

Christopher R. Costanzo  
Vice President-Nine Mile Point

P.O. Box 63  
Lycoming, New York 13093  
315.349.5200  
315.349.1321 Fax

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NINE MILE POINT  
NUCLEAR STATION

March 8, 2013

U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**ATTENTION:** Document Control Desk

**SUBJECT:** Nine Mile Point Nuclear Station  
Unit No. 1, Docket No. 50-220

License Amendment Request Pursuant to 10 CFR 50.90: Diesel Generator Initiation -  
Degraded Voltage Time Delay Setting Change

Pursuant to 10 CFR 50.90, Nine Mile Point Nuclear Station, LLC (NMPNS) hereby requests an amendment to the Nine Mile Point Unit 1 (NMP1) Renewed Facility Operating License DPR-63. The proposed amendment would modify Technical Specification (TS) Table 3.6.2i, "Diesel Generator Initiation," by revising the existing 4.16kV Power Board 102/103 Emergency Bus Undervoltage (Degraded Voltage) Operating Time value and updating the Set Point heading title.

The Enclosure provides a description and technical bases for the proposed changes, and the existing TS page marked up to show the proposed changes. NMPNS has concluded that the activities associated with the proposed amendment represent no significant hazards consideration under the standards set forth in 10 CFR 50.92.

The TS revision is being made to resolve the Green non-cited violation (NCV) associated with the vital bus degraded voltage protection time delay documented in NRC Inspection Report (IR) 05000220/201101, "Nine Mile Point Nuclear Station - NRC Unresolved Item Follow-up Inspection Report," dated January 23, 2012; specifically, NCV05000220/2011011-01, "Vital Bus Degraded Voltage

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Time Delay Not Maintained within LOCA Analysis Assumptions." Approval of the proposed license amendment is requested by March 31, 2014, with implementation within 60 days.

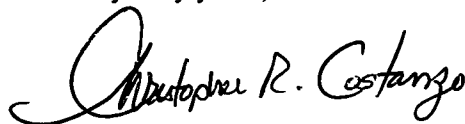
This document contains no regulatory commitments.

Pursuant to 10 CFR 50.91(b)(1), NMPNS has provided a copy of this license amendment request, with Enclosure, to the appropriate state representative.

Should you have any questions regarding the information in this submittal, please contact John J. Dosa, Director Licensing, at (315) 349-5219.

I declare under penalty of perjury that the foregoing is true and correct. Executed on March 8, 2013.

Very truly yours,

A handwritten signature in black ink, reading "Christopher R. Costanzo". The signature is fluid and cursive, with the first name "Christopher" being more prominent and the last name "Costanzo" following in a similar style.

Christopher R. Costanzo  
Vice President- Nine Mile Point

CRC/KJK

Enclosure: Evaluation of the Proposed Change

cc: Regional Administrator, Region 1, NRC  
Project Manager, NRC  
Resident Inspector, NRC  
A. L. Peterson, NYSERDA

## **ENCLOSURE**

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### **EVALUATION OF THE PROPOSED CHANGE**

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#### **ATTACHMENTS**

- 1. Nine Mile Point Unit 1 - Proposed Technical Specification Changes (Mark-up)
- 2. Nine Mile Point Unit 1 - Changes to Updated Final Safety Analysis Report (Mark-up)

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## **1.0 SUMMARY DESCRIPTION**

This evaluation supports a request to amend Renewed Facility Operating License DPR-63 for Nine Mile Point Unit 1 (NMP1).

