

Nine Mile Point 3 Nuclear Power Plant

Combined License Application

Part 7: Departures and Exemption Requests

This COLA Part is completely Site Specific

Revision 1
March 2009

1.0 DEPARTURES AND EXEMPTION REQUESTS

1.1 DEPARTURES

This Departure Report includes deviations in the Nine Mile Point 3 Nuclear Power Plant (NMP3NPP) COL application FSAR from the information in the U.S. EPR FSAR, pursuant to 10 CFR Part 52. The U.S. EPR Design Certification Application is currently under review with the NRC. However, for the purposes of evaluating these deviations from the information in the U.S. FSAR, the guidance provided in Regulatory Guide 1.206, Section C.IV.3.3, has been utilized.

The following Departures are described and evaluated in detail in this report.

1. Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile - limiting sector)
2. Soil Density
3. Short-Term Atmospheric Dispersion Estimates for the Control Room

1.1.1 MAXIMUM ANNUAL AVERAGE ATMOSPHERIC DISPERSION FACTOR (0.5 MILE - LIMITING SECTOR)

Affected U.S. EPR FSAR Sections: Tier 2 Table 2.1-1 and Section 2.3.5

Summary of Departure:

The U.S. EPR FSAR identifies a maximum annual average atmospheric dispersion factor (χ/Q) value for the 0.5 mile - limiting sector as less than or equal to $4.973\text{E-}06 \text{ sec/m}^3$. The corresponding NMP3NPP value is $5.555\text{E-}06 \text{ sec/m}^3$.

Scope/Extent of Departure:

This Departure is identified in NMP3NPP FSAR, Section 2.0, Table 2.0-1, and is addressed in NMP3NPP FSAR Section 2.3.5.3.

Departure Justification:

As shown in NMP3NPP FSAR Table 2.3-104, "Asymmetric EAB," the NMP3NPP Exclusion Area Boundary (EAB) is established at a 0.42 mile radius that is centered on the NMP3NPP Reactor Building, with the exception of sectors in the western extent of the site. For these sectors, the EAB is established at the site boundary, which is intersected within the 0.42 mi radius by adjacent property that is owned by others (i.e., Ontario Bible Camp). Distances to the nearest residence are presented in NMP3NPP Environmental Report Table 5.4-11, "Distance to Nearest Gaseous Dose Receptor." The annual average atmospheric dispersion factor at the EAB for the west-northwest sector (WNW), which is located 0.261 mi from the center of the NMP3NPP Reactor Building, is calculated to be $5.555\text{E-}06 \text{ sec/m}^3$, which is greater than the value identified in Table 2.1-1 of the U.S. EPR FSAR.

Although the maximum annual average χ/Q value for NMP3NPP exceeds the χ/Q limiting sector value specified in Table 2.1-1 of the U.S. EPR FSAR for the WNW sector, operation of NMP3NPP is justified for the following reasons:

- ◆ The dose of limits of 10 CFR 50 Appendix I and 40 CFR 190 for the maximally exposed member of the public are not exceeded. Also, the air concentration limits of 10 CFR 20, Appendix B, Table 2, Column 1 are not exceeded in unrestricted areas.
- ◆ There are no persons living within the EAB or on its boundary in the WNW sector that is adjacent to the Ontario Bible Camp.

- ◆ "The boundary of the EAB in the WNW sector lies within property owned by NMP. Therefore the probability of anyone living on the property is negligible.
- ◆ Maximum annual average χ/Q values for remaining sectors where long-term occupancy by a member of the public is possible are within the limiting value specified in U.S. EPR FSAR Table 2.1-1.

Departure Evaluation:

This Departure, associated with the Maximum Annual Average Dispersion Factor (χ/Q) value, does not result in dose limits of 10 CFR 50 Appendix I for the maximally exposed individual being exceeded. Therefore this Departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the NMP3NPP FSAR;
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the NMP3NPP FSAR;
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the NMP3NPP FSAR;
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the NMP3NPP FSAR;
5. Create a possibility for an accident of a different type than any evaluated previously in the NMP3NPP FSAR;
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the NMP3NPP FSAR;
7. Result in a design basis limit for a fission product barrier as described in the NMP3NPP FSAR being exceeded or altered; or
8. Result in a departure from a method of evaluation described in the NMP3NPP FSAR used in establishing the design bases or in the safety analyses.

This Departure does not affect resolution of a severe accident issue identified in the NMP3NPP FSAR.

Therefore, this Departure has no safety significance.

