

April 2, 2014

MEMORANDUM TO: Kenneth G. O'Brien, Deputy Director
Division of Reactor Projects
Region III

FROM: Sher Bahadur, Deputy Director /RA/
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

SUBJECT: FINAL RESPONSE TO TASK INTERFACE AGREEMENT 2012-13,
BRAIDWOOD STATION TECHNICAL SPECIFICATION 3.6.3
COMPLIANCE WITH ONE OR MORE MAIN STEAM ISOLATION
VALVES INOPERABLE

By letter dated March 11, 2013 (Agencywide Documents Access and Management System Accession Number ML13070A391), Region III, Division of Reactor Projects, requested assistance from the Office of Nuclear Reactor Regulation (NRR) in answering the following questions regarding the requirements for compliance with Technical Specification (TS) 3.6.3, "Containment Isolation Valves," for the Main Steam Isolation Valves (MSIVs) at Braidwood Station (Braidwood):

1. With one or more Braidwood Unit 1 or Unit 2 MSIVs inoperable and open is the licensee required to enter TS 3.6.3.C?
2. With one or more of the following General Design Criteria (GDC)-57, TS 3.6.3.C Closed System Containment Isolation Valves (CIVs) inoperable and open would the licensee be required to enter TS 3.6.3.C?
 - a. Main Steam Isolation Valve Bypass Valve (i.e., MS101 valves);
 - b. Main Steam Generator [(SG)] Power Operated Relief Valves [(PORVs)] (i.e., MS018 valves); or
 - c. Main Feedwater Isolation Valves (i.e., FW009 valves).
3. If the answer to Question #1 is "No"; and Question #2 is "Yes", explain the basis for the difference, including a discussion of Mode 4 applicability.

The NRR staff have reviewed Technical Interface Agreement 2012-13 and find the following: TS 3.6.3 is applicable and needs to be entered when any one becomes inoperable; in addition to TS 3.6.3, TS 3.7.4 is applicable when a SG PORV becomes inoperable; Braidwood's current licensing bases is consistent with the original licensing bases for the plant, and the MSIVs are not applicable to TS 3.6.3, CIVs. This position is documented in the enclosed evaluation.

Enclosure:
As stated

CONTACT: Holly D. Cruz, DPR/PLPB
(301) 415-1053

MEMORANDUM TO: Kenneth G. O'Brien, Deputy Director
Division of Reactor Projects
Region III

FROM: Sher Bahadur, Deputy Director /RA/
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

SUBJECT: FINAL RESPONSE TO TASK INTERFACE AGREEMENT 2012-13,
BRAIDWOOD STATION TECHNICAL SPECIFICATION 3.6.3
COMPLIANCE WITH ONE OR MORE MAIN STEAM ISOLATION
VALVES INOPERABLE

By letter dated March 11, 2013 (Agencywide Documents Access and Management System Accession Number ML13070A391), Region III, Division of Reactor Projects, requested assistance from the Office of Nuclear Reactor Regulation (NRR) in answering the following questions regarding the requirements for compliance with Technical Specification (TS) 3.6.3, "Containment Isolation Valves," for the Main Steam Isolation Valves (MSIVs) at Braidwood Station (Braidwood):

1. With one or more Braidwood Unit 1 or Unit 2 MSIVs inoperable and open is the licensee required to enter TS 3.6.3.C?
2. With one or more of the following General Design Criteria (GDC)-57, TS 3.6.3.C Closed System Containment Isolation Valves (CIVs) inoperable and open would the licensee be required to enter TS 3.6.3.C?
 - a. Main Steam Isolation Valve Bypass Valve (i.e., MS101 valves);
 - b. Main Steam Generator [(SG)] Power Operated Relief Valves [(PORVs)] (i.e., MS018 valves); or
 - c. Main Feedwater Isolation Valves (i.e., FW009 valves).
3. If the answer to Question #1 is "No"; and Question #2 is "Yes", explain the basis for the difference, including a discussion of Mode 4 applicability.

The NRR staff have reviewed Technical Interface Agreement 2012-13 and find the following: TS 3.6.3 is applicable and needs to be entered when any one becomes inoperable; in addition to TS 3.6.3, TS 3.7.4 is applicable when a SG PORV becomes inoperable; Braidwood's current licensing bases is consistent with the original licensing bases for the plant, and the MSIVs are not applicable to TS 3.6.3, CIVs. This position is documented in the enclosed evaluation.

