



Constellation Energy

Nine Mile Point Nuclear Station

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December 16, 2005
NMP1L 2000

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Nine Mile Point Unit 1
Docket No. 50-220
Facility Operating License No. DPR-63

License Amendment Request: Proposed Changes to Technical
Specification 4.1.4 Regarding Core Spray Instrumentation

Gentlemen:

Pursuant to 10 CFR 50.90, Nine Mile Point Nuclear Station, LLC, (NMPNS) hereby requests an amendment to Nine Mile Point Unit 1 (NMP1) Operating License DPR-63. The proposed changes to the Technical Specifications (TSs) contained herein would revise Section 4.1.4, "Core Spray System." Specifically, the proposed changes revise TS Surveillance Requirement 4.1.4d by relocating the periodic checking, calibration and testing requirements for the core spray header differential pressure (ΔP) instrumentation to licensee-controlled documents consistent with the Improved Standard TSs (NUREG-1433, Rev. 3). The TS Bases will be revised consistent with the proposed changes to the TSs. The TS Bases changes are provided for information only and do not require NRC issuance.

The relocation of the core spray header ΔP instrumentation surveillance requirements to licensee-controlled documents and associated changes to the Bases will effectively remove all requirements for this instrumentation from the TSs and TS Bases. Similar changes have previously been approved for Peach Bottom Nuclear Generating Station, Edwin I. Hatch Nuclear Plant, and Brunswick Nuclear Plant as part of their conversion to the Improved Standard TSs, and for James A. FitzPatrick Nuclear Power Plant as part of a plant-specific TS amendment.

The proposed changes have been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that the changes involve no significant hazards considerations.

NMPNS requests approval of this application and issuance of the TS amendment by December 31, 2006 with 60 days allowed for implementation. This letter contains one (1) new commitment as defined in Section 5.3 of Attachment 1.

ADD 1

Page 3
NMP1L 2000

Attachments:

1. Evaluation of Proposed Changes
2. Proposed Technical Specification Changes (Mark-up)
3. Changes to Technical Specification Bases Pages (For Information Only)

cc: Mr. S. J. Collins, NRC Regional Administrator, Region I
Mr. L. M. Cline, NRC Senior Resident Inspector
Mr. T. G. Colburn, Senior Project Manager, NRR (2 copies)
Mr. John Spath, NYSERDA

ATTACHMENT 1

EVALUATION OF PROPOSED CHANGES

Subject: License Amendment Request: Proposed Changes to Technical Specification 4.1.4

- 1.0 DESCRIPTION
- 2.0 PROPOSED CHANGE
- 3.0 BACKGROUND
- 4.0 TECHNICAL ANALYSIS
- 5.0 REGULATORY SAFETY ANALYSIS
- 6.0 ENVIRONMENTAL CONSIDERATION

1.0 DESCRIPTION

This letter is a request to amend Operating License DPR-63 for Nine Mile Point Unit 1 (NMP1).

The proposed change would amend the Operating License to revise Technical Specification (TS) Section 4.1.4, "Core Spray System." Specifically, the proposed change revises TS Surveillance Requirement (SR) 4.1.4d by relocating the requirements for the core spray header differential pressure (ΔP) instrumentation to licensee-controlled documents. This instrumentation does not satisfy the 10 CFR 50.36 screening criteria for retention in the TSs. The TS Bases will be revised consistent with the proposed changes to the TSs.

The proposed changes to the TSs and associated changes to the TS Bases are indicated in the mark-up pages provided in Attachments 2 and 3, respectively. The TS Bases changes are provided for information only and do not require NRC issuance as they are controlled by the TS Bases Control Program.

2.0 PROPOSED CHANGE

The proposed change to TS SR 4.1.4d relocates the surveillance testing requirements for the core spray header ΔP instrumentation to licensee-controlled documents. SR 4.1.4d currently requires that the core spray header ΔP instrumentation be periodically tested such that a check of each sensor is performed at least once each day and each channel is calibrated and tested at least once every 3 months. The proposed change will allow these surveillance requirements to be controlled by licensee-controlled documents. Any changes to the requirements will be controlled in accordance with 10 CFR 50.59.