Pursuant to 10 CFR 50.90, Nine Mile Point Nuclear Station, LLC (NMPNS) hereby requests an amendment to the Nine Mile Point Unit 1 (NMP1) Renewed Facility Operating License DPR-63. The proposed amendment would modify Technical Specification (TS) Table 3.6.2i, "Diesel Generator Initiation," by revising the existing 4.16kV Power Board (PB) 102/103 Emergency Bus Undervoltage (Degraded Voltage) Operating Time value and updating the Set Point heading title. In addition, the NMP1 Updated Final Safety Analysis Report (UFSAR) Table XV-9, "Significant Input Parameters to the Loss-Of-Coolant Accident (LOCA) Analysis," would be revised to add a note regarding maximum allowable delay time from initiating signal to pump at rated speed settings, to address the scenario of degraded grid voltage coincident with a LOCA using the revised TS Table 3.6.2i operating time. The TS Basis is not being changed. The TS and UFSAR revisions are being made to resolve the Green non-cited violation (NCV) associated with the vital bus degraded voltage protection time delay documented in NRC Inspection Report (IR) 05000220/201101, "Nine Mile Point Nuclear Station - NRC Unresolved Item Follow-up Inspection Report," dated January 23, 2012 (Reference 1), specifically, NCV05000220/2011011-01, "Vital Bus Degraded Voltage Time Delay Not Maintained within LOCA Analysis Assumptions."

An evaluation of the NMP1 UFSAR LOCA coincident with a degraded grid voltage condition was conducted to demonstrate that the combination of the maximum times for the revised TS Table 3.6.2i upper limits and the current maximum delay time for Emergency Core Cooling System (ECCS) injection was acceptable.

The revised TS changes are provided in Attachment 1 and the draft UFSAR update is provided in Attachment 2.

## **2.0 DETAILED DESCRIPTION**

### **2.1 Description of the Proposed Change**

The proposed change includes the following TS revisions:

- TS Table 3.6.2i, Operating Time Setting: Replace the, "<60 seconds," upper time limit for the 4.16kV PB102/103 Emergency Bus Undervoltage (Degraded Voltage) with, "≤ 24 seconds".
- TS Table 3.6.2i, table heading for Set Point: Remove the parenthetical statement categorizing the type of relay.

Attachment 1 provides the existing TS page marked-up to show the proposed changes. A marked-up page showing changes to the NMP1 UFSAR Table XV-9 is provided in Attachment 2 for information only. Following NRC approval of the license amendment request, the UFSAR will be updated in accordance with 10 CFR 50.71(e).

### **2.2 Background**

The NRC documented a Green NCV in IR 05000220/201101, dated January 23, 2012 (Reference 1). The IR stated that the vital bus degraded voltage protection design modification which established a protection

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relay time delay resulted in the ECCS injection times exceeding the times assumed in the UFSAR LOCA analysis. The conflicting values are found in TS Table 3.6.2i and UFSAR Table XV-9. The degraded voltage relay setpoint of <60 seconds specified in TS Table 3.6.2.i was determined by the NRC to be non-conservative when compared to the UFSAR LOCA significant input parameter of 35 seconds for maximum allowable delay time from initiating signal to pump at rated speed documented in UFSAR Table XV-9.

The operating time values, and associated notes, listed in TS Table 3.6.2i were implemented with License Amendment 148, dated April 7, 1994 (Reference 2). License Amendment 148 changed the degraded voltage relay dropout setpoint from  $\geq 3580$  volts to the current value of  $\geq 3705$  volts. License Amendment 148 also changed the operating time setpoint from 18 +/- 3 seconds to the current values of >3.4 seconds and <60 seconds. The bases for the upper setting of <60 seconds is documented in Note (c) of Table 3.6.2i, which states that, "The operating time indicated in the table is the maximum time allowable to preclude load damage or trip device actuation at voltages below the degraded voltage setpoint of 3705 volts." The NRC approval of License Amendment 148 did not discuss the UFSAR LOCA analysis assumptions documented in UFSAR Chapter XV.

The current in-plant setting for the 4.16kV PB 102/103 Emergency Bus Undervoltage (Degraded Voltage) relay operating time is 21 +/- 3 seconds. This setting is controlled through administrative controls and design engineering calculations. The change proposed in this amendment request will align the TS limits for degraded voltage documented in TS Table 3.6.2i with the current plant configuration settings. The NRC Inspection Report (Reference 1) documents that during the 2008 and 2011 Component Design Basis Inspection, the NRC inspectors verified the NMP1 Degraded Voltage time delay relays were set at a nominal 21 seconds.

