

## ENCLOSURE 1

### **2015 DECOMMISSIONING FUNDING PLAN FOR THE MONTICELLO INDEPENDENT SPENT FUEL STORAGE INSTALLATION AND PRAIRIE ISLAND INDEPENDENT SPENT FUEL STORAGE INSTALLATION**

These updated Decommissioning Funding Plans are being submitted in accordance with 72.30(c) to reflect adjustments as necessary to account for changes in costs and the extent of contamination and considers the effect of the following events on decommissioning costs such as, spills of radioactive material producing additional residual radioactivity in onsite, subsurface material, facility modifications, changes in authorized possession limits, and actual remediation costs that exceed the previous cost estimate. The plans described below address each of the points required to be included in a Decommissioning Funding Plan as defined in 10 CFR 72.30(b)(1) through (b)(6). Following the Decommissioning Plan descriptions, the required adjustments required by 72.30(c) are summarized.

**10 CFR 72.30(b)(1) – “Information on how reasonable assurance will be provided that funds will be available to decommission the ISFSI or MRS”; and,**

**10 CFR 72.30(b)(4) – “A description of the method of assuring funds for decommissioning from paragraph (e) of this section, including means for adjusting cost estimates and associated funding levels periodically over the life of the facility.”**

#### Response

Northern States Power Company, a Minnesota corporation (NSPM), d/b/a Xcel Energy, is a traditional rate-regulated utility. The Monticello Nuclear Generating Plant (MNGP) and Independent Spent Fuel Storage Installation (ISFSI) and the Prairie Island Nuclear Generating Plant (PINGP) and ISFSI are owned and operated by NSPM. Costs incurred in operating the MNGP and PINGP ISFSIs are recoverable through regulated rates established by state public utilities commissions and the Federal Energy Regulatory Commission (FERC). The recovered costs include the amount to decommission the MNGP and PINGP ISFSIs.

Under order from the Minnesota Public Utilities Commission (MPUC), NSPM submits a triennial decommissioning accrual filing which includes the current cost estimate for decommissioning MNGP and PINGP, for managing the used fuel stored at the MNGP and PINGP until the fuel is removed by the Department of Energy (DOE), for decommissioning the MNGP and PINGP ISFSIs after the used fuel has been removed, and restoration of both sites. Upon review of the decommissioning accrual filing, the decommissioning cost estimates (DCE), the current amount of funding held in the Nuclear Decommissioning External Qualified Trust Fund, and the expected projected interest to be earned on the funds, the MPUC adjusts NSPM's rate of collection to ensure that, at the time that the plants permanently shut down at the end of the current operating licenses, there is sufficient funding available to accomplish all of the defined

activities, including decommissioning of the ISFSIs. This process is repeated every three years to take into account changes in fund earnings, changes in inflation, changes in policy that could impact when decommissioning of the plant or ISFSI might occur, and changes in the estimated costs to decommission the plant and ISFSI.

The triennial decommissioning accrual filing approval by the MPUC and subsequent regulated ratemaking processes in each state jurisdiction that NSPM serves provides reasonable assurance that the money collected to decommission the plants and the ISFSIs will be commensurate with actual costs incurred.

**10 CFR 72.30(b)(2) – “A detailed cost estimate for decommissioning, in an amount reflecting: (i) The cost of an independent contractor to perform all decommissioning activities; (ii) An adequate contingency factor; and, (iii) The cost of meeting the § 20.1402 of this chapter criteria for unrestricted use, provided that, if the applicant or licensee can demonstrate its ability to meet the provisions of § 20.1403 of this chapter, the cost estimate may be based on meeting the § 20.1403 criteria.”**

**10 CFR 72.30(b)(3) – “Identification of and justification for using the key assumptions contained in the DCE [Decommissioning Cost Estimate].”**

#### Response

A copy of the most recent triennial decommissioning accrual filing that was made by NSPM to the MPUC in December 2014 is included as Enclosure 2 to this filing. A copy of the most recent DCE for MNGP and its ISFSI (Enclosure 3) and a copy of the most recent DCE for PINGP and its ISFSI that were submitted as part of the triennial decommissioning accrual filing (Enclosure 4) are attached.