The proposed change to the Bases for TS 3/4.1.4 relocates the functional description of the core spray header ΔP instrumentation to licensee-controlled documents. This change is consistent with the proposed relocation of the surveillance testing requirements and effectively removes all references to the instrumentation from the TSs and TS Bases.

3.0 BACKGROUND

The core spray system, in conjunction with the automatic depressurization system, is the standby emergency core cooling system for removal of decay heat from the reactor fuel assemblies in the event of a loss of coolant accident (LOCA). The core spray system consists of two automatically-actuated independent full-capacity systems. Each system is capable of taking suction from the suppression pool and delivering the water to a separate ring header located inside the reactor vessel shroud directly above the core. The ring headers (one for each system) spray water directly onto the fuel bundles in a pre-established pattern. The purpose of the core spray header ΔP instrumentation is to monitor the integrity of the core spray piping between the core shroud and the reactor vessel by measuring the ΔP between the top of the core support plate and the ring header. A significant pipe break in the core spray piping between the core shroud and vessel wall would cause the measured ΔP to increase since the ring header sensing configuration would be altered such that the instrumentation would now be sensing the pressure drop across the steam separators and dryers. An alarm alerts the operator of the significant pipe

break condition when the measured ΔP exceeds the alarm setpoint value. Separate channels of the core spray header ΔP instrumentation are provided for each core spray system. The core spray system, including the core spray header ΔP instrumentation, is described in Section VII-A, "Core Spray System," of the Updated Final Safety Analysis Report (UFSAR).

Inoperability of the core spray header ΔP instrumentation would not necessarily be indicative of a loss of integrity of the core spray piping within the reactor vessel and could result in an unnecessary plant shutdown or request for enforcement discretion. Furthermore, this instrumentation does not satisfy the 10 CFR 50.36 screening criteria for retention in the TSs. Accordingly, NMPNS proposes to relocate the surveillance testing requirements currently specified in TS SR 4.1.4d for the core spray header ΔP instrumentation to licensee-controlled documents. The proposed change to the Bases for TS 3/4.1.4 relocates the functional description of the instrumentation to licensee-controlled documents consistent with the proposed change to the TSs. These changes would effectively remove all references to the core spray header ΔP instrumentation from the TSs and TS Bases, consistent with the Improved Standard TSs (NUREG-1433, Rev. 3). Similar changes have been approved for Peach Bottom Nuclear Generating Station, Edwin I. Hatch Nuclear Plant, and Brunswick Nuclear Plant as part of their conversion to the Improved Standard TSs and for James A. FitzPatrick Nuclear Power Plant as part of a plant-specific TS amendment, dated January 12, 1999 (Accession No. ML010960408).

4.0 TECHNICAL ANALYSIS

TS LCO 3.1.4a currently requires that each of the two core spray systems be operable whenever irradiated fuel is in the reactor vessel and the reactor coolant temperature is greater than 212° F, except as specified in TSs 3.1.4b and 3.1.4c. These two latter specifications allow a redundant component in either one or both core spray systems to be inoperable for up to 7 days, provided operability of its redundant component or its system is verified to be operable immediately and daily thereafter in accordance with TS SR 4.1.4e. As previously described, TS SR 4.1.4d currently requires that the core spray header ΔP instrumentation be periodically tested such that a check of each sensor is performed at least once each day and each channel is calibrated and tested at least once every 3 months. This SR demonstrates operability of the core spray header ΔP instrumentation.

TSs 3.1.4b and 3.1.4c are not applicable to the core spray header ΔP instrumentation because the associated components are not redundant with respect to each system (there is only one ΔP instrument channel per core spray system). Currently, whenever a channel of the core spray header ΔP instrumentation is declared inoperable, TS LCO 3.1.4d is entered, which requires the plant to initiate an orderly shutdown within one hour and to be in the cold shutdown condition within ten hours. Note that this shutdown LCO is also currently entered for the performance of the quarterly calibrations and functional tests required by TS SR 4.1.4d since this testing necessitates each channel of the core spray header ΔP instrumentation to be removed from service.