### **3.0 TECHNICAL EVALUATION**

The undervoltage protection for NMP1 4.16kV PB 102/103 is designed to ensure that sufficient voltage is available to the loads connected to PB 102/103. Two levels of undervoltage protection are provided; loss of voltage and degraded voltage. The loss of voltage relay setpoints specified in TS Table 3.6.2i are not affected by this change.

For degraded voltage, NMP1 calculation 4.16KVAC-PB102/103SETPT/27 determined that the time delay for the degraded voltage relay should be set at 21 plus or minus 3 seconds. The basis of the maximum allowable relay time delay setpoint is to preclude motor insulation degradation or actuation of protective devices. The most limiting time duration was determined to be 200 seconds for the limiting electrical components, breakers on down-stream PB 16B and 17B. The current TS limit approved in License Amendment 148 selected 60 seconds as the maximum time the degraded voltage condition could be sustained and preclude damage to loads or trip device actuation. Changing the limit to  $\leq 24$  seconds is conservative in that the in-plant settings for the degraded voltage relay operating time are currently set at 21 +/- 3 seconds. Changing the TS limit from <60 seconds to  $\leq 24$  seconds is bounded by the current calculations and analysis for delays up to 200 seconds.

The NRC approval of NMP1 License Amendment 148 did not include a review of the impact of degraded voltage conditions coincident with a LOCA. This position was summarized by the Office of Nuclear Reactor Regulation (NRR) in the final response to Task Interface Agreement (TIA 2011-003) related to NMP1 licensing basis for degraded grid voltage time delays, dated June 29, 2011 (Reference 3).

A 24 second time delay for diesel generator initiation under degraded voltage conditions results in a maximum time delay of 59 seconds from initiating signal to core spray pump at rated speed for the special

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scenario of degraded voltage conditions coincident with a LOCA. The value of 59 seconds was determined by adding the nominal 21 second time delay for diesel generator initiation, plus the maximum 3 second uncertainty, to the current 10 second diesel generator start time and the 25 second time for the core spray pumps to attain rated speed.

Additional evaluation was performed by General Electric Hitachi Nuclear Energy (GEH) using previously approved methodologies to assess the sustained degraded voltage condition coincident with a LOCA. In all cases evaluated with 10 CFR 50 Appendix K assumptions, the analysis results remained below the 10 CFR 50.46 acceptance criteria of 2200°F for Peak Cladding Temperature (PCT) and 17% for Maximum Local Oxidation (MLO). The GEH analysis determined that the ECCS will perform its safety function with a time delay of 60 seconds from event initiation to core spray pump at rated speed, resulting in insignificant differences in the PCT and MLO for both GE11 and GNF2 fuel types in use at NMP1.

The ECCS-LOCA evaluation was performed using the NRC-approved SAFER/CORECOOL/PRIME-LOCA methodology (References 4 and 5) for GNF2 fuels, SAFER/CORECOOL/GESTR-LOCA methodology for GE 11 fuels (Reference 4) with other applicable models specified in NEDE-30996-P-A (Reference 4), and BWR/2- specific procedures defined in the acceptance letter for NEDE-30996P (Reference 6).

The title of the table heading for Set Point in TS Table 3.6.2i includes a categorization of the relay type in a parenthetical statement as, "Inverse Time Undervoltage Relays." Including this type of information in the table heading is not necessary. The technical specification table critical attributes are to document the limits of the time delay and the voltage setpoints, and does not need to note the type of relay. The approval of NMP1 License Amendment 67, dated November 9, 1984 (Reference 7) and NMP1 License Amendment 148 did not require this wording on the relay type in the table heading. This type of extraneous information is also inconsistent with the content of the Standard Technical Specifications - General Electric Plants (BWR/4): Specifications (NUREG-1433, Revision 4, Volume 1) for Loss of Power Instrumentation, Section 3.3.8.1. The additional time and expense of processing another license amendment would also be avoided in the event that undervoltage relays of a different design are installed.

