AUG 1 6 2004

L-PI-04-099
10 CFR 50.90
10 CFR 50.67

U S Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Prairie Island Nuclear Generating Plant Units 1 and 2
Dockets 50-282 and 50-306
License Nos. DPR-42 and DPR-60

Supplement To License Amendment Request (LAR) Dated January 20, 2004, Selective Scope Implementation Of Alternate Source Term For Fuel Handling Accident Applied To Containment Technical Specifications (TAC Nos. MC1843 and MC1844)

By letter dated January 20, 2004, the Nuclear Management Company, LLC (NMC) submitted an LAR titled, "Selective Scope Implementation Of Alternate Source Term For Fuel Handling Accident Applied To Containment Technical Specifications," which proposed partial adoption of the alternate source term provisions of 10 CFR 50.67 and changes to the Technical Specifications (TS), Appendix A of the Prairie Island Nuclear Generating Plant, Units 1 and 2. This letter supplements the subject LAR. NMC submits this supplement in accordance with the provisions of 10 CFR 50.90.

NMC submitted a supplement to the subject LAR on July 13, 2004. By phone call August 5, 2004, the NRC Staff requested additional information on the July 13, 2004 supplemental information. The Enclosure to this letter states the NRC questions and the NMC responses.

The proposed changes in this supplement do not impact the conclusions of the Determination of No Significant Hazards Consideration and Environmental Assessment presented in the original January 20, 2004 submittal and the July 13, 2004 supplement.

In accordance with 10 CFR 50.91, NMC is notifying the State of Minnesota of this LAR by transmitting a copy of this letter and attachments to the designated State Official.

Please address any comments or questions regarding this LAR supplement to Mr. Dale Vincent at 1-651-388-1121.

Summary of Commitments

In this letter NMC has not made any new or revised any Nuclear Regulatory Commission commitments.

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I declare under penalty of perjury that the foregoing is true and accurate.
Executed on AUG 1 6 2004 .

Joseph M. Solymossy
Site Vice President, Prairie Island Nuclear Generating Plant
Nuclear Management Company, LLC

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Prairie Island, USNRC
Resident Inspector, Prairie Island, USNRC
Minnesota Department of Commerce

ENCLOSURE 1
RESPONSE TO ADDITIONAL REQUESTS FOR INFORMATION

NRC Question 1

Provide justification for assuming the release from the Common Area of the Auxiliary Building as a diffuse source.

NMC Response

NRC Regulatory Guide (RG) 1.194, "Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants," Section 3.2.4, discusses modeling of diffuse area sources. Examples of possible area sources are postulated releases from the surface of a reactor or a secondary containment building. Section 3.2.4.1 indicates that diffuse source modeling should be used only for those situations in which the activity being released from the building surface is homogeneously distributed throughout the building and when the assumed release rate from the building surface would be reasonably constant over the surface of the building. Section 3.2.4.2 specifically addresses that analysts need to consider that leakage may be more likely to occur at a building penetration exposed to the environment within the modeled area.

The Common Area of the Auxiliary Building is shown on the Figure 3 of Nuclear Management Company (NMC) letter L-PI-04-001. This area provides access to the containment maintenance airlocks for both units. The Common Area of the Auxiliary Building completely encompasses the spent fuel pool enclosure, which encloses Spent Fuel Pool No. 1, Spent Fuel Pool No. 2, Transfer Canal and New Fuel Pool as shown on Figure 2 of NMC letter L-PI-04-001. The Common Area of the Auxiliary Building is a sheet metal sided building; which is not leak tight. There are no penetrations where leakage from the Common Area of the Auxiliary Building to the environment could present a more limiting release. The Common Area of the Auxiliary Building is not serviced by a ventilation system. Thus, there would be no forced ventilation from the building to the outside. The only exception to this would be a possibility for leakage from the Common Area of the Auxiliary Building into the spent fuel pool enclosure. This leakage would be exhausted either via the spent fuel pool normal ventilation system or the spent fuel pool special ventilation system. The atmospheric dispersion factor for the release from the spent fuel pool normal ventilation system is shown to be smaller than the release from the Common Area of the Auxiliary Building in NMC letter L-PI-04-082, response to question 5. The spent fuel pool special ventilation system exhausts through the Shield Building ventilation stack. As discussed in response to question 3, below, the dose from a release from the Shield Building ventilation stack (after accounting for filtration) would also be smaller than the release from the Common Area of the Auxiliary Building.

Therefore, consistent with RG 1.194, it is appropriate to model the Common Area of the Auxiliary Building as a diffuse source.

NRC Question 2

Describe how the inputs, including the initial sigma values, were determined for the Common Area of the Auxiliary Building.

