

August 27, 2008

Mr. Keith J. Polson
Vice President Nine Mile Point
Nine Mile Point Nuclear Station, LLC
P. O. Box 63
Lycoming, NY 13093

SUBJECT: NINE MILE POINT NUCLEAR STATION, UNIT NO. 1 - ISSUANCE OF
AMENDMENT RE: REVISED OPERABILITY REQUIREMENTS FOR
REACTOR COOLANT SYSTEM ISOLATION VALVES (TAC NO. MD6942)

Dear Mr. Polson:

The Commission has issued the enclosed Amendment No. 197 to Renewed Facility Operating License No. DPR-63 for the Nine Mile Point Nuclear Station, Unit No. 1 (NMP1). The amendment consists of changes to the Technical Specifications (TSs) in response to your application transmitted by letter dated September 27, 2007, as supplemented by letter dated June 5, 2008.

The amendment changes the NMP1 TSs by revising the operability requirements contained in TS Section 3.2.7, "Reactor Coolant System Isolation Valves," and associated requirements contained in TS Section 3.6.2, "Protective Instrumentation." The amendment will modify the conditions for which reactor coolant system isolation valves (RCSIVs) and associated isolation instrumentation must be operable to include the hot shutdown reactor operating condition. In addition, it will be required that the RCSIVs in the shutdown cooling (SDC) system and associated isolation instrumentation be operable during the cold shutdown reactor operating condition and the refueling reactor operating condition. The requirements are similar in concept to primary containment isolation valve operability requirements contained in NUREG-1433, "Standard Technical Specifications General Electric Plants, BWR/4." Lastly, TS Section 3.6.2 (Table 3.6.2b) will be revised to delete unnecessary operability requirements for the cleanup system and SDC system high area temperature isolation instrumentation, consistent with the proposed revisions to the RCSIV operability requirements.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,

/RA/

Richard V. Guzman, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-220

Enclosures:

1. Amendment No. 197 to DPR-63
2. Safety Evaluation

cc w/encls: See next page

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Package No.: ML082250339 Amendment No.: ML082250347 Tech Spec No.: ML
*SE provided by memo. No substantial changes made.

NRR-058

OFFICE	LPLI-1\PM	LPLI-1\GE	LPLI-1\LA	SRXB/BC	EICB/BC	SCVB/BC	ITSB/BC	OGC	LPLI-1/BC
NAME	RGuzman	JGall	SLittle	Gcranston*	WKemper*	RDennig*	RElliott	JAdle	MKowal
DATE	8/25/08	8/25/08	8/25/08	5/20/08	7/7/08	7/17/08	8/14/08	8/15/08	8/27/08

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DATED: August 27, 2008

AMENDMENT NO. 197 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-63 NINE
MILE POINT UNIT NO. 1

PUBLIC

LPLI-1

MKowal

SLittle

RGuzman

RJervey

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ACRS

GDentel, RI

GCranston

TNakanishi

RDennig

NKariipineni

WKemper

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RElliott

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RidsNrrPMRGuzman

RidsNrrDpr

RidsOGCRp

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RidsRgn1MailCenter

RidsNrrDssSrxb

RidsNrrDssScvb

RidsNrrDeEicb

RidsNrrDirsltsb

cc: Plant Service list

Nine Mile Point Nuclear Station, Unit No. 1

cc:

Mr. Michael J. Wallace, Vice-Chairman
Constellation Energy
100 Constellation Way, Suite 1800P
Baltimore, MD 21202

Mr. Henry B. Barron, President, CEO &
Chief Nuclear Officer
Constellation Energy Nuclear Group, LLC
100 Constellation Way, Suite 200C
Baltimore, MD 21202

Mr. Terry F. Syrell
Director, Licensing
Nine Mile Point Nuclear Station
P.O. Box 63
Lycoming, NY 13093