#### **4.0 REGULATORY EVALUATION**

##### **4.1 Applicable Regulatory Requirements/Criteria**

The NMP1 UFSAR Section 1A, "Principle Design Criteria," paragraph 7.0 documents the Unit 1 principal design criteria for the electrical power system. Paragraph 7.0 states, "sufficient normal and standby auxiliary sources of electrical power are provided to assure a capability for prompt shutdown and continued maintenance of the Station in a safe condition under all credible circumstances." This criteria was assessed against General Design Criteria (GDC)-17 in the Technical Supplement to Petition for Conversion from Provisional Operating License to Full-Term Operating License, November 17, 1971. The conclusion of the assessment was NMP1 met the intent of the NRC requirements in 10 CFR 50, Appendix A, GDC-17, "Electric Power Systems," that require, in part:

An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

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As outlined in TIA-2011-003 (Reference 3), this part of GDC-17 requires licensees to design their onsite electric power systems to be capable of protecting the safety-related equipment needed to ensure cooling of the core and the maintenance of containment integrity and other vital functions even in the event of postulated accidents. Since degradation of the offsite power system could cause the loss of capability of safety related equipment, the NRC required, in the NRC letter dated June 2, 1977 (Reference 8), that all licensees modify their plant designs to include a second level undervoltage protection scheme so as to protect the safety-related equipment against degraded grid voltage conditions. Position B.(1).(c) (1) of Reference 6 stated, in part:

B.(1).(c): The time delay selected shall be based on the following conditions:

- (1) The allowable time delay, including margin, shall not exceed the maximum time delay that is assumed in the FSAR accident analysis.

In other words, the degraded voltage protection time delay should be set such that the ECCS is able to inject water in to the core within the maximum allowable time assumed in the FSAR accident analyses, even if a sustained degraded grid voltage condition is present. The revision of the maximum delay time for the degraded voltage relays in TS Table 3.6.2i from 60 seconds to 24 seconds results in a maximum ECCS injection time of 59 seconds from event initiation. The GEH evaluation performed for the degraded voltage coincident with a LOCA scenario determined that time delays of up to 60 seconds from event initiation would result in minimal differences in the PCT and the MLO for both of the GNF2 and GE11 fuel types. Additionally, the resultant PCT and MLO remain below the 10 CFR 50.46 limit of 2200°F and 17% respectively. The GEH analysis of a postulated LOCA event coincident with a sustained degraded voltage condition will be documented in the UFSAR accident analysis section, as noted by the proposed revision to UFSAR Table XV-9 in Attachment 2.

The NRC has established requirements in 10 CFR 50, Appendix K for required and acceptable features of the ECCS Evaluation Models used for LOCA analysis. The use of the NRC-approved methodology described in NRC-approved SAFER/CORECOOL/PRIME-LOCA methodology (References 4 and 5) for GNF2 fuels, SAFER/CORECOOL/GESTR-LOCA methodology for GE 11 fuels (Reference 4) with other applicable models specified in NEDE-30996-P-A (Reference 4), and BWR/2- specific procedures defined in the acceptance letter for NEDE-30996P (Reference 6) for the preparation of the analysis of the LOCA analysis coincident with sustained degraded voltage ensures that the requirements of 10 CFR 50 Appendix K will be satisfied.

The NRC has established requirements in 10 CFR 50.46 for the acceptance criteria for ECCS for light-water nuclear power reactors. The use of an approved ECCS Evaluation Model for the LOCA analysis is an alternative to demonstrate the requirements of 10 CFR 50.46 are met. NMP1 demonstrates its compliance with the requirements of 10 CFR 50.46 as shown in the technical evaluation discussion above.

#### **4.2 Significant Hazards Consideration**

Nine Mile Point Nuclear Station (NMPNS) is requesting revisions to Nine Mile Point Unit 1 (NMP1) Technical Specification (TS) Table 3.6.2i. The proposed amendment would modify TS Table 3.6.2i, "Diesel Generator Initiation," by revising the existing 4.16kV Power Board (PB) 102/103 Emergency Bus Undervoltage (Degraded Voltage) Operating Time value and updating the Set Point heading title. The change revises the current TS limit in Table 3.6.2i for degraded voltage time delay from <60 seconds to ≤24 seconds. The TS revision is being made to resolve the Green non-cited violation (NCV) associated

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with the vital bus degraded voltage protection time delay documented in NRC Inspection Report (IR) 05000220/201101, "Nine Mile Point Nuclear Station - NRC Unresolved Item Follow-up Inspection Report," dated January 23, 2012, specifically, NCV05000220/2011011-01, "Vital Bus Degraded Voltage Time Delay Not Maintained within LOCA Analysis Assumptions."