The purpose of the core spray header ΔP instrumentation is to monitor the integrity of the core spray piping between the core shroud and the reactor vessel by measuring the ΔP between the top

of the core support plate and the ring header. A significant pipe break in the core spray piping between the core shroud and vessel wall would cause an alarm in the control room to alert the operator of the condition. There are no control or active safety functions associated with this instrumentation. Moreover, a failure of the instrumentation, or inoperability due to planned maintenance or testing, would have no direct impact on the integrity of the core spray piping or the capability of the core spray systems to perform their intended safety functions. As such, the core spray header ΔP instrumentation and associated SRs do not relate directly to core spray system operability as defined in TS LCO 3.1.4a, or meet the criteria for retention in the TSs as defined in 10 CFR 50.36(c)(2)(ii) and 10 CFR 50.36(c)(3).

The NRC's rule regarding the content of TSs is set forth in 10 CFR 50.36, which codifies the criteria for establishing TS LCOs and SRs. In promulgating this rule, the NRC determined that the purpose of the TSs is to impose only those conditions or limitations on reactor operations necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. TSs that do not meet the screening criteria for retention as TSs may be relocated to licensee-controlled documents.

- 4.1 The four screening criteria defined in 10 CFR 50.36(c)(2)(ii) for establishing an LCO are applied to the core spray header ΔP instrumentation as follows:

10 CFR 50.36(c)(2)(ii) Screening Criteria for Establishing a TS LCO

Criterion 1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

The core spray header ΔP instrumentation monitors the integrity of the core spray piping within the reactor pressure vessel. It was not designed to detect leakage outside of the reactor coolant pressure boundary. Therefore, the core spray header ΔP instrumentation is not required to assure core spray system operability as currently defined in the TS 3.1.4 LCOs and does not meet Criterion 1 for retention in the TSs.

Criterion 2. A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The accident/transient analyses that could challenge the integrity of a fission product barrier when the core spray system is required to be operable are the main steam line break accident, LOCA, refueling accident, and control rod drop accident (see UFSAR, Section XV-C). The operation of the core spray header ΔP instrumentation or actuation of the alarm at its setpoint is not an initial condition or assumption of these analyses. Therefore, the core spray header ΔP instrumentation is not required to assure core spray system operability as currently defined in the TS 3.1.4 LCOs and does not meet Criterion 2 for retention in the TSs.

Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that

either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

As discussed in the analysis for Criterion 2, operation of the core spray header ΔP instrumentation is not an assumption of the analyses for the accidents/transients that could challenge the integrity of a fission product barrier. As such, the core spray header ΔP instrumentation is not part of a success path for the mitigation of the analyzed accidents/transients. Therefore, the core spray header ΔP instrumentation is not required to assure core spray system operability as currently defined in the TS 3.1.4 LCOs and does not meet Criterion 3 for retention in the TSs.

Criterion 4. A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

The unavailability of the core spray header ΔP instrumentation does not directly affect the capability of the core spray systems to perform their intended safety functions. Furthermore, this instrumentation does not contribute to the probability of a LOCA and does not impact core damage frequency or large radionuclide releases. Therefore, the core spray header ΔP instrumentation is not required to assure core spray system operability as currently defined in the TS 3.1.4 LCOs and does not meet Criterion 4 for retention in the TSs.

- 4.2 The criterion for establishing a TS SR as defined in 10 CFR 50.36(c)(3) is applied to SR 4.1.4d as follows:

10 CFR 50.36(c)(3) Criterion for Establishing a TS SR

Criterion. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

The unavailability of the core spray header ΔP instrumentation does not degrade the quality or performance of the core spray systems to mitigate an accident or assure operation within the safety limits. Moreover, availability of the instrumentation is not an initial condition of any accident or transient analysis described in the UFSAR, nor is the instrumentation used to initiate actions in the emergency operating procedures. The availability of the core spray systems is dependent on the integrity of the piping within the reactor vessel, not the instrumentation that monitors it. As evaluated in Section 4.1 above, the core spray header ΔP instrumentation does not meet the criteria for establishing a TS LCO. Therefore, the method for monitoring the integrity of the core spray piping and the associated instrumentation calibration and testing requirements of SR 4.1.4d are plant-specific details that are not required to be in the TSs in order to provide adequate protection of the public health and safety. Accordingly, the requirements of SR 4.1.4d do not meet the criterion of 10 CFR 50.36(c)(3) for retention in the TSs.