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 126
Lycoming, NY 13093

Supervisor
Town of Scriba
Route 8, Box 382
Oswego, NY 13126

Charles Donaldson, Esquire
Assistant Attorney General
New York Department of Law
120 Broadway
New York, NY 10271

Mr. Paul D. Eddy
New York State Department of
Public Service
3 Empire State Plaza, 10th Floor
Albany, NY 12223

Mark J. Wetterhahn, Esquire
Winston & Strawn
1700 K Street, NW
Washington, DC 20006

Carey W. Fleming, Esquire
Sr. Counsel - Nuclear Generation
Constellation Energy Nuclear Group, LLC
750 East Pratt Street, 17th Floor
Baltimore, MD 21202

Mr. John P. Spath
New York State Energy, Research, and
Development Authority
17 Columbia Circle
Albany, NY 12203-6399

Mr. Paul Tonko
President and CEO
New York State Energy, Research, and
Development Authority
17 Columbia Circle
Albany, NY 12203-6399

Mr. Gary L. Detter
Manager – Nuclear Safety and Security
100 Constellation Way, Suite 200C
Baltimore, MD 21202

NINE MILE POINT NUCLEAR STATION, LLC (NMPNS)

DOCKET NO. 50-220

NINE MILE POINT NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 197
Renewed License No. DPR-63

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Nine Mile Point Nuclear Station, LLC (the licensee) dated September 27, 2007, as supplemented by letter dated June 5, 2008, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. DPR-63 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, which is attached hereto, as revised through Amendment No. 197, is hereby incorporated into this license. Nine Mile Point Nuclear Station, LLC shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Mark G. Kowal, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the License and Technical
Specifications

Date of Issuance: August 27, 2008

ATTACHMENT TO LICENSE AMENDMENT NO. 197
TO RENEWED FACILITY OPERATING LICENSE NO. DPR-63
DOCKET NO. 50-220

Replace the following page of the Renewed Facility Operating License with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page
3

Insert Page
3

Replace the following pages of Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages
108
109
205
207
209
213

Insert Pages
108
109
205
207
209
213

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 197 TO RENEWED

FACILITY OPERATING LICENSE NO. DPR-63

NINE MILE POINT NUCLEAR STATION, LLC (NMPNS)

NINE MILE POINT NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-220

1.0 INTRODUCTION

By letter dated September 27, 2007, (Reference 1) as supplemented June 5, 2008, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML081640317), NMPNS (the licensee) submitted a request for changes to the Nine Mile Point Nuclear Station Unit No. 1 (NMP1) Technical Specifications (TSs).

The requested changes will revise the operability requirements contained in TS Section 3.2.7, "Reactor Coolant System Isolation Valves," and associated requirements contained in TS Section 3.6.2, "Protective Instrumentation." The proposed changes will modify the conditions for which reactor coolant system isolation valves (RCSIVs) and associated isolation instrumentation must be operable to include the hot shutdown reactor operating condition (i.e., when fuel is in the reactor vessel and the reactor coolant temperature is greater than 212 °F). In addition, new requirements are proposed to require that the RCSIVs in the shutdown cooling (SDC) system and associated isolation instrumentation be operable during the cold shutdown reactor operating condition (fuel is in the reactor vessel and the reactor coolant temperature is less than or equal to 212 °F) and the refueling reactor operating condition (i.e., when fuel is in the reactor vessel and the reactor coolant temperature is less than 212 °F). These proposed changes will require operability of RCSIVs during conditions other than the power operating condition, and are similar in concept to primary containment isolation valve operability requirements contained in NUREG-1433, "Standard Technical Specifications General Electric Plants, BWR/4" (Reference 2). Lastly, TS Section 3.6.2 (Table 3.6.2b) will be revised to delete unnecessary operability requirements for the cleanup system and SDC system high area temperature isolation instrumentation, consistent with the proposed revisions to the RCSIV operability requirements.

The supplemental letter dated June 5, 2008, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC) staff's initial proposed no significant hazards consideration determination noticed in the *Federal Register* on November 20, 2007 (72 FR 65367).

