



**Nebraska Public Power District**

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NLS2009053

July 20, 2009

U.S. Nuclear Regulatory Commission

Attention: Document Control Desk

Washington, D.C. 20555-0001

**Subject:** Response to Nuclear Regulatory Commission Request for Additional Information  
Re: Decommissioning Cost Analysis and Program for Maintenance of Irradiated  
Fuel (TAC Nos. ME1264 and ME1269)  
Cooper Nuclear Station, Docket No. 50-298, DPR-46

- References:**
1. Letter from Carl F. Lyon, U.S. Nuclear Regulatory Commission, to Stewart B. Minahan, Nebraska Public Power District, dated June 12, 2009, "Cooper Nuclear Station - Request for Additional Information Re: Decommissioning Cost Analysis and Program for Maintenance of Irradiated Fuel (TAC Nos. ME1264 and ME1269)"
  2. Letter from David W. Van Der Kamp, Nebraska Public Power District, to the U.S. Nuclear Regulatory Commission, dated December 23, 2008, "Program for Maintenance of Irradiated Fuel"
  3. Letter from David W. Van Der Kamp, Nebraska Public Power District, to the U.S. Nuclear Regulatory Commission, dated December 15, 2008, "Decommissioning Cost Analysis"

Dear Sir or Madam:

The purpose of this letter is for Nebraska Public Power District to submit a response to requests for additional information (RAI) from the Nuclear Regulatory Commission (NRC) (Reference 1). The RAI requested information in support of the NRC's review of the Program for Maintenance of Irradiated Fuel (Reference 2) and the Decommissioning Cost Analysis (Reference 3).

Responses to the specific RAI questions are provided in the Attachment. There are no regulatory commitments made in this submittal.

**COOPER NUCLEAR STATION**

P.O. Box 98 / Brownville, NE 68321-0098

**Telephone:** (402) 825-3811 / **Fax:** (402) 825-5211

www.nppd.com

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NLS2009053

Page 2 of 2

Should you have any questions concerning this matter, please contact me at (402) 825-2904.

Sincerely,



David W. Van Der Kamp  
Licensing Manager

/jo

Attachment  
Enclosure

cc: Regional Administrator w/ attachment and enclosure  
USNRC - Region IV

Cooper Project Manager w/ attachment and enclosure  
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/ attachment and enclosure  
USNRC - CNS

NPG Distribution w/o attachment and enclosure

CNS Records w/ attachment and enclosure

**Attachment**

**Response to Nuclear Regulatory Commission Request for Additional Information Re:  
Decommissioning Cost Analysis and Program for Maintenance of Irradiated Fuel  
(TAC Nos. ME1264 and ME1269)**

Cooper Nuclear Station, Docket No. 50-298, DPR-46

**Program for Maintenance of Irradiated Fuel**

*RAI No. 1: Financial Assurance*

*In order for a licensee to assume an earnings credit on its decommissioning funds over a SAFSTOR (safe-storage) period that is greater than a 2 percent real rate of return, the licensee must be able to recover total decommissioning costs through rates set by itself or a regulatory authority. Such rates must be subject to upward adjustments during the SAFSTOR period following the permanent shutdown of the plant involved if the actual rate of growth of the decommissioning funds does not meet or exceed the assumed or approved higher-than-2-percent-real-earnings rate. Please provide a statement and supporting references or documents that indicate the NPPD will be able to receive upward adjustments from ratepayers to its decommissioning funds, if necessary, following permanent shutdown.*

**Response:**

Nebraska Public Power District (NPPD) is a public corporation and political subdivision of the State of Nebraska. Control of NPPD and its operations is vested in a Board of Directors consisting of 11 members popularly elected from districts comprising subdivisions of NPPD's chartered territory. The subdivisions encompass 86 of the State's 93 counties and all of five other counties except for one first class city not served directly or indirectly by NPPD in each of these five counties.

NPPD has the power and is required to fix, establish, and collect adequate rates and other charges for electrical energy and any and all commodities or services furnished by it. Such rates and charges must be fair, reasonable, and nondiscriminatory and adjusted in a fair and equitable manner to confer upon and distribute among the users and consumers of such commodities and services the benefits of a successful and profitable operation.