1.1.2 SOIL DENSITY

Affected U.S. EPR FSAR Sections: Tier 2 Section 2.5.4.2, 2.5.4.5, 2.5.5 and 3.8.4.3

Summary of Departure:

The U.S. EPR FSAR identifies the idealized site soil profile. Site-specific load conditions are confirmed to lie within the standard U.S. EPR design certification envelope, except for the design loads resulting from the NMP3NPP soil densities described in NMP3NPP FSAR Section 2.5.4.2 and seismic response spectra and soil profiles described in Section 3.7.1. The site-specific soil densities exceed the acceptable limits specified in the U.S. EPR FSAR, Section 2.5.4.2.

Extent/Scope of Departure:

This Departure is identified in Part 2 FSAR, Section 3.8.4.3.

Departure Justification:

The site-specific soil densities and the impact on the Lateral Earth Pressure Loads have been evaluated and are found to be acceptable for the Nuclear Island Common Basemat Structures and the Essential Service Water Building (ESWB). The Emergency Power Generator Building is a surface mounted structure with no walls below grade; hence no additional evaluation is required for Lateral Earth Pressure Loads.

Additional confirmatory evaluation for the site-specific response spectra and soil profiles are performed and confirm that the other Seismic Category I Structures are acceptable for the NMP3NPP site. Site-specific parameters related to structural evaluations of the UHS Makeup Water Intake, UHS Tunnels and UHS Encasement Structures are bounded by the parameters defined for the U.S. EPR. The site parameters evaluated include: precipitation, snow, seismic, fault displacement potential, minimum bearing capacity, minimum shear wave velocity, potential for liquefaction, slope failure potential, maximum differential settlement, maximum ground water, maximum flood, wind including an importance and gust factors, tornado, temperature and potential for water freezing in the UHS Makeup Water Intake Forebay Structure.

Departure Evaluation:

This Departure, associated with the site-specific soil densities and the impact on the Lateral Earth Pressure Loads has been evaluated and determined not to adversely affect the safety function of the Nuclear Island Common Basemat Structure and the ESWB.

Accordingly, the Departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the NMP3NPP FSAR;
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the NMP3NPP FSAR;
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the NMP3NPP FSAR;
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the NMP3NPP FSAR;
5. Create a possibility for an accident of a different type than any evaluated previously in the NMP3NPP FSAR;
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the NMP3NPP FSAR;
7. Result in a design basis limit for a fission product barrier as described in the plant specific FSAR being exceeded or altered; or
8. Result in a departure from a method of evaluation described in the NMP3NPP FSAR used in establishing the design bases or in the safety analyses.

This Departure does not affect resolution of a severe accident issue identified in the NMP3NPP FSAR.

Therefore, this Departure has no safety significance.

1.1.3 **SHORT-TERM ATMOSPHERIC DISPERSION ESTIMATES FOR THE CONTROL ROOM**

Affected U.S. EPR FSAR Sections: Tier 2 Table 2.3-1 and Section 2.3.4

Scope/Extent of Departure:

U.S. EPR FSAR Tier 2 Table 2.3-1, "Main Control Room/Technical Support Center Intake Atmospheric Dispersion Factors for Onsite Accident Dose Analysis (χ/Q)," identifies the control room and Technical Support Center (TSC) intake atmospheric dispersion factors (χ/Q 's) for on-site accident dose analysis. As described in NMP3NPP FSAR Section 2.3.4.2.3, and presented in NMP3NPP Table 2.3-164, "Control Room/TSC χ/Q Values for Canopy Release Using NMPNS 2001-2007 Meteorological Data," and Table 2.3-166, "Control Room/TSC χ/Q Values for Depressurization Shaft Release Using NMPNS 2001-2007 Meteorological Data," the values for the NMP3NPP control room and TSC are bounded by those in U.S. EPR FSAR Table 2.3-1, with the following exceptions:

- ◆ The 1-to-4 day χ/Q value for the Canopy Pt. 2 release is negligibly greater than the value presented in U.S. EPR FSAR Table 2.3-1 (U.S. EPR FSAR value of $4.19\text{E-}04 \text{ sec/m}^3$ versus the site-specific NMP3NPP value of $4.20\text{E-}04 \text{ sec/m}^3$). The Canopy Point 2 values for the other four time periods are bounded.
- ◆ The 1-to-4 day χ/Q value for the Depressurization Shaft release is negligibly greater than the value presented in U.S. EPR FSAR Table 2.3-1 (U.S. EPR FSAR value of $1.11\text{E-}03 \text{ sec/m}^3$ versus the site-specific NMP3NPP value of $1.12\text{E-}03 \text{ sec/m}^3$). The Depressurization Shaft values for the other four time periods are bounded.

Departure Justification:

This departure is associated with χ/Q values used to determine control room and TSC doses, and does not result in control room or TSC dose being adversely affected.