2.0 REGULATORY EVALUATION

The regulatory requirements and guidance which the NRC staff considered in its review of the application are as follows:

- Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.46 "Acceptance criteria for emergency core cooling systems [ECCS] for light-water nuclear power reactors" requires the ECCS to provide cooling such that a peak cladding temperature, a maximum cladding oxidation, and a maximum hydrogen generation are not exceeded. The ECCS have a coolable geometry and provide long-term cooling.
- 10 CFR Part 50.36 "Technical specifications." Specifically 10 CFR 50.36(d)(2)(i) defines, Limiting conditions for operation as "the lowest functional capability or performance levels of equipment required for safe operation of the facility." Furthermore, 10 CFR 50.36(d)(2)(ii) defines the criteria to be used for evaluation items to determine if a limiting condition for operation of a nuclear reactor must be established. In addition, 10 CFR 50.36(d)(3) defines surveillance requirements.
- 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 15 "Reactor coolant system design" requires that the reactor coolant system and associated auxiliary, control, and protection systems be designed with sufficient margin to assure that the design conditions of the reactor coolant pressure boundary are not exceeded. The RCSIVs are part of this system.
- Standard TSs for BWR/4 plants contained in NUREG-1433, Volume 1, Revision 3 (Reference 2) was used as guidance.

3.0 TECHNICAL EVALUATION

3.1 Summary of Changes

The LAR proposes changes to the NMP1 TSs in two areas, (1) Reactor Coolant System Isolation Valves operability as described in TS LCO Section 3.2.7 and TS SR Section 4.2.7, and (2) Protective Instrumentation as described in TS LCO Section 3.6.2 and TS SR Section 4.6.2.

As described in the licensee's application dated September 27, 2007, the current TSs contain inconsistent operability requirements for RCSIVs and Primary Containment Isolation Valves (PCIVs). TS Section 3.2.7.a requires that RCSIVs be operable "during power operating conditions whenever the reactor head is on," whereas TS Section 3.3.4.a requires that PCIVs be operable "whenever the reactor coolant system temperature is greater than 215°F and primary containment integrity is required." These differences have caused uncertainty in applying the TS requirements since the RCSIVs also perform a primary containment isolation function following a design-basis loss-of-coolant accident (LOCA). In addition, TS Section 3.3.4.b allows 4 hours for completion of the action to place at least one valve in each line having an inoperable valve in the mode corresponding to the isolated condition, whereas TS Section 3.2.7.b contains no time limit for performing the comparable action for an inoperable RCSIV. The proposed TS changes resolve these inconsistencies.

The current TSs do not contain requirements for operability of the SDC system RCSIVs when in the cold shutdown and refueling reactor operating conditions. The proposed TS changes add such requirements to assure that SDC system isolation can be accomplished during a reactor vessel draindown event caused by a leak or line break in the SDC system.

The current TS Table 3.6.2b requires that the high area temperature instrumentation that automatically isolates the cleanup system and the SDC system be operable for all positions of the reactor mode switch (i.e., in the power operating, startup, hot shutdown, cold shutdown, and refueling conditions). However, similar to NUREG-1433 (Reference 2), the high area temperature isolation instrumentation need not be operable in the cold shutdown and refueling conditions, when system energy levels are low and RCS temperature is typically maintained below the high area temperature isolation setpoints. The proposed TS changes delete cold shutdown and refueling as applicable operating conditions for this high area temperature isolation instrumentation.

An administrative change will be made to TS SR 4.2.7 and an editorial change will be made to TS SR 4.6.2.

Each change is discussed and evaluated below.

3.2 TS LCO 3.2.7 and SR 4.2.7

Objective Statement

The “Objective” statement in TS Sections 3.2.7 and 4.2.7 will be revised to include the primary containment isolation function of the RCSIVs in the event of a LOCA. The NRC staff finds this change acceptable as it is an administrative change only and it has no effect on the TS LCO SRs.