A resolution of the NPPD (No. 08-70) adopted on June 13, 2008, confirms the District's commitment to collect sufficient funds to meet the minimum requirements of the Nuclear Regulatory Commission and to provide funding for other decommissioning-related costs including, but not limited to, provisions for restoration of the Cooper Nuclear Station (CNS) site and provisions for interim storage of spent nuclear fuel. (emphasis added)

The Board of Directors approved the decommissioning plan recommended by management and affirmed that such funding plan assumptions were reasonable and appropriate for decommissioning funding planning for CNS through January 18, 2014, and beyond. The Resolution further resolves that management will periodically review and update the assumptions, costs, and methods of funding decommissioning as a result of changing conditions and requirements, and recommend appropriate changes in funding plans to the Board of Directors.

A copy of the Resolution is provided as an enclosure to this response.

*RAI No. 2: Table 5, Cooper Nuclear Station, Scenario 3*

*The staff requests that NPPD provide a breakdown of the estimated \$3.8 million annual cost and supporting activities to support spent fuel management for CNS for the period 2020 – 2046 identified in Table 5.*

Response:

The details are available in the “Decommissioning Cost Analysis,” specifically in Table C-3 in Appendix C.

The \$3.8 million annual cost occurs in “Period 2b - SAFSTOR Dormancy with Dry Spent Fuel Storage,” which runs from July 2019 to December 2046 or approximately 27.5 years. The activities reported in this period relating to spent fuel management are as follows (extracted from Table C-3):

<b>Activity Designation and Description</b>		<b>\$ thousands (2008 dollars)</b>
Period 2b Collateral Costs		
2b.3.1	Spent Fuel Capital and Transfer	20,806
Period 2b Period-Dependent Costs		
2b.4.1	Insurance	491
2b.4.7	Emergency Planning Fees	25,477
2b.4.8	ISFSI Operating Costs	2,682
2b.4.9	Security Staff Cost	27,131
2b.4.10	Utility Staff Cost	28,634
2b.0	Total Period 2b Spent Fuel Management Cost	105,222
Duration		27.46 years
Annual Cost (average)		3,833

Line 2b.3.1 (\$20.806 million) addresses the cost to load and transfer 24 casks from the General Electric storage pool at Morris, Illinois, to the Department of Energy (DOE) and to transfer 50 storage canisters in storage on the CNS Independent Spent Fuel Storage Installation (ISFSI) pad to the DOE over the 27.5 year period. The "Period 2b Period Dependent Costs" are associated with CNS site operations over that same period.

*RAI No. 3: Section 3. Cost Considerations*

*This submittal indicated that CNS has an existing independent spent fuel storage installation (ISFSI) with sufficient capacity to accommodate the spent fuel remaining in the reactor building pool at shutdown. What is storage capacity of the ISFSI? At the time of shutdown, how many modules will be stored on the ISFSI? The submittal indicated that NPPD estimates that an additional 34 multipurpose canisters will be loaded with fuel from the pool at time of shutdown. Does this include the last core that will be removed when the plant is shutdown?*

Response:

The construction of the CNS ISFSI pad is nearing completion. It is designed to accommodate 52 Transnuclear casks. The current plan is to load eight casks in the spring of 2010 and then another eight casks in 2012. As such, in the event that the plant ceases operation on January 18, 2014, there will be 16 loaded casks on the pad. An additional 34 casks will be needed to offload the spent fuel residing in the reactor building's storage pool, including the assemblies from the last core.

**Decommissioning Cost Analysis**

*RAI No 4: Section 2. Decommissioning Alternatives*

*In the submittal, NPPD identified six possible decommissioning scenarios for CNS, and provided the annual costs associated with each option. However, NPPD did not provide an analysis using the decommissioning funds to demonstrate adequate funds are available to address these options. Please provide the supporting analysis for each of the identified alternatives or, at a minimum, for the selected option.*

Response

As described in the "Program for Maintenance of Irradiated Fuel," NPPD has identified Scenario 3 as its basis for financial planning, in the event that the plant was to cease operations on January 18, 2014. In this scenario, the nuclear unit is placed into safe-storage at the expiration of its current operating license. Decommissioning would be deferred such that termination of the license would occur within the required sixty-year period.

