



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 16, 2011

Mr. Samuel L. Belcher
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: REVISION TO CONTAINMENT SPRAY SYSTEM NOZZLE
SURVEILLANCE FREQUENCY (TAC NO. ME3737)

Dear Mr. Belcher:

The Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 208 to Renewed Facility Operating License No. DPR-63 for the Nine Mile Point Nuclear Station, Unit No. 1 (NMP1), in response to your application dated March 22, 2010, (Agencywide Documents and Management System (ADAMS) Accession No. ML100890422).

This amendment revises the NMP1 Technical Specifications (TSs) Surveillance Requirement (SR) 4.3.7.b. by modifying the frequency of this SR from "at least once per operating cycle" to "following maintenance that could result in nozzle blockage." Additionally, the SR is revised to be more reflective of the Standard TS SR by deleting references to the type of test (e.g., air) performed and deleting references to the spray headers.

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,

A handwritten signature in black ink, appearing to read "R. Guzman", with a long horizontal flourish extending to the right.

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

Docket No. 50-220

Enclosures:

1. Amendment No. 208 to DPR-63
2. Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NINE MILE POINT NUCLEAR STATION, LLC (NMPNS)

DOCKET NO. 50-220

NINE MILE POINT NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 208
Renewed License No. DPR-63

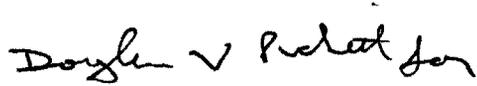
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Nine Mile Point Nuclear Station, LLC (the licensee) dated March 22, 2010, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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. 208, 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 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read "Nancy L. Salgado".

Nancy L. Salgado, 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: March 16, 2011

ATTACHMENT TO LICENSE AMENDMENT NO. 208
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 page of Appendix A, Technical Specifications, with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page

159

Insert Page

159

- (3) Pursuant to the Act and 10 CFR Parts 30, 40, and 70 to receive, possess and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument and equipment calibration or associated with radioactive apparatus or components.
- (5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I:

Part 20, Section 30.34 of Part 30; Section 40.41 of Part 40; Section 50.54 and 50.59 of Part 50; and Section 70.32 of Part 70. This renewed license is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect and is also subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 1850 megawatts (thermal).

(2) Technical Specifications

The Technical Specifications contained in Appendix A, which is attached hereto, as revised through Amendment No. 208, is hereby incorporated into this license. Nine Mile Point Nuclear Station, LLC shall operate the facility in accordance with the Technical Specifications.

(3) Deleted

LIMITING CONDITION FOR OPERATION

3.3.7 CONTAINMENT SPRAY SYSTEM

Applicability:

Applies to the operating status of the containment spray system.

Objective:

To assure the capability of the containment spray system to limit containment pressure and temperature in the event of a loss-of-coolant accident.

Specification:

- a. During all reactor operating conditions whenever reactor coolant temperature is greater than 215°F and fuel is in the reactor vessel and primary containment integrity is required; each of the two containment spray systems and the associated raw water cooling systems shall be operable except as specified in 3.3.7.b.
- b. If a redundant component of a containment spray system becomes inoperable, Specification 3.3.7.a shall be considered fulfilled, provided that the component is returned to an operable condition within 15 days and that the additional surveillance required is performed.

SURVEILLANCE REQUIREMENT

4.3.7 CONTAINMENT SPRAY SYSTEM

Applicability:

Applies to the testing of the containment spray system.

Objective:

To verify the operability of the containment spray system.

Specification:

The containment spray system surveillance shall be performed as indicated below:

- a. Containment Spray Pumps
 - (1) At least once per operating cycle, automatic startup of the containment spray pump shall be demonstrated.
 - (2) At least once per quarter, pump operability shall be checked.
- b. Nozzles

Following maintenance that could result in nozzle blockage, a test shall be performed on the spray nozzles.



UNITED STATES
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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 208

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-63

NINE MILE POINT NUCLEAR STATION, LLC

NINE MILE POINT NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-220

1.0 INTRODUCTION

By letter dated March 22, 2010, Nine Mile Point Nuclear Station, LLC, requested a license amendment to revise Nine Mile Point, Unit 1 (NMP1) Technical Specification (TS) Surveillance Requirement (SR) 4.3.7.b. Specifically, the proposed license amendment would revise the frequency of this SR from "at least once per operating cycle" to "following maintenance that could result in nozzle blockage." Additionally, the SR is being revised to be more reflective of the Standard TS SR by deleting references to the type of test (e.g., air) performed and deleting references to the spray headers.