LCO – Reactor Coolant temperature > 212 °F

The applicable operating conditions specified in TS Sections 3.2.7.a and 3.2.7.b are revised from “during power operating conditions whenever the reactor head is on” to “whenever fuel is in the reactor vessel and the reactor coolant temperature is greater than 212°F.” In addition, a 4-hour time limit will be added to TS Section 3.2.7.b for completion of the action to place at least one valve in each line having an inoperable valve in the mode corresponding to an isolated condition.

The revised applicable operating conditions require the RCSIVs to be operable in both the power operating condition and the hot shutdown condition. Inclusion of the hot shutdown condition ensures that when operating in the hot shutdown condition, reactor coolant loss following a rupture of a line connected to the RCS is minimized and the release of radioactive material to the environment is consistent with assumptions used in the analyses for a design-basis-accident (DBA).

The revised applicable operating conditions are similar to operability requirements for other systems that are connected to the RCS (e.g., TS Section 3.1.4, Core Spray System, and TS Section 3.1.6, Control Rod Drive Pump Coolant) and systems that provide a similar containment

isolation function (Primary Containment Isolation Valves TS Section 3.6.1.3). The proposed change will eliminate the inconsistency in applying the operability requirements to the RCSIVs and provide clarity by clearly defining that the RCSIVs are required to be operable in both the power operating condition and the hot shutdown condition.

The proposed operability requirements of the RCSIVs are more stringent than the existing requirements. The staff finds the proposed requirements will have no impact on the maximum calculated containment pressure and temperature, containment isolation, or on containment barrier integrity. The staff finds that the revised operability requirements are consistent with Standard Technical Specifications (STS) for BWR/4, NUREG-1433, Volume 1, Revision 3.

The current TS has no time limit for performing the action for an inoperable RCSIV. A 4-hour completion time limit will provide clarity and it is consistent with NUREG-1433 for a comparable action. Therefore, the NRC staff finds the change acceptable.

LCO – Reactor Coolant Temperature \leq 212 °F

The new TS Section 3.2.7.d requires that RCSIVs in the SDC system be operable whenever fuel is in the reactor vessel and the reactor coolant temperature is \leq 212 °F to cover cold shutdown and refueling conditions. Operability of these valves provides protection against potential draining of the reactor vessel through the SDC system during shutdown condition, when the SDC is normally operated.

In NUREG-1433, most PCIVs are not required to be operable in MODES 4 (cold shutdown) and 5 (refueling) as the probability and consequences of DBAs are reduced due to the pressure and temperature limitations of these MODES. Certain valves, however, are required to be operable to prevent inadvertent reactor vessel drain down, such as SDC isolation valves. The new additional requirement on RCSIVs in the SDC system ensures consistency with NUREG-1433. Therefore, the NRC staff determines that the proposed change is acceptable.

The proposed TS Section 3.2.7.e specifies a 4-hour completion time limit to require at least one RCSIV in each SDC system line having an inoperable valve be placed in the mode corresponding to the isolated condition. A 4-hour completion time is consistent with NUREG-1433. Therefore, the NRC staff determines that the proposed change is acceptable.

The proposed TS Section 3.2.7.f provides options if both TS Sections 3.2.7.d and 3.2.7.e are not met. Proposed TS Section 3.2.7.f states that “if specifications 3.2.7.d and 3.2.7.e are not met, either: (1) immediately initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs); or (2) immediately initiate action to restore the valve(s) to operable status.” Isolating the SDC line is not desirable, when core cooling is required. These options allow the SDC line to remain unisolated, provided appropriate actions are taken when TS Sections 3.2.7.d and 3.2.7.e are not met. In response to a staff RAI, the licensee in a letter dated June 5, 2008, further explained the justification for these actions as summarized below:

Maintaining decay heat removal capability is an essential function. The SDC system operates continuously to perform this reactor core fission product decay heat function, except when a system outage is necessary to perform system maintenance or surveillance testing activities. Control of reactor coolant system inventory is also

essential to maintaining the overall decay heat removal function. Thus, ensuring that structures, systems, and components that perform both of these functions are available when needed is a fundamental element of maintaining shutdown safety.