Decommissioning costs for this scenario are allocated into the three major categories of license termination, spent fuel management, and site restoration. The cost for radiological remediation (to the extent needed to terminate the operating license) is identified as \$674.964 million in the "Decommissioning Cost Analysis" (in 2008 nominal dollars).

The decommissioning funding plan is shown in following table. It uses a 2.5% real growth, as authorized by the District's Board of Directors, in the trust fund over time to demonstrate that the identified scenario is financially viable (i.e., that a surplus is shown in the fund at the completion of decommissioning).

Basis Year	2008		
Beginning Fund Balance	\$403.437	(end of 2007)	
Annual Escalation	0.00%		
Annual Earnings	2.50%		
	A	B	C
Year	50.75 License Termination Cost (millions)	Total Cost Escalated at 0% (millions)	Decommissioning Trust Fund Escalated at 2.5% (minus expenses) (millions)
2007	-	-	403.437
2008 <sup>1</sup>	-	-	413.523
2009	-	-	423.861
2010	-	-	434.458
2011	-	-	445.319
2012	-	-	456.452
2013	-	-	467.863
2014	43.626	43.626	435.934
2015	50.453	50.453	396.379
2016	5.399	5.399	400.889
2017	5.385	5.385	405.526
2018	5.385	5.385	410.279
2019	4.830	4.830	415.706
2020	4.185	4.185	421.914
2021	4.174	4.174	428.288
2022	4.174	4.174	434.821
2023	4.174	4.174	441.518
2024	4.185	4.185	448.371
2025	4.174	4.174	455.406

<sup>1</sup> As noted in NPPD's Biennial Decommissioning Funding Status Report, dated March 24, 2009, the actual fund balance at the end of calendar year 2008 was \$425,910,483. Thus, this calculation is a conservative analysis of decommissioning funding.

2026	4.174	4.174	462.617
2027	4.174	4.174	470.008
2028	4.185	4.185	477.573
2029	4.174	4.174	485.338
2030	4.174	4.174	493.297
2031	4.174	4.174	501.455
2032	4.185	4.185	509.806
2033	4.174	4.174	518.377
2034	4.174	4.174	527.162
2035	4.174	4.174	536.167
2036	4.185	4.185	545.386
2037	4.174	4.174	554.847
2038	4.174	4.174	564.544
2039	4.174	4.174	574.484
2040	4.185	4.185	584.661
2041	4.174	4.174	595.104
2042	4.174	4.174	605.808
2043	4.174	4.174	616.779
2044	4.185	4.185	628.013
2045	4.174	4.174	639.539
2046	4.173	4.173	651.354
2047	4.146	4.146	663.492
2048	4.157	4.157	675.922
2049	4.146	4.146	688.674
2050	4.146	4.146	701.745
2051	4.146	4.146	715.143
2052	4.157	4.157	728.865
2053	4.146	4.146	742.941
2054	4.146	4.146	757.369
2055	4.146	4.146	772.157
2056	4.157	4.157	787.304
2057	4.146	4.146	802.841
2058	4.146	4.146	818.766
2059	4.146	4.146	835.089
2060	4.157	4.157	851.809
2061	4.146	4.146	868.958
2062	4.146	4.146	886.536
2063	4.146	4.146	904.553
2064	4.157	4.157	923.010
2065	4.146	4.146	941.939
2066	4.146	4.146	961.341
2067	4.146	4.146	981.229
2068	27.415	27.415	978.345

2069	63.494	63.494	939.310
2070	100.380	100.380	862.413
2071	63.571	63.571	820.402
2072	63.745	63.745	777.167
2073	39.826	39.826	756.770
2074	1.485	1.485	774.204
2075	0.084	0.084	793.475
	674.973	674.973	

Calculations:

Column B = (A)\*(1+.00)^(current year – 2008)

Column C = (Previous year's fund balance) \* (1 + .025) – B (current year's decommissioning expenditures)

