September 30, 2004

Mr. Charles Bomberger
General Manager, Nuclear Asset Management
414 Nicollet Mall (Ren. Sq. 8)
Minneapolis, MN 55401

SUBJECT: U. S. NUCLEAR REGULATORY COMMISSION STAFF REQUEST FOR ADDITIONAL INFORMATION REGARDING THE DECOMMISSIONING PLAN FOR XCEL ENERGY'S PATHFINDER FACILITY IN SIOUX FALLS, SOUTH DAKOTA

Dear Mr. Bomberger:

In a letter dated July 16, 2004, the U.S. Nuclear Regulatory Commission (NRC) staff informed you that Xcel Energy's Decommissioning Plan (DP) for the Pathfinder facility was found acceptable for a detailed technical review. In that letter, we indicated that during our detailed technical review we may identify areas where additional information is needed.

This letter transmits the NRC staff's Request for Additional Information (RAI) relating to omissions and technical issues that arose during our detailed technical review. The NRC requests that the Pathfinder DP be revised to address or incorporate this information. Once we receive your response to this request, and determine that no additional information is needed, the technical review of the revised DP should be completed within 90 days.

If you have questions regarding the enclosed RAI, please contact me at (301) 415-6722, or via e-mail at cjg1@nrc.gov.

Sincerely,

/RA/

Chad J. Glenn, Project Manager
Division of Waste Management
and Environmental Protection
Office of Nuclear Material Safety
and Safeguards

Docket No.: 030-05004

License No.: 22-08799-02

Enclosure: RAI on Pathfinder DP

cc: Service List

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REQUESTS FOR ADDITIONAL INFORMATION
ON XCEL ENERGY'S PATHFINDER DECOMMISSIONING PLAN

General Comments

1. Provide a statement in the Pathfinder Decommissioning Plan (DP) that provides a basis to conclude that Xcel Energy property outside the secured area has not been impacted by licensed operations. Page 2-3 of the DP states "Although Xcel Energy owns additional land that surrounds the Pathfinder location, the Pathfinder site as referred to herein, principally includes the secured area shown in Figures 2-1 and 2-2. The buildings and the areas enclosed within the secured area and the influent and effluent pathways to the Big Sioux River (e.g., settling ponds and diversion ditch) are the subjects of this decommissioning plan. Three of the existing buildings have been previously decommissioned and approved for unrestricted release."

   Basis: 10 CFR 30.36(g)(4)(I). The proposed DP for the site or separate building or outdoor area must include a description of the conditions of the site or outdoor area sufficient to evaluate the acceptability of the plan. In addition, NUREG-1757, Vol. 1, Section 16.4, states that information provided by the licensee should be sufficient to allow the staff to fully understand the types and activity of radioactive contamination as well as the extent of this contamination.

2. Describe any area of the site or property where a spill or burial of radioactive materials occurred. If any such area exists, provide the types, forms, activities and concentrations of the radioactive materials in the spill or burial, and a map/scaled drawing showing the location of the spill or burial. If no such spill or burial exists, please include a statement to that effect in the revised DP.

   Basis: 10 CFR 30.36(g)(4)(I). The proposed DP for the site or separate building or outdoor area must include a description of the conditions of the site or outdoor area sufficient to evaluate the acceptability of the plan. In addition, NUREG-1757, Vol. 1, Section 16.4, states that information provided by the licensee should be sufficient to allow the staff to fully understand the types and activity of radioactive contamination as well as the extent of this contamination.

3. Identify the names of individuals responsible for all decommissioning project units on the organization chart. The Organizational Chart (DP Page 22, Figure 4.1), includes the names of individuals responsible for some decommissioning organizational units. However, it omits the identity of persons responsible for other decommissioning project units, such as the, Quality Assurance Manager, Radiation Safety Officer, etc.

Basis: 10 CFR 30.36(g)(4)(ii and iii). NUREG-1757, Vol. 1, Sect 17.2.1, Decommissioning Management Organization states that the information supplied by the licensee should be sufficient to allow the staff to fully understand the licensee's decommissioning project management organization and structure to determine if the decommissioning can be conducted safely and in accordance with NRC requirements.

4. Include a description or reference to the methods and procedures for planned decommissioning activities sufficient to allow the staff to assess if they can be performed safely and in accordance with NRC requirements, such that they may be incorporated into the license. This information should include a summary of the procedures for which approval is being requested in the DP. The DP should also include a summary of any unique safety or other issues associated the remediation of a room or area. This includes a summary of methods and procedures for addressing any hazardous chemical materials (e.g., asbestos, or other hazardous materials) expected to be encountered during decommissioning.