Enclosure:
As stated

CONTACT: Holly D. Cruz, DPR/PLPB
(301) 415-1053

DISTRIBUTION:	RidsNrrDpr	AMendiola	HCruz	SBahadur
PUBLIC	KBucholtz	RElliott	RDennig	RidsNrrDorl
RidsRgn1MailCenter	RidsNrrLADBaxley	RidsRgn2MailCenter	RidsAcrcAcnwMailCtr	
ASallman	RidsRgn3MailCenter	RidsRgn4MailCenter	RidsNrrDssScvb	
JWiebe	EDuncan	JBenjamin	RidsNrrDssScvb	
BBartlett	AGarmoe	RidsResOd	RidsNroOd	
Braidwood Listserv				

ADAMS Accession No.: ML14069A337; *No significant changes from Draft TIA Response. NRR-106

OFFICE	DPR/PLPB/PM	DPR/PLPB/LA*	DSS/SCVB*	DSS/STSB*	DPR/PLPB*	DPR/DD
NAME	HCruz	DBaxley	RDennig	RElliott	AMendiola	SBahadur
DATE	04/02/2014	08/29/2013	07/15/2013	07/19/2013	10/04/2013	04/02/2014

OFFICIAL RECORD COPY

TASK INTERFACE AGREEMENT 2012-13, BRAIDWOOD STATION
TECHNICAL SPECIFICATION 3.6.3 COMPLIANCE WITH ONE OR MORE
MAIN STEAM ISOLATION VALVES INOPERABLE

1.0 **INTRODUCTION**

By letter dated March 11, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML13070A391), Region III (RIII), Division of Reactor Projects, requested assistance from the Office of Nuclear Reactor Regulation (NRR) in answering the following questions regarding the requirements for compliance with Technical Specification (TS) 3.6.3, "Containment Isolation Valves," for the Main Steam Isolation Valves (MSIVs) at Braidwood Station (Braidwood):

1. With one or more Braidwood Unit 1 or Unit 2 MSIVs inoperable and open is the licensee required to enter TS 3.6.3.C?
2. With one or more of the following General Design Criteria (GDC)-57, TS 3.6.3.C Closed System Containment Isolation Valves (CIVs) inoperable and open would the licensee be required to enter TS 3.6.3.C?
 - a. Main Steam Isolation Valve Bypass Valve (i.e., MS101 valves);
 - b. Main Steam Generator Power Operated Relief Valves (i.e., MS018 valves); or
 - c. Main Feedwater Isolation Valves (i.e., FW009 valves).
3. If the answer to Question #1 is "No"; and Question #2 is "Yes", explain the basis for the difference, including a discussion of Mode 4 applicability.

The NRR staff's assessment is provided in this enclosure.

2.0 **BACKGROUND**

The RIII inspectors identified an Unresolved Item related to the licensee's position that although the Unit 1 and Unit 2 MSIVs were classified as CIVs, they were not subject to TS 3.6.3, "Containment Isolation Valves," requirements.

On May 30, 2012, with Unit 1 operating at full power, the licensee declared the Unit 1A MSIV inoperable in accordance with TS 3.7.2, "Main Steam Isolation Valves (MSIVs)," during maintenance that temporarily removed both the active and standby 1A MSIV accumulators from service.

The inspectors questioned why the licensee had not entered TS 3.6.3, "Containment Isolation Valves," since: 1) the MSIVs were identified in the Updated Final Safety Analysis Report (UFSAR) as CIVs; 2) the MSIVs met the GDC-57, "Closed System Isolation Valves," definition for CIVs; and 3) TS 3.6.3.C specifically addressed penetration flow paths with only one CIV in a

ENCLOSURE

closed system. Specifically, TS 3.6.3, "Containment Isolation Valves," stated, in part, the following:

LCO [Limiting Condition for Operation] 3.6.3 Each containment isolation valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

[illegible]

The inspectors discussed this question with the licensee staff and management. When evaluating TS 3.6.3 applicability prior to the maintenance activity, Operations referred to Table B 3.6.3-1, "Primary Containment Isolation Valves," in the TS 3.6.3 Bases. The MSIVs were not listed in this table, therefore, Operations concluded that TS 3.6.3 was not applicable. The licensee entered the inspectors' question into its corrective action program and evaluated the issue in more detail by reviewing the origin of the TS 3.6.3 Bases table, re-reviewed the current licensing basis, and conducted an independent review led by corporate licensing engineers to determine if TS 3.6.3 should be applicable to the MSIV CIVs. In addition, the licensee contacted other reactor licensees to gain additional insights.

3.0 EVALUATION

Question 1: With one or more Braidwood Unit 1 or Unit 2 MSIVs inoperable and open is the licensee required to enter TS 3.6.3.C?

No the licensee is not required to enter TS 3.6.3.C for an inoperable MSIV.

Question 2a: With one or more of the following GDC-57, TS 3.6.3.C Closed System CIVs inoperable and open would the licensee be required to enter TS 3.6.3.C?

a. MSIV Bypass Valve (i.e., MS101 valves)

Yes, if the plant is in Modes 1, 2, 3, or 4. Braidwood TS 3.6.3, "Containment Isolation Valves," LCO was derived from the assumptions related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during a design bases loss of coolant or rod ejection accident. CIVs form a part of the containment boundary. As part of the containment boundary, CIV operability supports leak tightness of the containment. Therefore, the safety analyses of any event requiring isolation of containment are applicable to this LCO. In Modes 1, 2, 3, and 4, a design-bases accident could cause a release of radioactive material to containment. TS 3.6.3 provides the lowest functional capability or performance levels of the CIVs which are required to mitigate a loss of reactor coolant inventory and a release of radioactive material from containment during loss of coolant or rod ejection accident.