The containment spray system (CSS) is an engineered safeguards system which reduces containment pressure and temperature following a loss-of-coolant-accident (LOCA). The system is designed to prevent containment pressure and temperature from exceeding design values for reactor coolant system leaks up to and including the design-basis accident (DBA), the double-ended break of a reactor coolant recirculation line. The CSS provides long-term cooling of the pressure suppression chamber (torus) after a LOCA. As a result, the system is a means of decay heat removal available following a DBA LOCA. The CSS is also capable of providing an unlimited supply of lake water for both core and containment cooling. This capability is provided by the containment spray raw water subsystem. This subsystem may be aligned to provide lake water directly to the reactor vessel via the core spray spargers and to containment via the containment spray headers. These alignments allow the CSS to be used to flood the reactor vessel above the top of the core. The CSS may also be used under normal operating conditions to cool the torus water and lower the torus water level. In addition, the CSS may be used under off-normal conditions to add lake water directly to the torus.

2.0 REGULATORY EVALUATION

The Nuclear Regulatory Commission (NRC) staff finds that the licensee in its March 22, 2010, submittal, identified the applicable regulatory requirements. The regulatory requirements and guidance which the NRC staff considered in assessing the proposed TS change are as follows:

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, General Design Criteria (GDC) 38, *Containment heat removal*, requires a system to remove heat from the reactor containment shall be provided. The system safety function is to rapidly reduce containment pressure and temperature. The drywell spray is one mode of operation of the residual heat removal system which performs this function.

GDC 39, *Inspection of containment heat removal system*, requires that the containment heat removal system be designed to permit periodic inspection. The NMP1 containment spray system permits verification that the spray nozzles are unobstructed. However, the licensee states that the proposed surveillance, which would require a flow test only in special circumstances, would reduce outage dose and improve personnel safety.

GDC 40, *Testing of containment heat removal system*, requires that the containment heat removal system be designed for periodic functional testing. The NMP1 TS require periodic testing of the drywell spray system nozzles to demonstrate that they are unobstructed once per operating cycle.

3.0 TECHNICAL EVALUATION

The NMP1 CSS is designed with two redundant loops. The "primary" loop (Loop 11) provides water to the primary or "inner" drywell header and to the torus header. The "secondary" loop (Loop 12) provides water to the secondary or "outer" drywell header and to the torus header. The torus header is common to both loops. Each loop includes two redundant trains, each of which can provide water to the drywell header associated with the loop and to the one common torus header.

The NMP1 containment spray pipes that feed the drywell headers are 12" schedule #40, A333, GR6 carbon steel and schedule #80 galvanized carbon steel. These 12" pipes feed the seven ring headers consisting of 2" through 6" galvanized carbon steel. The nozzles are Grinnell Corporation Protectospray angle spray models made of corrosion resistant stainless steel. The majority of the piping in the drywell is galvanized and, therefore, will not produce corrosion products even if wet. There are twenty of the Model D3, 28-0.275" (3/8") nozzles on header rings "F" and "G." There are one hundred eighty-four of the Model D3, 34-0.500" (1/2") nozzles on the remaining 5 header rings. All of the nozzles point downward except for those on the lowest header ring, which is ring header "A" on elevation 245 feet. These nozzles are pointed slightly above horizontal. The containment spray pipes that feed the torus header are 12" schedule #40, A333, GR6 carbon steel. These two pipes feed one common ring header of mostly 4" and some 3" carbon steel pipe. The torus header is attached to the top of the torus and runs in a full circle around the torus. The 40 spray nozzles on this header are Spraying Systems Company Model 11H4.2, FullJet 1" nozzles with a 15/64" orifice. All of the nozzles in the torus point downward.