#### Costs and Key Assumptions to Decommission the Monticello ISFSI

The key assumptions used in developing the Monticello ISFSI Decommissioning Cost Estimate as described on pages 31, 56 and 57 of 173 of Enclosure 3 are:

“3) Fuel will be shipped in the existing NUHOMS [Dry Shielded Canisters]...” (Page 31 of 173)

“In accordance with 10 CFR §72.30, licensees must have a proposed decommissioning plan for the ISFSI site and facilities that includes a cost estimate to implement. The plan should contain sufficient information on the proposed practices and procedures for the decontamination of the ISFSI and for the disposal of residual radioactive materials after all spent fuel, high-level radioactive waste, and reactor related [Greater than Class C] waste have been removed.

Seven Horizontal Storage Modules (HSMs) are assumed to have some level of neutron-induced activation as a result of the long-term storage of the fuel, i.e., to levels exceeding free-release limits. This allowance is equivalent to the number of HSMs

required to accommodate the final core off load from Monticello. The cost of the disposition of this material is included in the estimate. (Pages 56 and 57 of 173)

The ISFSI pad is not expected to be contaminated and will be demolished accordingly after a confirmation survey.” (Page 57 of 173)

“The cost estimate for decommissioning the ISFSI reflects: 1) the cost of an independent contractor performing the decommissioning activities; 2) an adequate contingency factor; and 3) the cost of meeting the criteria for unrestricted use. The cost summary for decommissioning the ISFSI is presented in Appendix G. The demolition of the ISFSI for all four scenarios is reflected within the estimates which is included in the Site Restoration costs.” (Page 57 of 173)

As shown in Appendix G, the current cost estimate to decommission the Monticello ISFSI with a 25% contingency factor is \$7,324,200. The previous cost estimate to decommission the Monticello ISFSI provided to the NRC staff in our July 1, 2014 (Reference 1) filing was \$3,061,000. Appendix G for the Monticello ISFSI can be found on page 171 of 173 of Enclosure 3.

#### Costs and Key Assumptions to Decommission the Prairie Island ISFSI

The key assumptions used in developing the Prairie Island ISFSI Decommissioning Cost Estimate as described on pages 31 and 58 of 224 in Enclosure 4 are:

“3) Fuel will be shipped in the existing Transnuclear casks...” (Page 31 of 224)

“In accordance with 10 CFR §72.30, licensees must have a proposed decommissioning plan for the ISFSI site and facilities that includes a cost estimate to implement. The plan should contain sufficient information on the proposed practices and procedures for the decontamination of the ISFSI and for the disposal of residual radioactive materials after all spent fuel, high-level radioactive waste, and reactor related [greater than Class C] waste have been removed.

The ISFSI pad is not expected to be contaminated and will be demolished accordingly after a confirmation survey.” (Page 58 of 224)

“The cost estimate for decommissioning the ISFSI reflects: 1) the cost of an independent contractor performing the decommissioning activities; 2) an adequate contingency factor; and 3) the cost of meeting the criteria for unrestricted use. The cost summary for decommissioning the ISFSI is presented in Appendix G. The demolition of the ISFSI for all four scenarios is reflected within the estimates.” (Page 58 of 224)

As shown in Appendix G, the current cost estimate to decommission the Prairie Island ISFSI with a 25% contingency factor is \$2,987,100. The previous cost estimate to decommission the Prairie Island ISFSI was provided in the July 1, 2014, filing (Reference 1) was \$2,502,000. Appendix G for the Prairie Island ISFSI can be found on page 223 of 224 of Enclosure 4.