   Basis: 10 CFR 30.36 (g)(4)(ii). NUREG-1757 Section 17.1, Planned Decommissioning Activities also provides that the staff will ensure that the licensee and contractor are authorized to perform the decommissioning procedures described in the DP or that the licensee has described the decommissioning procedures sufficiently to allow the staff to incorporate them into the license.

Specific Comments

5. For each radionuclide, provide the area factors for the Derived Concentration Guideline Levels for Elevated Measurement Comparison, $DCGL_{emc,}$ values, for residual radioactivity remaining in building surfaces and surficial soil.

   Basis: Table 3-1 and Table 3-2 of Chapter 3 of the Pathfinder Decommissioning Plan list the DCGL values for demonstrating compliance with the release criteria for building surfaces and surficial soil. The listed DCGL values assume a relatively uniform distribution of residual radioactivity within a survey unit. However, smaller areas of the survey unit with concentrations exceeding the DCGL values should also be tested to ensure that the release criteria will be met for these elevated areas of the site. According to NUREG-1757, Vol. I, Appendix B, elevated measurement comparison values, $DCGL_{emc}$ values, should be developed for each radionuclide over a range of smaller limited areas. In addition, area factors are needed to develop the maximum detectable concentration required by the scan procedure. Illustrative examples of area factors can be found in NUREG-1575, Multi-Agency Radiological Survey and Site Investigation Manual (MARSSIM), Revision I.

6. The licensee needs to acknowledge that the Pathfinder site meets all qualifications for using the screening approach for developing the DCGL values for building surfaces and soil.

   Basis: When using the screening approach for demonstrating compliance with the unrestricted release dose criteria in 10 CFR Part 20, Subpart E, licensees need to demonstrate that the site conditions, which includes physical and source-term

conditions, meet the qualifications for screening. The qualifications for use of the screening analysis are described in Appendix H of NUREG-1757, Vol. 2.

7. The dose contribution from residual radioactivity from past decommissioning activities at the Pathfinder site should be provided and considered in determining the DCGL values. The licensee should provide supporting documentation for the derived dose contribution. The proposed DCGL values should be appropriately adjusted to account for the dose attributable to the residual radioactivity from past decommissioning activities.

   Basis: The development of the DCGL values that will be used to demonstrate compliance with the regulations for releasing the site for unrestricted use (10 CFR Part 20.1402) was provided. However, the dose contribution from past decommissioning activities was not considered in the development of the DCGLs. Specifically, the 25 mrem per year dose criterion is applicable to the entire Pathfinder site, including residual radioactivity from past decommissioning activities of the site.

8. Provide the following information relative to groundwater and surface water issues:

   A. The licensee should provide groundwater potentiometric maps of the water-bearing units that have been or potentially may be impacted by site-generated radionuclides. The licensee should indicate groundwater flow directions on these maps and provide information on the hydraulic gradient. Additional potentiometric maps may need to be developed to represent seasonal changes in the water levels if these changes are significant.

   B. The licensee needs to provide additional justification why the Split Rock Creek Aquifer, the uppermost bedrock water-bearing unit, has not been contaminated by site-generated radionuclides.

   C. The licensee's supplemental document on radionuclides in the groundwater entitled "Attachment 4 - Off Site Sample Analysis Results" from the 2003 Characterization Report needs additional clarification on the date that samples were collected and on the definition of the "Error" term. The licensee should provide additional analytical results of the potential radionuclides dissolved in the groundwater to evaluate the impact of seasonal fluctuations, or the licensee should justify why this is not necessary.

   D. The licensee should discuss whether site-generated radionuclides dissolved in the groundwater have moved offsite (i.e., reached the Big Sioux River), or the licensee should discuss the potential for site-generated radionuclides in the groundwater to move offsite. The fate and transport of the radionuclides in the groundwater should be evaluated and discussed. This discussion should include the hydraulic conductivity of the water-bearing units, the rates of groundwater transport, and an estimate of the time for radionuclides in the groundwater to travel offsite.

   E. The impact of climatic conditions, land use near the site, stream flow and/or stage of the Big Sioux River, and groundwater recharge on the water-bearing

units at this site should be discussed pertaining to the fate and transport of the potential site-generated radionuclides.

Basis: The extent of site-generated radionuclides in the groundwater and surface water needs to be adequately characterized to understand the potential dose that these radionuclides may produce. The hydrogeologic features at this site that impact the ability of radionuclides in the groundwater and surface water to migrate should also be characterized.

