Unit Numbers 2 (IP2) and 3 (IP3) Technical Specification changes regarding selected required action end states. The Technical Specification changes would permit an end state of Mode 4 rather than an end state of Mode 5 contained in the current TS. By letter of August 13, 2013 the Nuclear Regulatory Commission requested additional information on that request. That request and the responses are addressed below.

Request for Additional Information #1

Other than the ECCS injection points, IP2's UFSAR and IP3's UFSAR essentially read the same for the ECCS. Explain why the limiting conditions for operation are different between IP2 TS 3.5.3 and IP3 TS 3.5.3.

Response to Request for Additional Information #1

The difference in limiting conditions for operation between IP2 TS 3.5.3 and IP3 TS 3.5.3 is a result of the conversion from Custom Technical Specifications (CTS) to Improved Technical Specifications (ITS) as explained below.

IP3 ITS

At the time of the ITS amendment request the CTS had a requirement for ECCS operability in Mode 4 requiring one ECCS Residual Heat Removal (RHR) subsystem and one ECCS recirculation subsystem to be Operable. There was no requirement in CTS for High Head Safety Injection (HHSI) operability. The ITS amendment proposed to establish Mode 4 requirements consistent with existing licensing basis, the CTS requirements. Amendment No. 205 (COR-05-01088, February 27, 2001, ML010300411) approved the conversion from CTS to ITS. The NRC Safety Evaluation Report (SER) acknowledged that it is acceptable for the ITS to differ from the Standard Technical Specifications (STS) (NUREG-1431) in order to reflect the CTS requirements for IP3.

IP2 ITS

The IP2 ITS amendment request was subsequent to IP3. In contrast to the IP3 CTS the IP2 CTS had no requirement for ECCS operability in Mode 4. The original amendment request proposed to establish Mode 4 requirements consistent with those already approved for IP3 (i.e. one ECCS RHR subsystem and one ECCS recirculation subsystem) rather than adopt the NUREG-1431. Following NRC request for additional information (RAI), a Supplement to the LAR established the requirement for one ECCS HHSI subsystem and one ECCS RHR subsystem to be Operable in Mode 4 consistent with NUREG-1431. This requirement was later amended to two ECCS HHSI subsystems and one ECCS RHR subsystem. Amendment No. 238 (COR-04-00270, November 21, 2003, ML033160528) approved the conversion from CTS to ITS.

Request for Additional Information #2

Explain how the TR-WCAP-16294 quantitative risk evaluation for TS 3.5.3 applies to both IP2 and IP3.

Response to Request for Additional Information #2

As noted in the RAI#1 response, IP2 TS 3.5.3 was made consistent with STS 3.5.3, recognizing differences in configuration. The STS refers to a two train ECCS, where each train includes a high pressure and low pressure subsystem. The STS centrifugal charging pumps are used for high pressure safety injection and the RHR pumps and heat exchangers are used for low pressure safety injection. The Indian Point ECCS consists of the HHSI subsystem (which are not as high pressure as the STS centrifugal charging pumps) and the RHR pumps (low head) and heat exchangers.

For adapting TSTF-432 to TS 3.5.3, the previously proposed IP2 TS 3.5.3, which requires one RHR subsystem and two HHSI subsystems is being retained with the exception that Condition A is changed to refer to the "Required ECCS subsystem" rather than "train" for consistency with the LCO (the required action is similarly changed). For consistency with the STS and IP2, Entergy is proposing to revise the IP3 TS 3.5.3 to make it identical to the above described IP2 TS 3.5.3. The IP2 TS limiting condition was based on generic Westinghouse analysis performed in Reference 1 that is also valid for IP3. Since this change is consistent with STS 3.5.3 TSTF-432, the No Significant Hazards Consideration of Reference 1 remains valid. The IP2 and IP3 proposed TS 3.5.3 changes of Reference 2 should be replaced by Attachment 2, herein, and the proposed TS 3.5.3 Bases change of Reference 2 should be replaced by Attachment 3, herein.

With the above proposed changes, the TR-WCAP-16294 quantitative risk evaluation for TS 3.5.3 applies to both IP2 and IP3. WCAP-16294 discusses plant designs that include separate low pressure safety injection pumps and RHR pumps (such as IP2 and IP3). While not specifically modeled in the PRA, the WCAP concluded that this would result in lower risk for both plant operating states, and there would be no change in the WCAP conclusions (Section 6.3.1). Further, the TS change being implemented is the change to the end state, for which the WCAP quantification remains valid. Section 6.3.2 of WCAP-16294 states: "There is an increase in CDP with the additional transition required to achieve Mode 5 as opposed to Mode 4. This is related to the risk associated with the transition from SG cooling to the shutdown (RHR) cooling and operator actions being required to initiate event mitigation equipment. The key initiating event is the loss of RHR cooling with operator failure to establish alternate cooling."