The differences between the 1-to-4 day control room and TSC intake χ/Q values for releases from Canopy Pt. 2 and the Depressurization Shaft that are presented in the U.S. EPR FSAR and the NMP3NPP FSAR are negligible (U.S. EPR FSAR value of $4.19\text{E-}04 \text{ sec/m}^3$ versus the NMP3NPP FSAR value of $4.20\text{E-}04 \text{ sec/m}^3$ for Canopy Point 2, and U.S. EPR FSAR value of $1.11\text{E-}03 \text{ sec/m}^3$ versus the NMP3NPP FSAR value of $1.12\text{E-}03 \text{ sec/m}^3$ for the Depressurization Shaft).

For each case, the site-specific χ/Q values for the other four time periods are bounded by the values in the U.S. EPR FSAR, and the overall dose remains bounded by the U.S. EPR FSAR dose values. As a result, there should be no adverse impact on dose.

Departure Evaluation:

This Departure, associated with χ/Q values used to determine control room and TSC dose rates does not result in control room or TSC dose being adversely affected.

Accordingly, the Departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the NMP3NPP FSAR;
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the NMP3NPP FSAR;
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the NMP3NPP FSAR;
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the NMP3NPP FSAR;
5. Create a possibility for an accident of a different type than any evaluated previously in the NMP3NPP FSAR;
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the NMP3NPP FSAR;
7. Result in a design basis limit for a fission product barrier as described in the NMP3NPP FSAR being exceeded or altered; or
8. Result in a departure from a method of evaluation described in the NMP3NPP FSAR used in establishing the design bases or in the safety analyses.

This Departure does not affect resolution of a severe accident issue identified in the NMP3NPP FSAR.

Therefore, this Departure has no safety significance

1.2 EXEMPTION REQUESTS

These exemption requests have been developed assuming approval and issuance of a design certification for the U.S. EPR and are based on the current version of the U.S. EPR FSAR.

Nine Mile Point 3 Nuclear Project, LLC (Nine Mile Point 3 Nuclear Project) and UniStar Nuclear Operating Services, LLC (UniStar Nuclear Operating Services) request the following exemptions related to:

1. Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile - limiting sector),
2. Soil Density,
3. Short-Term Atmospheric Dispersion Estimates for the Control Room,
4. Fitness for Duty Program,
5. Use of M5™ Advanced Zirconium Alloy Fuel Rod Cladding,
6. Dedicated Containment Penetrations, and
7. Use of 2004 Edition of the ASME Code.

The exemption requests associated with Use of M5™ Advanced Zirconium Alloy Fuel Rod Cladding, Dedicated Containment Penetrations, and Use of 2004 Edition of the ASME Code are the same as those previously requested by AREVA in support of the U.S. EPR Design Certification Application.

Discussion and justification for each of the above exemption requests are provided in the following pages.

1.2.1 MAXIMUM ANNUAL AVERAGE ATMOSPHERIC DISPERSION FACTOR (0.5 MILE - LIMITING SECTOR)

Applicable Regulation: 10 CFR Part 52

U.S. EPR FSAR Tier 2 Table 2.1-1 and Tier 2 Section 2.3.5 identifies a Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile - limiting sector) value of less than or equal to $4.973E-06$ sec/m³. As discussed in NMP3NPP FSAR Section 2.3.5.3, the maximum annual average atmospheric dispersion factor for the limiting sector at NMP3NPP is $5.555E-6$ sec/m³. Annual average atmospheric dispersion factors for NMP3NPP are presented in NMP3NPP FSAR Table 2.3-169, "Normal Effluent Annual Average, Undecayed, Undepleted χ/Q Values for Mixed Mode Release Using a 242,458 cfm Flow Rate for Site Boundary Receptors."

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from compliance with the U.S. EPR FSAR Tier 2 requirements associated with the Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile limiting sector).

Discussion

U.S. EPR FSAR Tier 2 Table 2.1-1 and Tier 2 Section 2.3.5 identifies a Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile - limiting sector) value of less than or equal to

4.973E-06 sec/m³. The corresponding NMP3NPP value for the limiting sector is 5.555E-06 sec/m³, as discussed in NMP3NPP FSAR 2.3.5.3, and as presented in NMP3NPP FSAR Table 2.3-169, "Normal Effluent Annual Average, Undecayed, Undepleted χ/Q Values for Mixed Mode Release Using a 242,458 cfm Flow Rate for Site Boundary Receptors." This NMP3NPP specific value exceeds the U.S. EPR FSAR value

Although the Maximum Annual Average χ/Q value for NMP3NPP exceeds the χ/Q limiting sector value specified in Table 2.1-1 of the U.S. EPR FSAR, operation of NMP3NPP is justified for the following reasons:

- ◆ The dose of limits of 10 CFR 50 Appendix I and 40 CFR 190 for the maximally exposed member of the public are not exceeded. Also, the air concentration limits of 10 CFR 20, Appendix B, Table 2, Column 1 are not exceeded in unrestricted areas.
- ◆ There are no persons living within the EAB or on its boundary in the limiting sector .
- ◆ "The boundary of the EAB in the WNW sector lies within property owned by NMP. Therefore the probability of anyone living on the property is negligible.
- ◆ Maximum annual average χ/Q values for remaining sectors where long-term occupancy by a member of the public is possible are within the limiting value specified in U.S. EPR FSAR Table 2.1-1.