9. Final Status Survey Plan (FSSP) Page 4. Describe how floor joints and cracks will be surveyed to determine contamination and assessed to ensure there is no contamination under buildings.

   Basis: NUREG-1757, Vol. 2, Appendix E.4 Sampling.

10. FSSP Page 15, Section 5.5. Describe how background radioactivity levels will be determined.

    Basis: NUREG-1757, Vol.1, Section 16.4 and Vol. 2, Appendix A.3.1, Need for Background Reference Areas.

11. FSSP Page 17, Section 5. Provide a discussion on “As Low As is Reasonably Achievable” (ALARA) and the cost benefits for performing the decontamination. On DP Page 16, provide a discussion of ALARA programs based on DCGLs and expected final dose.

    Basis: NUREG-1757 Vol. 1, Section 16.1.1 and Vol. 2, Appendix N, ALARA Analyses.

12. FSSP Page 18, Section 6.1. Describe (a) protocols for surveying for alpha radition both fixed and loose surface; (b) protocols for using the Ludlum Model 2350 for gamma exposure rates and how the exposure rates or the protocols relate to the release criteria (determination of contamination at depth); and ©) efficiencies and bases (ISO-7503) for various surfaces: metal, rough concrete, and others expected to be encountered.

    Basis: NUREG-1757 Vol.2, Appendix E, Measurements for Facility Radiation Surveys.

13. FSSP Page 18, Section 6. Provide the Minimum Detectable Concentration (MDC) and the Minimum Detectable Count Rate (MDCR) and demonstrate how the instrumentation will meet MARSSIM guidance.

    Basis: NUREG-1757 Vol. 2, Appendix E, Measurements for Facility Radiation Surveys.

14. FSSP Page 28, Section 7.9. Describe the Survey Quality Control process to ensure that field measurements were performed in accordance with procedures and survey unit release criteria have been met.

    Basis: NUREG-1757 Vol. 1, Section 17.6, DP: Quality Control Program.

15. FSSP Page 5, Table 3.2. The characterization data below needs to be included in the FSSP radiological information or justification for not including the data needs to be provided. The Pathfinder Characterization Report, Package #2, Turbine Deck Ventilation Duct Internals, direct beta reading are (disintegrations per minute/100cm2): Mean 4126, Standard deviation 6444, Maximum 18915. The loose surface contamination survey does not state whether the areas surveyed are on the interior or exterior of the ducts. The Turbine Building Deck Ventilation Duct has measurements in excess of the preliminary DCGL.

    Basis: NUREG-1757 Vol. 1, Section 16.4, DP Radiological Status of Facility.

16. DP Page 17. Identify the methods used for surveying and sampling the soils, if encountered, after floor drains have been removed.

    Basis: NUREG-1757 Vol. 1, Section 16.4.4 and Vol. 2, Appendix G.2.1, Subsurface Residual Radioactivity.

17. DP Page 9, FSSP Page 5. Describe how hard-to-detect (HTD) radionuclides (Ni-63) are being addressed. Page 11, Section 4.3, clarify (HTD) radionuclides. If deemed justifiable, suggest referencing Characterization Study data to eliminate HTDs.

    Basis: NUREG-1757 Vol. 1, Section 16.4.1, Contaminated Structures.

18. DP Page 40. Clarify MARSSIM classification of the following survey units:
    - The Condenser basement floor is a Class 1 area. Identify the classification for the walls and ceilings.
    - FSSP, Page 22-23, Table 6.4. Identify the classification of Temporary Loading and Storage Building (e.g.,Class 2 area).

    Basis: NUREG-1757 Vol. 2, Appendix A.1, Classification of Areas by Residual Radioactivity Levels.

19. Clarification recommendations:
    - FSSP Page 6, recommend referring to pipes as being “embedded” instead of encased.
    - FSSP Page 11 Section 4.3, will the non-permanent structures be removed or is the Reg. Guide 1.86 criteria to be used for all items allowed to remain on site?
    - FSSP Page 13, Section 4.5, correct typo, “unrestricted”.
    - FSSP Page 14, most reactor sites use the Sign Test versus the Wilcoxon Rank Sum Test due to background considerations.
    - FSSP Page 27, Section 7.1, what qualification standard will HP technicians and supervision meet, ASTM, ANSI 1.8, RG 3.1?
    - DP Page 31, Section 5.10, should Table 5.3 be in Section 5.5 or 5.6?
    - DP Page 29, Section 5.8, does instrumentation include air sampling equipment?