References

1. WCAP-12476 Rev 1, Evaluation of LOCA During Mode 3 and Mode 4 Operation for Westinghouse NSSS, November 2000.

2. Entergy Letter NL-13-078 to NRC, Proposed License Amendment Regarding Technical Change Traveler TSTF-432-A Revision 1, dated May 23, 2013.

ATTACHMENT 2 TO NL-13-119

Markup of Technical Specification 3.5.3 Pages for

Proposed Changes Regarding Traveler TSTF-432-A, Rev1

Text changes indicated by lineout for deletion and Bold/Italics for additions

Unit 2 Affected Page 3.5.3-1

Unit 3 Affected Page 3.5.3-1

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 & 3
DOCKET NOS. 50-247 & 50-286

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 Two ECCS High Head Safety Injection (HHSI) subsystems and one ECCS Residual Heat Removal (RHR) subsystem shall be OPERABLE.

- NOTE -
An RHR subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned to the ECCS mode of operation.

APPLICABILITY: MODE 4.

ACTIONS

- NOTE -
LCO 3.0.4.b is not applicable to ECCS High Head Safety Injection subsystems.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS ~~RHR~~ subsystem inoperable.	A.1 ***--------- NOTE ---------- LCO 3.0.4.a is not applicable when entering MODE 4.*** ---------- Initiate action to restore required ECCS ~~RHR~~ subsystem to OPERABLE status.	Immediately
~~B. One required ECCS HHSI subsystem inoperable.~~	~~B.1 Restore required ECCS HHSI subsystem to OPERABLE status.~~	~~48 hours~~
~~C. Two required ECCS HHSI subsystems inoperable.~~	~~C.1 Restore one required ECCS HHSI subsystem to OPERABLE status.~~	~~1 hour~~
~~D. Required Action and associated Completion Time of Condition B or C not met.~~	~~D.1 Be in MODE 5.~~	~~24 hours~~

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS-Shutdown

LCO 3.5.3 ~~One~~***Two*** ECCS ***High Head Safety Injection (HHSI) subsystems and one ECCS R~~r~~***Residual H~~h~~***eat ***R~~r~~***emoval (RHR) subsystem ~~and one ECCS recirculation subsystem~~ shall be OPERABLE.

---NOTE---
An RHR ~~train~~ ***subsystem*** may be considered OPERABLE during alignment and operation for decay heat removal~~, and during valve,~~ if capable of being manually realigned to the ECCS mode of operation.

APPLICABILITY: MODE 4.

ACTIONS

---NOTE---
LCO 3.0.4.b is not applicable to the ECCS ***High Head Safety Injection subsystems*** ~~residual heat removal and ECCS recirculation subsystems~~.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS ~~residual heat removal (RHR)~~ subsystem inoperable.	A.1 ***----- NOTE ------- LCO 3.0.4.a is not applicable when entering MODE 4. ----------*** Initiate action to restore required ECCS ~~RHR~~ subsystem to OPERABLE status.	Immediately
~~B. Required ECCS Recirculation subsystem inoperable.~~	~~B.1 Restore required ECCS recirculation subsystem to OPERABLE status.~~	~~1 hour~~
~~C. Required Action and associated Completion Time of Condition B not met.~~	~~C.1 Be in MODE 5.~~	~~24 hours~~

ATTACHMENT 3 TO NL-13-119

Markup of Technical Specification 3.5.3 Bases Pages

Associated with the Proposed Changes Regarding

Traveler TSTF-432-A, Rev1

Text changes indicated by lineout for deletion and Bold/Italics for additions

Unit 2 Affected Page B3.5.3-3 and B3.5.3-4

Unit 3 Affected Pages B3.5.3-1 to 4

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 & 3
DOCKET NOS. 50-247 & 50-286

B 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

B 3.5.3 ECCS - Shutdown

BASES

BACKGROUND

The Background section for Bases 3.5.2, "ECCS - Operating," is applicable to these Bases, with the following modifications.

In MODE 4, two ECCS High Head Safety Injection (HHSI) subsystems and one ECCS Residual Heat Removal (RHR) subsystem are required.