Therefore, dose limits of 10 CFR 50 Appendix I for the maximally exposed individual will not be exceeded. As such, these changes will not result in a significant decrease in the level of safety otherwise provided by the design described in the U.S. EPR FSAR.

The exemption is not inconsistent with the Atomic Energy Act or any other statute. As such, the requested exemption is authorized by law.

This change does not result in a departure from the design and does not require a change in the design described in the U.S. EPR FSAR. In addition, a review has been conducted and concludes that dose limits of 10 CFR 50, Appendix I for the maximally exposed individual resulting from the NMP3NPP specific χ/Q values will not be exceeded. Therefore, the requested exemption will not present an undue risk to the public health and safety. The change does not relate to security and does not otherwise pertain to the common defense and security. Therefore, the requested exemption will not endanger the common defense and security.

The special circumstance necessitating the request for exemption is that the NMP3NPP specific value for the Maximum Annual Average Atmospheric Dispersion Factor (0.5mile - limiting sector) exceeds the U.S.EPR FSAR value. However, the dose limits of 10CFR50 Appendix I for the maximally exposed individual resulting from the NMP3NPP specific χ/Q values will not be exceeded. As such, application of the regulation for this particular circumstance would not serve the underlying purpose of the rule and is not required to achieve the underlying purpose of the rule.

1.2.2 SOIL DENSITY

Applicable Regulation: 10 CFR Par152

The U.S. EPR FSAR Tier 2 Section 2.5.4.2 identifies the idealized site soil profile. Site-specific load conditions are confirmed to lie within the standard U.S. EPR design certification envelope,

except for the design loads resulting from the NMP3NPP soil densities described in NMP3NPP FSAR Section 2.5.4.2 and seismic response spectra and soil profiles described in NMP3NPP FSAR Section 3.7.1. The site-specific soil densities exceed the acceptable limits specified in the U.S. EPR FSAR, Section 2.5.4.2

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from compliance with the U.S. EPR FSAR Tier 2 requirements associated with NMP3NPP soil density exceeding bounding values.

Discussion

The site-specific soil densities and the impact on the Lateral Earth Pressure loads have been evaluated and are found to be acceptable for the Nuclear Island Common Basemat Structures and the Essential Service Water Building (ESWB). The Emergency Power Generator Building is a surface mounted structure with no walls below grade; hence no additional evaluation is required for Lateral Earth Pressure Loads.

Additional confirmatory evaluation for the site-specific response spectra and soil profiles are performed and confirm that the Other Seismic Category I Structures are acceptable for the NMP3NPP site. Site specific parameters related to structural evaluations of the UHS Makeup Water Intake, UHS Tunnels and UHS Encasement Structures are bounded by the parameters defined for the U.S. EPR. The site parameters evaluated include: precipitation, snow, seismic, fault displacement potential, minimum bearing capacity, minimum shear wave velocity, potential for liquefaction, slope failure potential, maximum differential settlement, maximum ground water, maximum flood, wind including an importance and gust factors, tornado, temperature and potential for water freezing in the UHS Makeup Water Intake Forebay Structure. Therefore, this change will not result in a significant decrease in the level of safety otherwise provided by the design described in the U.S. EPR FSAR.

The exemption is not inconsistent with the Atomic Energy Act or any other statute. As such, the requested exemption is authorized by law.

This change does not result in a departure from the design and does not require a change in the design described in the U.S. EPR FSAR. In addition, the change has been evaluated and determined to not adversely affect the safety function of the associated structures. Therefore, the requested exemption will not present an undue risk to the public health and safety. The change does not relate to security and does not otherwise pertain to the common defense and security. Therefore, the requested exemption will not endanger the common defense and security.

The special circumstance necessitating the request for exemption is that the design loads resulting from the NMP3NPP soil densities described in NMP3NPP FSAR Section 2.5.4.2 and seismic response spectra and soil profiles described in the U.S. EPR FSAR Section 3.7.1. However, the site-specific soil densities and the impact on the Lateral Earth Pressure Loads have been evaluated and are found to be acceptable.