Based on the above evaluations, the core spray header ΔP instrumentation and associated periodic calibration and testing requirements are not required to be retained in the TSs to provide adequate protection of the public health and safety. Therefore, NMPNS proposes to relocate the requirements of TS SR 4.1.4d and the TS Bases description of the instrumentation to licensee-controlled documents. These changes will effectively remove all references to the core spray header ΔP instrumentation from the TSs and TS Bases. Following implementation of the proposed changes, any inoperability of the core spray header ΔP instrumentation would continue to be evaluated and corrected in accordance with the existing corrective action program. Any changes to the relocated requirements will be controlled in accordance with 10 CFR 50.59. A mark-up of the affected TS Bases page is provided in Attachment 3, and is included for information only. TS Bases changes are controlled by the TS Bases Control Program.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration Analysis

The proposed changes would revise the Technical Specifications (TSs) by relocating the surveillance testing requirements for the core spray header differential pressure (ΔP) instrumentation to licensee-controlled documents.

Nine Mile Point Nuclear Station, LLC (NMPNS) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment 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 changes are limited to the relocation of selected instrumentation requirements. The proposed relocated requirements were determined to not meet the 10 CFR 50.36 screening criteria for retention in the TSs and will be maintained in licensee-controlled documents in accordance with the provisions of 10 CFR 50.59. The proposed changes do not introduce any new modes of plant operation, make any physical changes to the plant, or alter any operational setpoints which could degrade the performance of any safety system assumed to function in the accident analysis. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The proposed changes do not introduce any new modes of plant operation, make any physical changes to the plant, or alter any operational setpoints which could create new accident initiators or failure mechanisms. The proposed changes are limited to the relocation of selected instrumentation requirements, and will have no impact on the accident assumptions and initial conditions as previously analyzed in the UFSAR. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Response: No.

The proposed changes are consistent with the Improved Standard TSs (NUREG-1433, Rev. 3) and will have no impact on the instrumentation setpoints, logic, or functional requirements as described in the TSs, TS Bases, and UFSAR. The proposed relocated requirements were determined to not meet the 10 CFR 50.36 screening criteria for retention in the TSs. Thus, the relocated requirements will be maintained in accordance with 10 CFR 50.59 as required. Accordingly, the proposed relocated requirements will not degrade the quality or performance of any safety system assumed to mitigate an accident or assure operation within the safety limits. Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

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

5.2 Applicable Regulatory Requirements/Criteria

The NRC's regulatory requirements regarding the content of TSs is set forth in 10 CFR 50.36, which codifies the criteria for establishing TS LCOs and SRs. In promulgating these requirements, the NRC determined that the purpose of the TSs is to impose only those conditions or limitations on reactor operations necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. TSs that do not meet the screening criteria for retention as TSs may be relocated to licensee-controlled documents.

An evaluation of the proposed changes has determined that the applicable regulations and requirements will continue to be met. The TS amendment application provides sufficient information to demonstrate that the proposed changes do not alter compliance with any applicable regulatory requirement or criteria. The proposed changes revise TS SR 4.1.4d by relocating the requirements for the core spray header Δ P instrumentation to licensee-controlled documents consistent with the Improved Standard TSs for BWRs (NUREG-1433, Rev. 3). It was determined that the core spray header Δ P instrumentation and associated SRs do not relate directly to core spray system operability as defined in TS LCO 3.1.4a, or meet the criteria for retention in the TSs as defined in 10 CFR 50.36(c)(2)(ii) and 10 CFR 50.36(c)(3). The TS Bases will be revised consistent with the proposed changes to the TSs.