**10 CFR 72.30(b)(5) – “The volume of onsite subsurface material containing residual radioactivity that will require remediation to meet the criteria for license termination.”**

Response

Monticello

MNGP utilizes the NUHOMS®-61BTH Dry Shielded Canister (DSC) and horizontal storage modules (HSMs) for pad storage. Each canister is loaded, dried, backfilled with helium gas, sealed (welded shut), and decontaminated inside the plant prior to being placed inside the concrete HSM on the pad inside the ISFSI. The Safety Analysis Report at Section 11.2.8 – DSC Leakage for the NUHOMS®-61BTH DSC states:

**T.11.2.8 DSC Leakage**

The NUHOMS®-61BTH DSC is designed as a pressure retaining containment boundary to prevent leakage of contaminated materials. The analyses of normal, off-normal, and accident conditions have shown that no credible conditions can breach the DSC shell or fail the double seal welds at each end of the DSC. The NUHOMS®-61BTH DSC is designed and tested to be leak tight [11.2]. Therefore DSC leakage is not considered a credible accident scenario.”

As such there is no source of onsite subsurface material containing residual radioactivity that will require remediation as a result of ISFSI operations and no volume has been assumed in the decommissioning cost estimate for the ISFSI.

Prairie Island

PINGP utilizes the Transnuclear TN-40 and TN-40HT Dry Storage Casks. The casks are loaded, dried, backfilled with helium gas, sealed (bolted shut), and decontaminated inside the plant prior to being placed on the ISFSI storage pad. The Safety Analysis Report, Section 4.6 Decommissioning Plan at page 4.6-2 states:

**"4.6 Decommissioning Plan**

Due to the leak tight design of the storage casks, no residual contamination is expected to be left behind on the concrete base pad. The base pad, fence, and peripheral utility structures will require no decontamination or special handling after the cask is removed."

As such there is no source of onsite subsurface material containing residual radioactivity that will require remediation as a result of ISFSI operations and no volume has been assumed in the decommissioning cost estimate for the ISFSI.

**10 CFR 72.30(b)(6) – “A certification that financial assurance for decommissioning has been provided in the amount of the cost estimate for decommissioning.”**

Response

Financial assurance to ensure the availability of funds to decommission the MNGP and PINGP ISFSI is being provided by the method prescribed in 10 CFR 50.75 (e)(1)(ii)(A). 10 CFR 50.75 (e)(1)(ii) states, "This method [External Sinking Fund] may be used as the exclusive mechanism relied upon for providing financial assurance for decommissioning in the following circumstances: (A) By a licensee that recovers, either directly or indirectly, the estimated total cost of decommissioning through rates established by 'cost of service' or similar ratemaking regulation. Public utility districts, municipalities, rural electric cooperatives, and State and Federal agencies, including associations of any of the foregoing, that establish their own rates and are able to recover their cost of service allocable to decommissioning, are assumed to meet this condition."

This method is allowed under new 10 CFR 72.30(e) which states, in part, "Financial assurance for decommissioning must be provided by one or more of the following methods:...(5) In the case of licensees who are issued a power reactor license under Part 50 of this chapter...the methods of 10 CFR 50.75(b), (e), and (h), as applicable."

Reference 2 provided the Decommissioning Funding Plan Status reports on March 30, 2015. Enclosure 8 to Reference 2 provided the following External Trust Fund Balances as of January 1, 2015, for MNGP, PINGP Unit 1 and PINGP Unit 2 broken down into three subaccounts: 1) Radiological Decommissioning; 2) Spent Fuel Management; and, 3) Site Restoration.

In Reference 2, the funds for the radiological decommissioning of the ISFSIs were included in the subaccount entitled, "Spent Fuel Management". Tables 1 - 3 below are modifications of the third table found in Enclosure 8 of Reference 2 that separates the operations and radiological decommissioning portions of the spent fuel management costs.