Additional confirmatory evaluation for the site-specific response spectra and soil profiles are performed and confirm that the Other Seismic Category I Structures are acceptable for the NMP3NPP site. Site specific parameters related to structural evaluations of the UHS Makeup Water Intake, UHS Tunnels and UHS Encasement Structures are bounded by the parameters defined for the U.S. EPR. The site parameters evaluated include: precipitation, snow, seismic, fault displacement potential, minimum bearing capacity, minimum shear wave velocity,

potential for liquefaction, slope failure potential, maximum differential settlement, maximum ground water, maximum flood, wind including an importance and gust factors, tornado, temperature and potential for water freezing in the UHS Makeup Water Intake Forebay Structure. Therefore, this change will not result in a significant decrease in the level of safety otherwise provided by the design described in the U.S. EPR FSAR.

The special circumstance necessitating the request for exemption is that the design loads resulting from the NMP3NPP soil densities described in NMP3NPP FSAR Section 2.5.4.2 and seismic response spectra and soil profiles described in the U.S. EPR FSAR Section 3.7.1. However, the site-specific soil densities and the impact on the Lateral Earth Pressure Loads have been evaluated and are found to be acceptable.

This requested exemption does not require a change in the design described in the U.S. EPR FSAR. Therefore, this exemption will not result in any loss of standardization. For these reasons, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request approval of the requested exemption from compliance with the U.S. EPR FSAR Tier 2 requirements associated with NMP3NPP soil density exceeding bounding values.

1.2.3 SHORT-TERM ATMOSPHERIC DISPERSION ESTIMATES FOR THE CONTROL ROOM

Applicable Regulation: 10 CFR Part 52

U.S. EPR FSAR Tier 2 Table 2.3-1, "Main Control Room/Technical Support Center Intake Atmospheric Dispersion Factors for Onsite Accident Dose Analysis (χ/Q)," identifies the Control Room and TSC intake atmospheric dispersion factors (χ/Q 's) for on-site accident dose analysis. The values for the NMP3NPP control room and TSC are bounded by those in U.S. EPR FSAR Table 2.3-1, with the following exceptions:

- ◆ The 1-to-4 day χ/Q value for the Canopy Pt. 2 release is negligibly greater than the value presented in U.S. EPR FSAR Table 2.3-1 (U.S. EPR FSAR value of $4.19\text{E-}04 \text{ sec/m}^3$ versus the site-specific NMP3NPP value of $4.20\text{E-}04 \text{ sec/m}^3$). The Canopy Point 2 values for the other four time periods are bounded.
- ◆ The 1-to-4 day χ/Q value for the Depressurization Shaft release is negligibly greater than the value presented in U.S. EPR FSAR Table 2.3-1 (U.S. EPR FSAR value of $1.11\text{E-}03 \text{ sec/m}^3$ versus the site-specific NMP3NPP value of $1.12\text{E-}03 \text{ sec/m}^3$). The Depressurization Shaft values for the other four time periods are bounded.

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from compliance with the U.S. EPR FSAR Tier 2 requirements associated with NMP3NPP main control room and TSC exceeding bounding values.

Discussion

The differences between the 1-to-4 day control room and TSC intake χ/Q values for releases from Canopy Pt. 2 and the Depressurization Shaft that are presented in the U.S. EPR FSAR and the NMP3NPP FSAR are negligible (U.S. EPR FSAR value of $4.19\text{E-}04 \text{ sec/m}^3$ versus the NMP3NPP FSAR value of $4.20\text{E-}04 \text{ sec/m}^3$ for Canopy Point 2, and U.S. EPR FSAR value of $1.11\text{E-}03 \text{ sec/m}^3$ versus the NMP3NPP FSAR value of $1.12\text{E-}03 \text{ sec/m}^3$ for the Depressurization Shaft). For each case, the values for the other four time periods are bounded, and the integrated dose remains bounded. As a result, there should be no adverse impact on dose.

The exemption is not inconsistent with the Atomic Energy Act or any other statute. As such, the requested exemption is authorized by law

This change does not result in a departure from the design and does not require a change in the design described in the U.S.EPR FSAR. In addition, the change has been evaluated and determined not to adversely affect the does is the control room or the TSC. Therefore, the requested exemption will not present an undue risk to the public health and safety. The change does not relate to security and does not otherwise pertain to the common defense and security. Therefore, the requested exemption will not endanger the common defense and security.

The special circumstance necessitating the request for exemption is that the χ/Q values for NMP3NPP Control Room and TSC dose values slightly exceed the U.S. EPR bounding values for one time period (1 to 4 days) and two locations (Canopy Pt. 2 and Depressurization Shaft). For each case the values for the other four time periods are bounded. There should be no adverse impact on dose.