The ECCS flow paths consist of piping, valves, heat exchangers, and pumps such that water from the refueling water storage tank (RWST) can be injected into the Reactor Coolant System (RCS) following the accidents described in Bases 3.5.2.

APPLICABLE SAFETY ANALYSES

The Applicable Safety Analyses section of Bases 3.5.2 also applies to this Bases section.

Due to the stable conditions associated with operation in MODE 4, core cooling requirements lower than those following a Design Basis Accident (DBA) initiated from 100% RTP, and the reduced probability of occurrence of a DBA, the ECCS operational requirements are reduced. It is understood in these reductions that certain automatic safety injection (SI) actuation is not available. In this MODE, sufficient time exists for manual actuation of the required ECCS to mitigate the consequences of a DBA.

Only two ECCS HHSI subsystems (high head) and one ECCS RHR subsystem (low head) are required for MODE 4. This requirement dictates that single failures are not considered during this MODE of operation. The ECCS trains satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

In MODE 4, two ECCS HHSI subsystems (high head) and one ECCS RHR subsystem (low head) are required to be OPERABLE to ensure ECCS flow is available to the core following a DBA. Each required subsystem includes the piping, instruments, and controls to ensure an OPERABLE flow path capable of taking suction from the RWST and transferring suction to the containment sump. Either RHR heat exchanger may be used with either RHR pump to meet requirements for an RHR subsystem.

LCO (continued)

During an event requiring ECCS actuation, a flow path is required to provide an abundant supply of water from the RWST to the RCS via the ECCS pumps and their respective supply headers to each of the four cold leg injection nozzles. In the long term, this flow path may be switched to take its supply from the containment sump and to deliver its flow to the RCS hot and cold legs.

This LCO is modified by a Note that allows an RHR subsystem to be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned (remote or local) to the ECCS mode of operation and not otherwise inoperable. This allows operation in the RHR mode during MODE 4.

An HHSI subsystem is considered OPERABLE when injection capability is blocked to meet requirements of LCO 3.4.12, if capable of being manually realigned (remote or local) to the ECCS mode of operation and not otherwise inoperable. This allows injection capability to be blocked in MODE 4 if needed to satisfy the requirements of LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP)."

APPLICABILITY

In MODES 1, 2, and 3, the OPERABILITY requirements for ECCS are covered by LCO 3.5.2.

In MODE 4 with RCS temperature below 350°F, two ECCS HHSI subsystems and one ECCS RHR subsystem are acceptable without single failure consideration, on the basis of the stable reactivity of the reactor and the limited core cooling requirements.

In MODES 5 and 6, plant conditions are such that the probability of an event requiring ECCS injection is extremely low. Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.4, "Residual Heat Removal (RHR) and Coolant Circulation - High Water Level," and LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level."

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to inoperable ECCS High Head Safety Injection subsystems when entering MODE 4. There is an increased risk associated with entering MODE 4 from MODE 5 with an inoperable ECCS high head subsystems and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

With no ECCS RHR subsystem OPERABLE, the plant is not prepared to respond to a loss of coolant accident or to continue a cooldown using the RHR pumps and heat exchangers. The Completion Time of immediately to initiate actions that would restore at least one ECCS RHR subsystem to OPERABLE status ensures that prompt action is taken to restore the required cooling capacity. Normally, in MODE 4, reactor decay heat is removed from the RCS by an RHR loop. If no RHR loop is OPERABLE for this function, reactor decay heat must be removed by some alternate method, such as use of the steam generators. The alternate means of heat removal must continue until the inoperable RHR loop components can be restored to operation so that decay heat removal is continuous.

With both RHR pumps and heat exchangers inoperable, it would be unwise to require the plant to go to MODE 5, where the only available heat removal system is the RHR. ***With no ECCS HHSI subsystem OPERABLE, due to the inoperability of the pump or flow path from the RWST, the plant is not prepared to provide high pressure response to Design Basis Events requiring SI***. Therefore, the appropriate action is to initiate measures to restore one ECCS RHR subsystem ***and two ECCS HHSI subsystems*** and to continue the actions until the subsystem is restored to OPERABLE status.