The proposed new TS Sections 3.2.7.e and 3.2.7.f provide three options in the event that a RCSIV in the SDC system becomes inoperable during shutdown conditions. One option is to close at least one valve in the line having the inoperable RCSIV, per TS Section 3.2.7.e. Closing one of the RCSIVs in either the SDC suction or return line will terminate SDC system flow, thereby defeating the SDC system decay heat removal function. This is generally not desirable, since an extended loss of decay heat removal capability could result in boiling in the reactor, resulting in loss of water inventory and an unplanned operating mode change. Once isolated, re-opening of the inoperable valve would not be allowed until repairs were completed and the valve restored to operable status, after which TS Section 3.2.7.e could be exited.

A second option is to immediately initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs), per TS Section 3.2.7.f(1). This specification allows the shutdown cooling line to remain unisolated provided action is immediately initiated to suspend OPDRVs. Suspending OPDRVs is intended to preserve reactor coolant system inventory. Consistent with NUREG-1433, the term "immediately" means that the action should be pursued without delay and in a controlled manner. This action would need to continue until OPDRVs are suspended. During shutdown conditions, the SDC system becomes part of the reactor coolant system boundary; however, simply having the SDC system in service is not considered an OPDRV so long as SDC system integrity is maintained. System integrity is maintained provided the piping is intact and no maintenance is being performed that has the potential for draining the reactor vessel through the system. Maintenance activities having the potential to adversely affect SDC system pressure boundary integrity or to drain the reactor vessel through the system would be assessed in accordance with the NMPNS shutdown safety procedure. As long as SDC system integrity is being maintained, system operation can continue until repair of the inoperable SDC system RCSIV is completed. With the valve returned to operable status, T.S. Section 3.2.7.f(1) would be exited.

A third option is to immediately initiate action to restore the valve to operable status, per TS Section 3.2.7.f(2). This alternative is provided for the case where suspending OPDRVs would result in closing the SDC system RCSIVs. It allows the SDC system to remain in service while actions are being taken to restore the valve. Consistent with NUREG-1433, the term "immediately" means that the action should be pursued without delay and in a controlled manner. This action would continue until the valve is restored to operable status, after which TS 3.2.7.f(2) would be exited. Due to the importance of maintaining the decay heat removal and reactor coolant system inventory control functions during shutdown conditions, the RCSIV repair would be expected to proceed in a timely manner.

The course of action chosen for any specific instance of an inoperable SDC system RCSIV would depend on the nature of the valve problem, the magnitude of the reactor core decay heat, the reactor coolant system inventory condition and availability, the

reactor coolant system configuration, maintenance activities either ongoing or planned, and availability of alternate means for decay heat removal.

The proposed new TS Sections are modeled on NUREG-1433 STS Section 3.6.1.3. Condition H allows the SDC line to remain in service while actions are being taken to restore the inoperable valve(s). Based on the consideration that the proposed TS is consistent with NUREG-1433 and the appropriate balance between the decay heat removal and the RCS isolation functions of the SD system as discussed above, the NRC staff finds the proposed addition of the new TS Sections 3.2.7.d, 3.2.7.e, and 3.2.7.f are acceptable.

3.3 LCO 3.6.2 AND SR 4.6.2

LCO – Main Steam and Cleanup System Isolation – Low-Low Reactor Water Level Function

The proposed TS Table 3.6.2b for main steam and cleanup system isolation on low-low reactor water level adds the hot shutdown condition as applicable reactor operating condition for operability. This change is needed because a DBA could release radioactive material to the primary containment when operating in the hot shutdown condition. The proposed change ensures that the release of radioactive material to the environment is consistent with the assumption used in the analysis for a DBA. The proposed change is consistent with the proposed changes to RCSIV operability requirements to TS Section 3.2.7 discussed above (Section 3.2). This change represents an additional restriction on plant operation. In addition, a footnote (i) will be added for the main steam and cleanup system isolation function denoting that the function may be bypassed in cold shutdown conditions. Per NUREG-1433, RCSIVs in the SDC system are the only valves required to be operable in cold shutdown and refueling operating condition.