This requested exemption does not require a change in the design described in the U.S. EPR FSAR. Therefore, this exemption will not result in any loss of standardization. For these reasons, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request approval of the requested exemption from compliance with the U.S. EPR FSAR Tier 2 requirements associated with χ/Q exceeding bounding values.

1.2.4 FITNESS FOR DUTY PROGRAM

Applicable Regulation: 10 CFR 52.79(a)(44)

Specific wording from which a schedule exemption is requested:

(a) The application must contain a final safety analysis report that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components of the facility as a whole. The final safety analysis report shall include the following information, at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved by the Commission before issuance of a combined license:

(44) A description of the fitness-for-duty program required by 10 CFR part 26 and its implementation.

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request a schedule exemption from the requirement of 10 CFR 52.79(a)(44) to provide a "description of the fitness-for-duty program required by 10 CFR part 26 and its implementation" in its application for a combined license for NMP3NPP. Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services propose to provide the Fitness for Duty (FFD) Program description required by 10 CFR 52.79(a)(44) based on the revised 10 CFR Part 26 regulations that are expected to be promulgated and become effective in early 2008 since these are the regulations that are expected to be in effect at the time of implementation of the program.

Discussion:

In an April 17, 2007, affirmation session (ADAMS ML071070361), the Commission approved a final rule amending FFD regulations in 10 CFR Part 26 for both the construction and operating phases for a new nuclear plant. The new and revised Part 26 regulations are expected to be

promulgated and become effective in 2008. Implementation of a fitness for duty program at this station is not expected to be required until after 2008.

The construction phase of the Fitness for Duty Program as applied to new plants is not required to be implemented until the commencement of on-site construction of safety or security-related systems, structures and components. Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services will not begin these activities until after the amendments to 10 CFR Part 26 regulations are expected to take effect. The operational phase of the FFD Program is required to be implemented prior to fuel load.

In view of the near-term effectiveness of new FFD regulations, it would be more efficient for Nine Mile Point 3 Nuclear Project, UniStar Nuclear Operating Services and the NRC to submit the FFD Program description required by 10 CFR 52.79(a)(44) based on the revised Part 26 rules rather than the rules currently in effect. Accordingly, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services submit a request for a schedule exemption from current Part 52 regulations pursuant to 10 CFR 52.7, "Specific Exemptions," and 10 CFR 52.93, "Exemptions and Variances."

Granting this request, which is authorized by law, would allow the NRC to conduct its acceptance review of the Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services COL Application based on the revised rules that will become effective in the near future. Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services does not expect the NRC to issue the requested COL until the revised FFD rules take effect. For this and other reasons, granting this exemption request will not present an undue risk to the public health and safety, and is consistent with the common defense and security.

The pending amendments to Part 26 create "special circumstances," as defined in 10 CFR 50.12 (Specific Exemptions) that warrant granting this exemption. Applying the current Fitness for Duty regulations in reviewing the FFD Program description required by 10 CFR 52.79(a)(44) would not serve, and is not necessary to achieve, the underlying purposes of the rule. Further, the underlying purpose of 10 CFR 52.79(a)(44) can be satisfied by meeting the requirements of the revised FFD regulations that will become effective in the near future.

Moreover, compliance with the current rule would cause undue hardship for Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services and would also be inefficient and burdensome for the NRC staff. That approach would require Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services to prepare, and NRC to review, information based on Fitness for Duty regulations that will soon be superseded by Part 26 amendments, and then (presumably) complete a similar submittal under the revised FFD rules.

For these reasons, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services requests approval of the requested schedule exemption from the Part 52 requirements to provide a description (in the FSAR) of the fitness for duty program that meets the current Part 26 Fitness for Duty regulations.

1.2.5 USE OF M5™ ADVANCED ZIRCONIUM ALLOY FUEL ROD CLADDING

Applicable Regulations: 10 CFR 50.46 and 10 CFR 50, Appendix K

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from the requirements of 10 CFR 50.46, Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors, and 10 CFR 50, Appendix K, ECCS Evaluation Models, paragraph I.A.5, regarding the use of Zircaloy or ZIRLO

as fuel cladding material. This exemption request is related to the proposed use of the M5™ advanced zirconium alloy for the NMP3NPP fuel rod cladding and fuel assembly structural material.

Discussion:

In accordance with 10 CFR 52.7, the Commission may grant exemptions from requirements of the regulations of 10 CFR 52 and that the NRC consideration is governed by 10 CFR 50.12. 10 CFR 50.12 states that the NRC may grant an exemption provided that: 1) the exemption is authorized by law, 2) the exemption will not present an undue risk to public health and safety, 3) the exemption is consistent with common defense and security, and 4) special circumstances, as defined in 10 CFR 50.12(a)(2) are present. The requested exemption to allow the use of advanced zirconium alloys other than Zircaloy and ZIRLO for fuel cladding material for NMP3NPP satisfies these requirements as described below.