*RAI No. 5: Section 2.1. DECON*

*The submittal focuses on DECON as the preferred option for decommissioning, and Section 2.1 provides detailed discussions on the preferred DECON option. However, the Irradiated Fuel Management Program submittal uses the SAFSTOR option as the mechanism for addressing the radiological and spent fuel management costs. Please confirm which option is the preferred decommissioning option.*

Response

The submittal describes each decommissioning scenario. However, as described in the "Program for Maintenance of Irradiated Fuel," NPPD has identified Scenario 3 (2014 SAFSTOR) as its basis for financial planning, in the event that the plant was to cease operations on January 18, 2014. In this scenario, the nuclear unit is placed into safe-storage at the expiration of its current operating license. Decommissioning would be deferred such that termination of the license would occur within the required sixty-year period.

*RAI No. 6: Section 3.4. Site-Specific Considerations*

*The submittal did not indicate if NPPD had completed a 10 CFR 50.75(g)(1) review of its records to address any potential spills that could result in contaminated soil or groundwater, and its potential impact on costs. Please state whether or not NPPD has completed the review.*

Response

Yes, NPPD has completed a 10 CFR 50.75(g)(1) review of its records to address any potential spills that could result in contaminated soil or groundwater. The records describe a single, minor event (drum overflow) that resulted in contamination of the adjacent soil. The total area impacted by the event was approximately 36 square feet (and less than a foot in depth). The event is expected to have a negligible impact on the total cost to decommission CNS.

NLS2009053  
Enclosure

**Enclosure to Response to Question #1**  
**Resolution of Nebraska Public Power District**

# RESOLUTION

OF

NEBRASKA PUBLIC POWER DISTRICT

No. 08-70

**Adopted: June 13, 2008**

WHEREAS, the District is required by Nuclear Regulatory Commission (NRC) Regulation (10 CFR 50.75) to provide sufficient funding for the dismantlement and disposal of radioactive structures and materials as necessary at the time of termination of the District's Operating License for Cooper Nuclear Station (CNS); and

WHEREAS, the District established an External Decommissioning Fund pursuant to Board Resolution No. 90-75 in May 1990 to provide assurance that funds will be available when needed for required decommissioning activities; and

WHEREAS, the District is committed to collecting sufficient funds to meet the minimum requirements of the NRC and to provide funding of other decommissioning-related costs including, but not limited to, provisions for restoration of the CNS site and provisions for interim storage of spent nuclear fuel; and

WHEREAS, the District has conducted periodic site specific studies of the costs of decommissioning CNS; and

WHEREAS, management has developed and has recommended a decommissioning funding plan for CNS to the Board of Directors that will provide funding for future decommissioning and other related costs; and

WHEREAS, the following assumptions were made in developing the decommissioning funding plan:

1. Decommissioning will commence in January 2014 upon termination of the existing Operating License, or at a later date (subject to NRC approval of a twenty-year renewal of the CNS Operating License) as determined by the Board of Directors; and
2. The SAFSTOR (safe storage with delayed dismantlement) methodology will be utilized to decommission CNS; and
3. An annual escalation rate for decommissioning costs of 3.0%; and
4. A nominal rate of investment return of 5.5% on monies in the decommissioning fund(s); and
5. A corresponding real rate of investment return of 2.5%; and
6. Fees of the External Decommissioning Fund trustee and investment managers will be paid for from the External Decommissioning Fund.

**Resolution No. 08-70**  
**Adopted: June 13, 2008**  
**Page 2**

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors approves the decommissioning plan recommended by management and affirms that such funding plan assumptions are reasonable and appropriate for decommissioning funding planning for CNS through January 18, 2014, and beyond, as determined by the Board of Directors at a later date, and is in the best interests of NPPD and its ratepayers.

BE IT FURTHER RESOLVED that management is directed to periodically review and update the assumptions, costs and methods of funding decommissioning as a result of changing conditions (to include Operating License renewal) and requirements, and recommend appropriate changes in funding plans to the Board of Directors.

Correspondence Number: NLS2009053

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITMENT NUMBER	COMMITTED DATE OR OUTAGE
None		