The above changes will not impact the maximum calculated pressure and temperature conditions in containment as a result of a DBA. The containment isolation function of the RCSIVs in the main steam and cleanup system is unaffected by this change. The proposed changes are also consistent with NUREG-1433. Therefore, the NRC staff finds the proposed changes acceptable.

LCO – SDC System Isolation – Low-Low Reactor Water Level Function

The proposed TS Table 3.6.2b requires that the low-low reactor water level instrumentation that initiates isolation of the SDC system be operable with the reactor mode switch in shutdown and refueling positions. The requirement during hot shutdown conditions, that the low-low reactor vessel water level instrumentation that automatically initiates closure of the SDC system RCSIVs be operable, with two trip systems operable or in the tripped condition will remain unchanged. However, a new footnote (j) requires only one trip system (with two instrument channels) be operable during cold shutdown and refueling conditions so long as SDC system integrity is maintained. With one of the two required Operable Channels in the required trip system not operable, and cannot be restored or placed in the tripped condition within the allowed time, the associated SDC line should be isolated. However, additional options were provided to continue operating SDC system, if required to provide core cooling. In the letter dated June 5, 2008, the licensee explained that the same general philosophy outlined in the discussion above (Section 3.2) is applicable to TS Table 3.6.2b. The licensee also noted that if

the low-low reactor vessel water level instrumentation that automatically initiates isolation of the SDC system is inoperable, the capability exists to manually close the SDC system RCSIVs.

The proposed changes are consistent with the proposed changes to the RCSIV operability requirements previously discussed (Section 3.2). The proposed changes will not impact the maximum calculated containment pressure and temperature, containment isolation function or the containment barrier integrity. Therefore, the proposed changes are acceptable to the NRC staff.

LCO – SDC and Cleanup System isolation – High Area Temperature Functions

The proposed TS Table 3.6.2b for cleanup system and SDC system isolation on high area temperature deletes the cold shutdown and refueling conditions. In the September 27, 2007, letter, the licensee stated that “in the cold shutdown and refueling conditions, the probability and consequences of DBAs are reduced due to the pressure and temperature limitations of these operating conditions. Also, system isolation on high area temperature would likely not occur in the event of system leakage or line break since RCS temperature during the cold shutdown and refueling conditions is typically maintained below the high area temperature isolation setpoints.” The NRC staff has reviewed the licensee’s assertion and agrees with the finding. The proposed change is consistent with the proposed revisions to the RCSIV operability requirements and consistent with NUREG-1433. Therefore, the NRC staff determines that the change is acceptable.

Table 4.6.2b

The proposed change to Table 4.6.2b adds the word, “cooling” after “shutdown” in the parentheses description under the “Parameter” column. This is purely an editorial change and does not affect any operability or surveillance requirements. Therefore, the NRC staff finds the change acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission’s regulations, the New York State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (72 FR 65367). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (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.

7.0 REFERENCES

1. Letter from K. Polson (Constellation Energy) to U.S. NRC, License Amendment Request Pursuant to 10 CFR 50.90: Revisions to Operability Requirements for Reactor Coolant System Isolation Valves – Technical Specification Sections 3.2.7 and 3.6.2, dated September 27, 2007, Agencywide Documents Access and Management System (ADAMS) Accession Number ML072820143.
2. NUREG-1433, Standard Technical Specifications for General Electric Plants BWR/4, Revision 3, March 2004.

Principal Contributors: H. Garg
N. Karipineni
T. Nakanishi

Date: August 27, 2008