The NRC has approved similar exemption requests for other nuclear power plants; in particular, fuel with M5™ cladding is used in several operating plants in the United States.

The fuel that will be irradiated in the NMP3NPP contains cladding material that does not conform to the cladding material designations explicitly defined in 10 CFR 50.46 and 10 CFR 50, Appendix K. However, the criteria for these sections are satisfied for the NMP3NPP core containing M5™ fuel rod cladding and fuel assembly structural material. Therefore, the requested exemption is authorized by law.

The M5™ fuel rod cladding and fuel assembly structural material have been evaluated to confirm that the operation of this fuel product does not increase the probability of occurrence or the consequences of an accident. The evaluation also concluded that no new or different type of accident will be created that could pose a risk to public health and safety. In addition, appropriate safety analyses have been performed to demonstrate that this fuel type does not present an undue risk to the public health and safety. NRC approved safety analyses methods are used for the NMP3NPP core which contains M5™ fuel rod cladding and fuel assembly structural materials.

The M5™ fuel rod cladding is similar in design to the cladding material used in operating plants. The special nuclear material in this fuel product will be handled and controlled in accordance with approved procedures. It has been confirmed through evaluation that M5™ fuel rod cladding and fuel assembly structural material will not endanger the common defense and security.

The special circumstance necessitating the request for exemption to 10 CFR 50.46 and 10 CFR 50, Appendix K is that neither of these regulations allows the use of M5™ fuel rod cladding material. The underlying purpose of 10 CFR 50.46 is to ensure that nuclear power facilities have adequately demonstrated the cooling performance of the Emergency Core Cooling System (ECCS). Topical Report BAW-10227P-A, Evaluation of Advanced Cladding and Structural Material (M5™) in PWR Reactor Fuel, approved by the NRC by letter dated February 4, 2000, demonstrates that the effectiveness of the ECCS will not be affected by a change from Zircaloy fuel rod cladding to M5™ fuel rod cladding.

The underlying purpose of 10 CFR 50, Appendix K, paragraph I.A.5 is to ensure that cladding oxidation and hydrogen generation are appropriately limited during a LOCA and conservatively accounted for in the ECCS evaluation model. Specifically, 10 CFR 50, Appendix K requires that the Baker-Just equation be used in the ECCS evaluation model to determine the rate of energy release, cladding oxidation, and hydrogen generation. Appendix D of

BAW-10227P-A demonstrates that the Baker-Just model is conservative in all post-LOCA scenarios with respect to the use of M5™ advanced alloy as a fuel rod cladding material.

Therefore, the intent of 10 CFR 50.46 and 10 CFR 50, Appendix K is satisfied for the planned operation with M5™ fuel rod cladding and fuel assembly structural material. Issuance of an exemption from the criteria of these regulations for the use of M5™ fuel rod cladding and fuel assembly structural material in the NMP3NPP core will not compromise safe operation of the reactor.

For these reasons, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request approval of the requested exemption from the 10 CFR 50.46 and 10 CFR 50, Appendix K, requirements regarding the use of Zircaloy or ZIRLO as fuel cladding material.

1.2.6 DEDICATED CONTAINMENT PENETRATIONS

Applicable Regulation: 10 CFR 50.34(f)(3)(iv)

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from the requirements of 10 CFR 50.34(f)(3)(iv) with respect to providing a dedicated containment penetration. The specific requirement is as follows.

Provide one or more dedicated containment penetrations, equivalent in size to a single 3-foot diameter opening, in order not to preclude future installation of systems to prevent containment failure, such as filtered vented containment system.

Discussion:

In accordance with 10 CFR 52.7, the Commission may grant exemptions from requirements of the regulations of 10 CFR 52 and that the NRC consideration is governed by 10 CFR 50.12. 10 CFR 50.12 states that the NRC may grant an exemption provided that: 1) the exemption is authorized by law, 2) the exemption will not present an undue risk to public health and safety, 3) the exemption is consistent with common defense and security, and 4) special circumstances, as defined in 10 CFR 50.12(a)(2) are present. The requested exemption relative to not utilizing a dedicated containment penetration for NMP3NPP satisfies these requirements as described below.

This requested exemption is not precluded by law.