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 amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed changes modify the TS by changing the maximum time delay for degraded voltage from <60 seconds to  $\leq 24$  seconds. The proposed change does not affect the probability or consequences of any accident. Analysis was conducted and determined that the Emergency Core Cooling System (ECCS) will perform its safety function with a time delay of 60 seconds from event initiation to core spray pump at rated speed resulting in insignificant differences in the peak fuel clad temperature (PCT) and maximum local oxidation (MLO) for both GE11 and GNF2 fuel types in use at NMP1. Additionally, the PCT and the MLO remain below the 10 CFR 50.46 acceptance criteria of 2200°F and 17% respectively.

The proposed changes do not adversely affect accident initiators or precursors, and do not alter the design assumptions, conditions, or configuration of the plant or the manner in which the plant is operated and maintained. The ability of structures, systems, and components to perform their intended safety functions is not altered or prevented by the proposed changes, and the assumptions used in determining the radiological consequences of previously evaluated accidents are not affected.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The change adds an additional time delay due to voltage degradation prior to diesel start. The LOCA analysis model is unchanged. The maximum time delay from event initiation to core spray pump at rated speed input was changed from 35 to 60 seconds to model the Loss-Of-Coolant Accident (LOCA) event coincident with a sustained degraded voltage in order to determine that the 10 CFR 50.46 acceptance criteria is met for this scenario. These changes do not involve any physical alteration of the plant (i.e., no new or different type of equipment will be installed), and installed equipment is not being operated in a new or different manner. Thus, no new failure modes are introduced.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.



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

Response: No.

The proposed changes do not affect the function of the reactor coolant pressure boundary or its response during plant transients. The proposed changes do not alter the manner in which safety limits, limiting safety system settings, or limiting conditions for operation are determined; and the operability requirements for equipment assumed to operate for accident mitigation are not affected. The proposed change modifies the TS by changing the maximum time delay for degraded voltage from <60 seconds to  $\leq 24$  seconds. By calculating the PCT and MLO using NRC-approved methodology for the LOCA coincident with a sustained degraded voltage, adequate margins of safety relating to fuel cladding integrity are maintained.

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 does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

#### **4.3 Conclusions**

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.

#### **5.0 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.

#### **6.0 REFERENCES**

1. Letter from L. T. Doerflein, USNRC to K. Langdon, NMPNS, "Nine Mile Point Nuclear Station - NRC Unresolved Item Follow-up Inspection Report 05000220/201101," dated January 23, 2012, ADAMS Accession No. ML12023A119.
2. Letter from D. S. Brinkman, USNRC to B. R. Silva, NMPNS, "Issuance of Amendment for Nine Mile Point Nuclear Station No. 1 (TAC NO. M88256)," April 7, 1994.

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3. Memorandum from R. A. Nelson, USNRC to P. R. Wilson, USNRC, "Final Response to Task Interface Agreement (TIA 2011-003) Related to Nine Mile Point Nuclear Station Unit 1 Licensing Basis for Degraded Grid Relay Time Delays," dated June 29, 2011, ADAMS Accession No. ML11171A702.
4. NEDE-30996-P-A, "SAFER Model for Evaluation of Loss-of-Coolant Accidents for Jet Pump and Non-Jet Pump Plants," October 1987.
5. NEDC-33258P-A, "The PRIME Model for Analysis of Fuel Rod Thermal-Mechanical Performance Part 3- Application Methodology," September 2010.
6. Letter from A. C. Thadani, USNRC to H. C. Pfefferlen, GE, "Acceptance for Referencing of Licensing Topical Report NEDE-30996P, Volume II, 'Safer Model for Evaluation of Loss-of-Coolant Accidents for Jet and Non-Jet Pump Plants'," May 1987.
7. Letter from R. A. Hermann, USNRC to B. G. Hooten, NMPNS, issuing NMP1 Amendment 67 and Safety Evaluation, dated November 9, 1984.
8. Letter from G. Lear, USNRC to G. K. Rhode, NMPC, "Nine Mile Point Nuclear Station No. 1," June 2, 1977.