The MSIV bypass valves are CIVs; therefore, TS 3.6.3 is applicable and needs to be entered when a MSIV bypass valves becomes inoperable.

Question 2b: With one or more of the following GDC-57, TS 3.6.3.C Closed System CIVs inoperable and open would the licensee be required to enter TS 3.6.3.C?

b. Main Steam Generator Power Operated Relief Valves (i.e., MS018 valves)

Yes, if the plant is in Modes 1, 2, 3, or 4. As stated above in Question 2a, TS 3.6.3 provides the lowest functional capability or performance levels of the CIVs which are required to mitigate a loss of reactor coolant inventory and a release of radioactive material from containment during loss of coolant or rod ejection accident.

Braidwood TS 3.7.4, "Steam Generator (SG) Power Operated Relief Valves (PORVs)," LCO is established by the Steam Generator Tube Rupture (SGTR) event described in UFSAR, Section 15.6.3. In addition, the SG PORVs serve as CIVs; however, the containment isolation function is addressed in TS 3.6.3. TS 3.7.4 requires the SG PORVs to be operable in Modes 1, 2, and 3. In Mode 4 the pressure and temperature limitations are such that the probability of a SGTR event requiring SG PORV operation is low. TS 3.7.4 provides the lowest functional capability or performance levels of the SG PORVs which are required to mitigate a SGTR.

TS 3.6.3 and TS 3.7.4 are each derived from different accident analyses. Each analysis has different initial conditions and mitigation strategies, therefore, each LCO provides an independent set of Conditions and Required Actions in response to the accident evaluated.

Hence, both TS 3.6.3 and TS 3.7.4 are applicable and need to be entered when a SG PORV becomes inoperable.

Question 2c: With one or more of the following GDC-57, TS 3.6.3.C Closed System CIVs inoperable and open would the licensee be required to enter TS 3.6.3.C?

c. Main Feedwater Isolation Valves (i.e., FW009 valves).

Yes, if the plant is in Modes 1, 2, 3, or 4. As stated above in Question 2a, TS 3.6.3 provides the lowest functional capability or performance levels of the CIVs which are required to mitigate a loss of reactor coolant inventory and a release of radioactive material from containment during loss of coolant or rod ejection accident.

The main feedwater isolation valves are CIVs; therefore, TS 3.6.3 is applicable and needs to be entered when a main feedwater isolation valve becomes inoperable.

Question 3: If the answer to Question #1 is 'No,' and Question #2 is 'Yes,' explain the basis for the difference, including a discussion of Mode 4 applicability.

Braidwood's original TSs were issued on October 17, 1986 (ADAMS Accession Number ML021820378) and are contained in NUREG-1223, "Technical Specifications, Braidwood Station Unit Nos. 1 and 2, Docket Nos. STN 50-456 and STN 50-457, Appendix "A" to Licensee No. NPF-59." TS 3/4.6.3, "Containment Isolation Valves," required that the CIVs specified in Table 3.6-1 shall be operable. Table 3.6-1 listed the CIVs which among this list were: MS101D, MS101A, MS101B, MS101C, FW009D, FW009A, FW009B, FW009C, MS018D, MS018A, MS018B, and MS018C. MS001A, MS001B, MS001C, and MS001D are not included on this list, therefore, Braidwood Unit 1 and 2 were originally licensed without the MSIVs being considered CIV.

On May 6, 1991, Generic Letter 91-08 was published. This generic letter provides guidance for preparing a request for a license amendment to remove component lists from TSs. This guidance provides an acceptable alternative to identifying every component by its plant identification number as it is currently listed in the tables of TS components. The removal of component lists is acceptable because it does not alter existing TS requirements or those components to which they apply. This generic letter, along with Braidwood's conversion to improved TSs, relocated TS Table 3.6-1 from Braidwood's TS to its improved TSs Bases. The NRC staff reviewed the current CIV list that is in Braidwood's TS Bases and has determined that the list includes the same valves that were relocated from Braidwood's TS.

The NRC staff has determined that Braidwood's current licensing bases is consistent with the original licensing bases for the plant, and that the MSIVs are not applicable to TS 3.6.3, CIVs.

4.0 CONCLUSION

TS 3.6.3 provides mitigation for loss of reactor coolant inventory and a release of radioactive material from containment during loss of coolant or rod ejection accident. TS 3.7.2 provides mitigation for the various steam line breaks inside and outside containment. TS 3.7.4 provides mitigation for a SGTR.

The TS LCOs stated above are derived from different accident analyses. Each analysis has different initial conditions and mitigation strategies, therefore, each LCO provides an independent set of Conditions and Required Actions in response to the accident evaluated.

The MSIV bypass valves, SG PORVs, and main feedwater isolation valves are CIVs. Therefore, TS 3.6.3 is applicable and needs to be entered when any one becomes inoperable. In addition to TS 3.6.3, TS 3.7.4 is applicable when a SG PORV becomes inoperable. In addition, Braidwood's current licensing bases is consistent with the original licensing bases for the plant, and that the MSIVs are not applicable to TS 3.6.3, CIVs.

Principal Contributor: Kristy Bucholtz

Date: April 2, 2014