Air flow testing and visual inspections of the NMP1 drywell and torus spray nozzles from 1990 through 2009 (last ten tests) were reviewed. There was no nozzle blockage identified in these tests. In order to evaluate the vulnerability of having a CSS spray nozzle obstruction, condition reports (CR) related to the spray nozzles were reviewed. The licensee references five CRs that were relevant to this request. From the review of these CRs, the licensee concluded that events

that could affect nozzle flow have been infrequent and of minor impact. The one exception to this was the obstruction of a single nozzle due to the Foreign Material Exclusion (FME):

CR-2000-003458 (10/4/2000): During a work order to replace a bent nozzle, other nozzles were closely inspected visually. A small piece of cloth was found protruding from one of the other nozzles on the "A" header. Some nozzles on the "A" header were removed in order to inspect the header using a video probe. A 3/4" layer of material was found behind the cloth. CR-2000-003477 was written to document the condition. The material was sampled and found to have small particles of corrosion products in it. The 3/4" layer was determined to be built up due to the cloth obstruction, but the origin of the material was not determined. The header pipe is made of galvanized steel and would not normally rust. The material was removed and the rest of the header was inspected and found to be clean. The apparent cause of the cloth being in the pipe was inappropriate Foreign Material Exclusion (FME) control. Since this incident, a more robust FME program was instituted.

NRC staff review of industry experience indicates that spray systems of similar design are highly reliable (i.e., not susceptible to plugging). The staff reviewed industry experience and found that, in general, once tested after construction, containment spray nozzles have not been subject to blockage. In the case of one pressurized-water reactor, debris was discovered in this piping. The debris was identified as construction material. The fraction of blockage was not significant and the sprays remained functional. The debris was found by visual observation, not by an air flow test.

Introduction of foreign material from exterior to the spray nozzles is unlikely, as many of the nozzles are located high in the drywell and torus. The spray nozzles in the drywell and torus are pointed downward except for those on the lowest drywell header ring, which is ring header "A" on elevation 245 feet. These nozzles are pointed slightly above horizontal. The nozzles, though open at the end, have a flared spray piece over the nozzle orifice. Any debris coming down from above would be expected to be deflected away from the orifice unless it was sufficiently small to fall past the spray piece. Any material that was large enough to clog an orifice would not be expected to enter the nozzle. It would sit on top until it was removed by the spray. Since maintenance that could introduce foreign material is the most likely cause for obstruction, flow testing or inspection following maintenance or testing in which a breakdown of the FME program occurs would suffice to verify the absence of nozzle blockage and the system's capability to perform its safety function.

The licensee's March 22, 2010, letter describes the NMP1 FME program. The licensee's program is based on industry guidance and operating experience. The licensee states that:

If any material is unaccounted for in an FME area or a general FME concern is observed, a condition report is initiated. The corrective action program would then provide for a determination of the scope of the issue, the actions necessary to return the area to the required level of cleanliness, and whether testing is necessary.

For these reasons, the NRC staff considers the potential for nozzle obstruction very low and, therefore, the "once per operating cycle" test frequency is unnecessary. Testing at the

proposed frequency would reduce outage dose and improve personnel safety. Verifying that the nozzles are not obstructed following maintenance or inadvertent system flow that could introduce foreign materials internal to the spray ring headers is a more appropriate surveillance.

The NRC staff concludes that the licensee's proposal to revise TS SR 4.3.7.b frequency from "once per operating cycle" to "following maintenance that could result in nozzle blockage" is acceptable, since the licensee maintains an effective FME program and has taken steps to maintain the system dry in order to eliminate corrosion of the metal piping. This surveillance maintains the drywell spray system's capability to satisfy GDC 38, 39, and 40.

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 SRs. 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 (75 FR 39980, July 13, 2010). In addition, the NRC staff has determined that some of the changes are administrative in nature. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and (c)(10). 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 Commission 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.

Principal Contributors: R. Guzman
B. Lee

Date: March 16, 2011

March 16, 2011

Mr. Samuel L. Belcher
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: REVISION TO CONTAINMENT SPRAY SYSTEM NOZZLE
SURVEILLANCE FREQUENCY (TAC NO. ME3737)

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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 Operator Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-220

Enclosures:

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2. Safety Evaluation

cc w/encls: Distribution via Listserv

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ADAMS Accession No.: ML110650003

(*)SE provided by memo. No substantial changes made.

NRR-106

OFFICE	LPL1-1/PM	LPL1-1/LA	DSS/SCVB/BC(*)	DIRS/ITSB/BC	OGC	LPL1-1/BC
NAME	RGuzman	SLittle	RDennig	RElliott	STurk	NSalgado (DPickett for)
DATE	3/9/11	3/9/11	2/24/11	3/10/11	3/14/2011	3/16/11

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