## **ATTACHMENT 1**

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### **NINE MILE POINT UNIT 1**

### **PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)**

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

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TABLE 3.6.2i (cont'd)

**DIESEL GENERATOR INITIATION****Limiting Condition for Operation**

<u>Parameter</u>	<u>Set Point</u> <del><u>Inverse Time Undervoltage Relays</u></del>	<u>Operating Time</u>
Loss of Power	<u>Relay Dropout</u>	
a. 4.16kV PB 102/103 Emergency Bus Undervoltage (Loss of Voltage)	$\geq 3200$ volts	0 volts $\leq 3.2$ seconds <sup>(a)</sup>
b. 4.16kV PB 102/103 Emergency Bus Undervoltage (Degraded Voltage)	$\geq 3705$ volts	$> 3.4$ seconds <sup>(b)</sup> <del><math>&lt; 60</math> seconds<sup>(c)</sup></del> $\leq 24$
(a) The operating time indicated in the table is the time required for the relay to operate its contacts when the voltage is suddenly decreased from operating voltage level values to the voltage level listed in the table above.		
(b) The operating time indicated in the table is the minimum time required to clear voltage transients due to load sequencing to avoid spurious separation from offsite power.		
(c) The operating time indicated in the table is the maximum time allowable to preclude load damage or trip device actuation at voltages below the degraded voltage setpoint of 3705 volts.		

## **ATTACHMENT 2**

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### **NINE MILE POINT UNIT 1**

### **CHANGES TO UPDATED FINAL SAFETY ANALYSIS REPORT**

### **(MARK-UP)**

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The current version of the following Updated Final Safety Analysis Report table has been marked-up to reflect the proposed changes. This table markup is provided for information only.

TABLE XV-9

Nine Mile Point Unit 1 UFSAR

TABLE XV-9  
SIGNIFICANT INPUT PARAMETERS TO THE  
LOSS-OF-COOLANT ACCIDENT ANALYSIS

	GE11 (Reference 4)	GNF2 (Reference 61)
<b>A. Plant Parameters</b>  Core Thermal Power (MWt) Nominal Appendix-K Vessel Steam Output (lbm/hr)  Vessel Steam Dome Pressure (psia) Maximum Recirculation Line Break Area (ft <sup>2</sup> ) Initial MCPR Initial Water Level	1850 (100% of Rated) 1887 (102% of Rated) 7.49*10 <sup>6</sup> (corresponds to 102% rated core power) 1050 5.446 1.30 SCRAM Trip Level	1850 (100% of Rated) 1887 (102% of Rated) 7.49*10 <sup>6</sup> (corresponds to 102% rated core power) 1050 5.446 1.25 SCRAM Trip Level
<b>B. Emergency Core Cooling Systems Parameters</b>  <u>Core Spray System</u>  System Flow vs. Vessel Pressure Initiating Signals and Setpoints Low Water Level (Downcomer Level) - OR - High Drywell Pressure (psig) Maximum Allowable Delay Time from Initiating Signal to Pump at Rated Speed (sec) Injection Valve Stroke Time (sec) Pressure Permissive at Which Injection Valve Opens (psid)	See Table XV-9a  7.23 ft above TAF  3.606  35 <sup>(1)</sup> 23  349.2	See Table XV-9b  7.23 ft above TAF  3.606  35 <sup>(1)</sup> 23  349.2
(1))This value is added to the maximum degraded voltage time delay in TS Table 3.6.2i for a degraded grid voltage coincident with a LOCA (section XV-C.2.2.5).		