~~B.1~~

~~With one of the two required ECCS HHSI subsystems inoperable, the remaining HHSI subsystem and the RHR subsystem maintain substantial capability for the mitigation of a large spectrum of both large and small break LOCAs in MODE 4. Therefore, a Completion Time of 48 hours for restoration of the inoperable subsystem is warranted.~~

~~C.1~~

~~With no ECCS HHSI subsystem OPERABLE, due to the inoperability of the pump or flow path from the RWST, the plant is not prepared to provide high pressure response to Design Basis Events requiring SI. The 1 hour Completion Time to restore at least one ECCS HHSI subsystem to OPERABLE status ensures that prompt action is taken to provide the~~

~~required cooling capacity or to initiate actions to place the plant in MODE 5, where an ECCS subsystem is not required.~~

~~D.1~~
~~When the Required Actions of Conditions B or C cannot be completed within the required Completion Time, a controlled shutdown should be initiated. Twenty-four hours is a reasonable time, based on operating experience, to reach MODE 5 in an orderly manner and without challenging plant systems or operators.~~

Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 2). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 2, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action A.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

SURVEILLANCE REQUIREMENTS

SR 3.5.3.1

The applicable Surveillance descriptions from Bases 3.5.2 apply.

REFERENCES

1. The applicable references from Bases 3.5.2 apply.

2. WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.

B 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

B 3.5.3 ECCS – Shutdown

BASES

BACKGROUND

The Background section for Bases 3.5.2, "ECCS – Operating," is applicable to these Bases, with the following modifications.

In MODE 4, ***two ECCS High Head Safety Injection (HHSI) subsystems and*** one ECCS residual heat removal (RHR) subsystem ~~and one ECCS Recirculation subsystem~~ are required.

The ECCS flow paths consist of piping, valves, heat exchangers, and pumps such that water from the refueling water storage tank (RWST) or the containment ~~or recirculation~~ sump can be injected into the Reactor Coolant System (RCS) following the accidents described in Bases 3.5.2.

APPLICABLE SAFETY ANALYSES

The Applicable Safety Analyses section of Bases 3.5.2 also applies to this Bases section.

Due to the stable conditions associated with operation in MODE 4 and the reduced probability of occurrence of a Design Basis Accident (DBA), the ECCS operational requirements are reduced. It is understood in these reductions that automatic safety injection (SI) actuation is not available. In this MODE, sufficient time exists for manual actuation of the required ECCS to mitigate the consequences of a DBA.

Only ***two ECCS HHSI subsystems (high head) and*** one ECCS residual heat removal (RHR) subsystem ~~and one ECCS Recirculation subsystem~~ are required for MODE 4. This requirement dictates that single failures are not considered during this MODE of operation. The ECCS trains satisfy Criterion 3 of 10 CFR 50.36.

LCO

In MODE 4, ***two ECCS HHSI subsystems (high head) and*** one ECCS residual heat removal (RHR) subsystem ~~and one ECCS Recirculation subsystem~~ are required to be OPERABLE to ensure that sufficient ECCS flow is available to the core following a DBA. ***Each required subsystem includes the piping, instruments, and***

controls to ensure an OPERABLE flow path capable of taking suction from the RWST and transferring suction to the containment sump. Either RHR heat exchanger may be used with either RHR pump to meet requirements for an RHR subsystem.

(continued)

BASES

LCO (continued)

~~In MODE 4, ECCS requirements may be met using containment Recirculation subsystem 31 or 32 and RHR subsystem 31 or 32.~~

~~An ECCS RHR subsystem consists of one RHR pump and one RHR heat exchanger as well as associated piping and valves and instrumentation and controls needed to transfer water from the RWST or containment sump to the core. Either RHR heat exchanger may be used with either RHR pump to meet requirements for an RHR subsystem.~~

~~A containment Recirculation subsystem consists of one Containment Recirculation pump and one RHR heat exchanger as well as associated piping, valves, instrumentation and controls needed to transfer water from the recirculation sump to the core. Note that Recirculation pump OPERABILITY requires the functional availability of one of the two associated auxiliary component cooling water pumps. Either RHR heat exchanger may be used with either recirculation pump to meet requirements for a recirculation subsystem. The same RHR heat exchanger may be used to meet requirements for both the RHR subsystem and the Recirculation subsystem.~~

During an event requiring ECCS actuation, a flow path is required to provide an abundant supply of water from the RWST to the RCS via the ~~RHR~~ ***ECCS*** pumps and their respective supply headers to each of the four cold leg injection nozzles. In the long term, ~~the recirculation~~ ***this*** flow path ***may be switched to take its supply from the*** ~~using the Recirculation sump or~~ containment sump ~~may be used~~ ***and*** to deliver its flow to the RCS ***hot and*** cold legs.