NMC Response

RG 1.194, Section 3.2.4.5, describes the methods for determining the area source. This guidance was followed in the modeling of the Common Area of the Auxiliary Building. Referring to Figure 3 in NMC letter L-PI-04-001, there are four primary buildings shown, the Unit 1 and Unit 2 containments, the Common Area of the Auxiliary Building and the balance of the Auxiliary Building. The balance of the Auxiliary Building encloses the north side and majority of the east and west sides of the Common Area of the Auxiliary Building. Again referring to Figure 3 in NMC letter L-PI-04-001, the dimensions of the Common Area of the Auxiliary Building are as follows. East to West dimension (column row 7 to column row 11) is 95 feet. North to South dimension (column row J to column row Q) is 167 feet. The roof elevation of the balance of the Auxiliary Building is 775' (plant grade elevation is 694'). The roof elevation of the Common Area of the Auxiliary Building is 809'6". As shown on Figure 2 in RG 1.194, only that part of the structure above grade or an enclosing building should be included in the building height. Thus, only the portion of the Common Area of the Auxiliary Building above the balance of the Auxiliary Building is used. The release height of 29.9 meters corresponds to the vertical center of the Common Area of the Auxiliary Building projection above the elevation of the roof of the balance of the Auxiliary Building. Consistent with Equations (3) and (4) in RG 1.194, the initial sigma values are set to one sixth the projected diffuse area source width (171.2 feet to 121 Control Room (CR) Vent Intake and 195.8 feet to 122 CR Vent Intake) and height (34.5 feet), respectively. Using the factor of one-sixth the initial sigma values are 8.7 and 1.75 for Common Area of Auxiliary Building to 121 CR Vent Intake and 9.95 and 1.75 for Common Area of Auxiliary Building to 122 CR Vent Intake.

NRC Question 3

Discuss the bases for not assuming a release path from the Shield Building Ventilation Stack.

NMC Response

Based on the following discussion, NMC concluded that a release from the Common Area of the Auxiliary Building would be bounding. Potential release paths from a fuel handling accident to the Shield Building Ventilation Stack include the spent fuel pool special ventilation system and the shield building ventilation system. The Shield Building is a concrete structure that surrounds the steel primary containment vessel. Between the containment vessel and the Shield Building inner wall is an annular space that collects containment leakage. For leakage into the annular area to reach the Shield Building Ventilation Stack the shield building ventilation system needs to be in operation.

In relation to the control room ventilation intakes the Shield Building Ventilation Stacks are located as follows:

Unit 1 Shield Building Vent Stack is closest to 121 CR Vent Intake:

Horizontal Distance = 23 meters
Vertical Distance = 31.5 meters
Slant Distance = 39 meters
Direction = 152°

Unit 2 Shield Building Vent Stack is closest to 122 CR Vent Intake:

Horizontal Distance = 14.7 meters
Vertical Distance = 31.5 meters
Slant Distance = 34.8 meters
Direction = 149°

The response to NRC Question 5 in the July 13, 2004 submittal discusses the curve fit equations used in developing Figures 5-1 and 5-2 in NMC letter L-PI-04-001, Exhibit F. As concluded in NMC letter L-PI-04-082, the curve fit equations can be used to reasonably estimate the atmospheric dispersion factor as a function of distance for directional windows that include the shield building ventilation stacks to the control room vent intakes. As shown above, the shorter slant distance is 34.8 meters for the Unit 2 Shield Building Vent Stack to 122 CR Vent Intake. Table 1 in NMC letter L-PI-04-082 indicates that at 35 meters, the atmospheric dispersion factor to 122 CR Vent Intake is 4.46E-03 sec/m^3; less than 10% greater than the limiting atmospheric dispersion factor of 4.19E-03 sec/m^3 determined for the Common Area of the Auxiliary Building.

The spent fuel pool special ventilation system and the shield building ventilation system contain charcoal adsorbers. The charcoal filters in both systems are tested as part of the ventilation filter testing program. The maximum allowed penetration for the testing of the charcoal adsorber in the spent fuel pool special ventilation system is 7.5%. This corresponds to a credited adsorber efficiency of

85%. The filter decontamination factor (DF) is determined using the following relationship where η = adsorber efficiency.

$$DF = 1 / (1-\eta)$$

Thus, for an efficiency of 85%, the DF = 6.6. Thus, the activity available for release from the stack through the spent fuel pool special ventilation system would be reduced by a factor of 6.6. The maximum allowed penetration for the testing of the charcoal adsorber in the shield building ventilation system is 15%. This corresponds to credited adsorber efficiency of 70%. The corresponding DF = 3.3. Thus, the activity available from release from the stack through the shield building ventilation system would be reduced by a factor of 3.3. The overall effect of the significant reduction in the activity available for release from the shield building ventilation stack combined with only a slightly higher atmospheric dispersion factor will result in a lower dose projection for a release from the shield building vent stack. Therefore, NMC concluded that a release from the Common Area of the Auxiliary Building would be bounding.

NRC Question 4

Does the analysis in the July 13, 2004 submittal supercede that reported in the January 20, 2004 submittal?

NMC Response

The analysis result in NMC letter L-PI-04-082 supercedes the analysis in NMC letter L-PI-04-001, Exhibit F. Based on the new atmospheric dispersion factor determined for the Common Area of the Auxiliary Building, the dose to the control room operator was determined to be 1.3 Rem total effective dose equivalent (TEDE) as reported in NMC letter L-PI-04-082. Except for the atmospheric dispersion factor, all other inputs and assumptions discussed in NMC letter L-PI-04-001, Exhibit F, were used.