The NMP3NPP design does not utilize a dedicated containment penetration. The severe accident assessment (U.S. EPR FSAR Tier 2 Section 19.2), the Probabilistic Risk Assessment (U.S. EPR FSAR Tier 2 Section 19.1) and the containment analysis (U.S. EPR FSAR Tier 2 Section 6.2) demonstrate that a dedicated containment penetration is not required. Specific containment overpressure protection is provided through its large size and strength and through the availability of 47 Passive Autocatalytic Recombiners (PARs) and Severe Accident Heat Removal System (SAHRS) for the removal of hydrogen and steam, respectively, the principle contributors to high containment pressure during a severe accident. The functions of these systems are described in U.S. EPR FSAR Tier 2 Section 19.2.3.3.2. Therefore, the requested exemption does not present an undue risk to the public health and safety.

The severe accident assessment, the Probabilistic Risk Assessment and the containment analysis demonstrate that a dedicated containment penetration is not required. As such, the requested exemption will not endanger the common defense and security.

The special circumstance necessitating the request for exemption is that the severe accident assessment, the Probabilistic Risk Assessment and the containment analysis demonstrate that a dedicated containment penetration is not required, as previously discussed. Therefore, application of the rule is not necessary to achieve the underlying purpose of the rule.

For these reasons, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request approval of the requested exemption from 10 CFR 50.34(f)(3)(iv) with respect to providing a dedicated containment penetration.

1.2.7 USE OF 2004 EDITION OF THE ASME CODE

Applicable Regulation: 10 CFR 50.55a

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from the requirements of 10 CFR 50.55a with respect to the edition of the ASME Code to be applied in the NMP3NPP COL Application.

10 CFR 50.55a codifies the ASME code as part of the NRC requirements and currently specifies the use of the 2001 Edition through the 2003 Addenda of the ASME Code. Consistent with NRC policy, 10 CFR 50.55a is amended periodically to incorporate newer editions and addenda of the ASME Code and Code Cases. The current proposed rulemaking (72 FR 16731 dated April 5, 2007) will incorporate the 2004 Edition of the ASME Code. This exemption is only necessary until such time as the rulemaking is finalized and becomes effective.

Discussion:

The 2004 Edition of the ASME Code (no addenda) is applied in the NMP3NPP COL Application, consistent with the NRC proposed rulemaking to endorse and incorporate the newer edition and addenda. The use of the 2004 Edition of the ASME Code will not take precedence over any ASME Code modifications or limitations currently outlined in 10 CFR 50.55a. This is dictated under the assumption that all modifications and limitations to the 2001 ASME Code and up to the 2003 Addenda as outlined currently by 10 CFR 50.55a will remain valid upon NRC endorsement of the 2004 Edition of the ASME Code. Until such time as an exemption is granted, reconciliation has been conducted with the latest ASME Code edition endorsed by the NRC.

In accordance with 10 CFR 52.7, the Commission may grant exemptions from requirements of the regulations of 10 CFR 52 and that the NRC consideration is governed by 10 CFR 50.12. 10 CFR 50.12 states that the NRC may grant an exemption provided that: 1) the exemption is authorized by law, 2) the exemption will not present an undue risk to public health and safety, 3) the exemption is consistent with common defense and security, and 4) special circumstances, as defined in 10 CFR 50.12(a)(2) are present. The requested exemption to permit the use of the 2004 Edition of the ASME Code for NMP3NPP satisfies these requirements as described below.

This requested exemption is not precluded by law.

10 CFR 50.55a codifies the ASME code as part of the NRC requirements and currently specifies the use of the 2001 Edition through the 2003 Addenda of the ASME Code. Consistent with NRC policy, 10 CFR 50.55a is amended periodically to incorporate newer editions and addenda of the ASME Code and Code Cases. The current proposed rulemaking will incorporate the 2004 Edition of the ASME Code and issuance of the final rule is expected in April 2008. Therefore, the requested exemption does not present an undue risk to the public health and safety.

10 CFR 50.55a codifies the ASME code as part of the NRC requirements and currently specifies the use of the 2001 Edition through the 2003 Addenda of the ASME Code. Consistent with NRC policy, 10 CFR 50.55a is amended periodically to incorporate newer editions and addenda of the ASME Code and Code Cases. The current proposed rulemaking will incorporate the 2004 Edition of the ASME Code and issuance of the final rule is expected in April 2008. As such, the requested exemption will not endanger the common defense and security.

The special circumstance necessitating the request for exemption is that the current rulemaking will incorporate the 2004 Edition of the ASME Code and issuance of the final rule is expected in April 2008. The acceptability of the 2004 Edition of the ASME Code in terms of public health and safety is recognized by virtue of the proposed rulemaking, and compliance with the existing edition of the ASME Code in the intervening months is not necessary to achieve the underlying intent of the rule.

For these reasons, Nine Mile Point 3 Nuclear Project and UniStar Nuclear Operating Services request approval of the requested exemption from 10 CFR 50.55a with respect to the edition of the ASME Code to be applied in the NMP3NPP COL Application.