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.

5.3 Commitments

The following table identifies those actions committed to by NMPNS in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

REGULATORY COMMITMENTS	Due Date/Event
NMPNS will relocate the surveillance testing requirements for the core spray header ΔP instrumentation to licensee-controlled documents which are controlled under the provisions of 10 CFR 50.59.	Within 60 days of TS Amendment date of issuance (concurrent with implementation of the amendment).

6.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment 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 amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment 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 amendment.

ATTACHMENT 2

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)

The current version of Technical Specification page 55 has been marked-up by hand to reflect the proposed changes.

LIMITING CONDITION FOR OPERATION

- d. If Specifications a, b and c are not met, a normal orderly shutdown shall be initiated within one hour and the reactor shall be in the cold shutdown condition within ten hours.
- e. During reactor operation, except during core spray system surveillance testing, core spray isolation valves 40-02 and 40-12 shall be in the open position and the associated valve motor starter circuit breakers for these valves shall be locked in the off position. In addition, redundant valve position indication shall be available in the control room.
- f. Whenever irradiated fuel is in the reactor vessel and the reactor coolant temperature is less than or equal to 212°F, two core spray subsystems shall be operable except as specified in g and h below.
- g. If one of the above required subsystems becomes inoperable, restore at least two subsystems to an operable status within 4 hours or suspend all operations that have a potential for draining the reactor vessel.

SURVEILLANCE REQUIREMENT

d. **Core spray header ΔP instrumentation**

(Deleted)	check	Once/day
	calibrate	Once/3 months
	test	Once/3 months

e. Surveillance with Inoperable Components

When a component becomes inoperable its redundant component or system shall be verified to be operable immediately and daily thereafter.

f. With a core spray subsystem suction from the CST, CST level shall be checked once per day.

g. At least once per month when the reactor coolant temperature is greater than 212°F, verify that the piping system between valves 40-03, 13 and 40-01, 09, 10, 11 is filled with water.

ATTACHMENT 3

CHANGES TO TECHNICAL SPECIFICATION BASES PAGES

(FOR INFORMATION ONLY)

The current version of Technical Specification Bases page 58 has been marked-up by hand to reflect the proposed changes. These Bases pages are provided for information only and do not require NRC issuance.

BASES FOR 3.1.4 AND 4.1.4 CORE SPRAY SYSTEM

~~Instrumentation has been installed to monitor the integrity of the core spray piping within the reactor pressure vessel.~~

The testing specified for each major refueling outage will demonstrate component response upon automatic system initiation. For example, pump set starting (low-low level or high drywell pressure) and valve opening (low-low level or high drywell pressure and low reactor pressure) must function, under simulated conditions, in the same manner as the systems are required to operate under actual conditions. The only differences will be that demineralized water rather than suppression chamber water will be pumped to the reactor vessel and the reactor will be at atmospheric pressure. The core spray systems are designed such that demineralized water is available to the suction of one set of pumps in each system (Section VII-Figure VII-1)*.

The system test interval between operating cycles results in a system failure probability of 1.1×10^{-6} (Fifth Supplement, page 115) and is consistent with practical considerations. The more frequent component testing results in a more reliable system.

At quarterly intervals, startup of core spray pumps will demonstrate pump starting and operability. No flow will take place to the reactor vessel due to the lack of a low-pressure permissive signal required for opening of the blocking valves. A flow restricting device has been provided in the test loop which will create a low pressure loss for testing of the system. In addition, the normally closed power operated blocking valves will be manually opened and re-closed to demonstrate operability.

The intent of Specification 3.1.4i is to allow core spray operability at the time that the suppression chamber is dewatered which will allow normal refueling activities to be performed. With a core spray pump taking suction from the CST, sufficient time is available to manually initiate one of the two raw water pumps that provide an alternate core spray supply using lake water. Both raw water pumps shall be operable in the event the suppression chamber was dewatered.

*FSAR