**Table 1\***

Prairie Island Unit 1	External Qualified Trust	External Escrow	Total
Radiological Decommissioning	\$292,402,567	\$25,730,519	\$318,133,086
Spent Fuel Management – Operations	\$129,940,923	\$11,449,556	\$141,390,479
Spent Fuel Management - Decommissioning	\$172,251	\$0	\$172,251
Site Restoration	\$ 42,873,032	\$3,772,694	\$46,645,726
<b>Total</b>	<b>\$465,388,774</b>	<b>\$40,952,769</b>	<b>\$506,341,543</b>

**Table 2\***

Prairie Island Unit 2	External Qualified Trust	External Escrow	Total
Radiological Decommissioning	\$349,725,636	\$51,005,766	\$400,731,402
Spent Fuel Management – Operations	\$121,920,681	\$17,807,269	\$139,727,950
Spent Fuel Management - Decommissioning	\$176,466	\$0	\$176,466
Site Restoration	\$ 23,195,213	\$3,382,908	\$26,578,121
<b>Total</b>	<b>\$495,017,997</b>	<b>\$72,195,943</b>	<b>\$567,213,939</b>

**Table 3\***

Monticello	External Qualified Trust	External Escrow	Total
Radiological Decommissioning	\$441,352,236	\$37,373,010	\$478,725,246
Spent Fuel Management – Operations	\$120,450,716	\$10,296,861	\$130,747,577
Spent Fuel Management - Decommissioning	\$1,148,871	\$0	\$1,148,871
Site Restoration	\$18,207,438	\$1,541,777	\$19,749,215
<b>Total</b>	<b>\$581,159,262</b>	<b>\$49,211,648</b>	<b>\$630,370,909</b>

\*Totals may not foot due to rounding.

The MPUC issued its order approving NSPM's 2014 decommissioning accrual filing on October 5, 2015 (included as Enclosure 5) that establishes the basis for future rate collections in all of the states in which NSPM operates.

## **Assessment of 10 CFR 72.30(c) Adjustments**

As described above in response to 10 CFR 72.30(b)(2), the cost estimates and resulting accruals approved by the MPUC in the 2014 estimate that form the basis for the Decommissioning Funding Plans described above have been adjusted upward. Therefore, prior NRC approval of the 2014 Decommissioning Funding Plan is not required. In developing the cost estimates in the 2014 plan the events described in 10 CFR 72.30(c)(1) through (c)(4) were considered and are summarized below.

### **10 CFR 72.30(c)(1) – “Spills of radioactive material producing additional residual radioactivity in onsite subsurface material.”**

#### Response

As described in the response to the requirements of 10 CFR 72.30(b)(5) above, the casks at PINGP and canisters at MNGP are sealed and no credible events have been identified that could result in leakage; therefore, there is no source of onsite subsurface material containing residual radioactivity that will require remediation as a result of ISFSI operations and no volume has been assumed in the decommissioning cost estimate for the ISFSIs.

### **10 CFR 72.30(c)(2) – “Facility modifications.”**

#### Response

There have been no facility modifications at the MNGP or PINGP ISFSIs that impact the 2011 versus 2014 cost estimates for ISFSI decommissioning.

### **10 CFR 72.30(c)(3) – “Changes in authorized possession limits.”**

#### Response

The number of casks at PINGP and DSCs at MNGP assumed in the Decommissioning Funding Plan are the number of casks/canisters necessary to support plant operations until the end of the renewed plant operating licenses and those casks/canisters necessary to empty the spent fuel storage pool following plant shutdown including Greater-Than-Class C radioactive wastes. This is greater than the number of casks/canisters currently authorized by the NRC. The NRC authorized possession limits for the MNGP and PINGP ISFSIs have not changed since the last Decommissioning Funding Plan submittal.

### **10 CFR 72.30(c)(4) – “Actual remediation costs that exceed the previous cost estimate.”**

#### Response

No actual remediation has taken place at MNGP or PINGP.