This LCO is modified by a Note that allows an RHR subsystem to be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned (remote or local) to the ECCS mode of operation and not otherwise inoperable. This allows operation in the RHR mode during MODE 4. Similarly, this Note allows an RHR subsystem to be considered OPERABLE during alignment and operation for valve testing if capable of being manually realigned (remote or local) to the ECCS mode of operation and not otherwise inoperable. This allows testing of certain valves in MODE 4.

An HHSI subsystem is considered OPERABLE when injection capability is blocked to meet requirements of LCO 3.4.12, if capable of being manually realigned (remote or local) to the ECCS mode of operation and not otherwise inoperable. This allows injection capability to be blocked in MODE 4 if

needed to satisfy the requirements of LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP)."

(continued)

BASES

APPLICABILITY

In MODES 1, 2, and 3, the OPERABILITY requirements for ECCS are covered by LCO 3.5.2. In MODE 4 with RCS temperature below 350°F, ***two ECCS HHSI subsystems and*** one ~~OPERABLE~~ ECCS residual heat removal (RHR) subsystem ~~and one OPERABLE ECCS Recirculation subsystem is~~ ***are*** acceptable without single failure consideration, on the basis of the stable reactivity of the reactor and the limited core cooling requirements.

In MODES 5 and 6, plant conditions are such that the probability of an event requiring ECCS injection is extremely low. Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "RCS Loops – MODE 5, Loops Filled," and LCO 3.4.8, "RCS Loops – MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.4, "Residual Heat Removal (RHR) and Coolant Circulation – High Water Level," and LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level."

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to inoperable ECCS ***High Head Safety Injection (HHSI) subsystems*** ~~residual heat removal and ECCS recirculation subsystems~~ when entering MODE 4. There is an increased risk associated with entering MODE 4 from MODE 5 with ~~these subsystems~~ ***an*** inoperable ***ECCS High Head Safety Injection subsystem*** and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

With no ECCS RHR subsystem OPERABLE, the plant is not prepared to respond to a loss of coolant accident or to continue a cooldown using the RHR pumps and heat exchangers. The Completion Time of immediately to initiate actions that would restore at least one ECCS RHR subsystem to OPERABLE status ensures that prompt action is taken to restore the required cooling capacity. Normally, in MODE 4, reactor decay heat is removed from the RCS by an RHR loop. If no RHR loop is OPERABLE for this function, reactor decay heat must be removed by some alternate method, such as use of the steam generators. The alternate means of heat removal must continue until the inoperable RHR loop components can be restored to operation so that decay heat removal is continuous.

(continued)

ACTIONS (continued)

A.1

With both RHR pumps and heat exchangers inoperable, it would be unwise to require the plant to go to MODE 5, where the only available heat removal system is the RHR. ***With no ECCS HHSI subsystem OPERABLE, due to the inoperability of the pump or flow path from the RWST, the plant is not prepared to provide high pressure response to Design Basis Events requiring SI.*** Therefore, the appropriate action is to initiate measures to restore one ECCS RHR subsystem ***and two ECCS HHSI subsystems*** and to continue the actions until the subsystem is restored to OPERABLE status.

~~B.1~~

~~With no containment Recirculation subsystem OPERABLE, due to the inoperability of the pump or flow path from the recirculation sump, the plant is not prepared to provide long-term cooling response to Design Basis Events requiring SI. The 1 hour Completion Time to restore at least one ECCS Recirculation subsystem to OPERABLE status ensures that prompt action is taken to provide the required cooling capacity or to initiate actions to place the plant in MODE 5, where a recirculation subsystem is not required.~~

~~C.1~~

~~When the Required Actions of Condition B cannot be completed within the required Completion Time, a controlled shutdown should be initiated. Twenty-four hours is a reasonable time, based on operating experience, to reach MODE 5 in an orderly manner and without challenging plant systems or operators.~~

Remaining within the Applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 2). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 2, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action A.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

~~Note: Condition C should not be entered if Condition A is applicable. Required Action C.1 does not mandate a cooldown to MODE 5 when a required ECCS RHR subsystem is not OPERABLE (i.e., Condition A) because plant cooldown may not be possible with inoperable RHR subsystems.~~

SURVEILLANCE REQUIREMENTS

SR 3.5.3.1

The applicable Surveillance descriptions from Bases 3.5.2 apply.

REFERENCES

1. The applicable references from Bases 3.5.2 apply.

2. ***WCAP-16294-NP-A, Rev. 1, "Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs," June 2010.***
