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FPL Energy.

Duane Arnold Energy Center

February 19, 2009

NG-09-0038
10 CFR 50.75
10 CFR 50.54

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

Duane Arnold Energy Center
Docket 50-331
License No. DPR-49

Irradiated Fuel Management Plan and Preliminary Decommissioning Cost Estimate for Duane Arnold Energy Center

Reference: FPL Energy Duane Arnold letter to NRC, "Duane Arnold Energy Center Application for Renewed Operating License TSCR-109," dated September 30, 2008 (ADAMS Accession No. ML082980623)

The enclosed Irradiated Fuel Management Plan (Enclosure 1) and Preliminary Decommissioning Cost Estimate (Enclosure 2) are being submitted in accordance with 10 CFR 50.54(bb), "Conditions of Licenses," and 10 CFR 50.75(f)(3), Reporting and Recordkeeping for Decommissioning Planning," respectively, for the Duane Arnold Energy Center.

Pursuant to 10 CFR 50.54(bb), a licensee shall, "submit written notification to the Commission for its review and preliminary approval of the program by which the licensee intends to manage and provide funding for the management of all irradiated fuel at the reactor following permanent cessation of operation of the reactor until title to the irradiated fuel and possession of the fuel is transferred to the Secretary of Energy for its ultimate disposal in a repository." Accordingly, the Irradiated Fuel Management Plan is provided for your review and preliminary approval.

Additionally, 10 CFR 50.75(f)(3), "Reporting and Recordkeeping for Decommissioning Planning" states, "each power reactor licensee shall at or about 5 years prior to the projected end of operations submit a preliminary decommissioning cost estimate which includes an up-to-date assessment of the

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major factors that could affect the cost to decommission." Accordingly, the Preliminary Decommissioning Cost Estimate (Enclosure 2) is provided for your review.

FPL Energy Duane Arnold has submitted an application for renewal of the operating license (Referenced letter). Although FPL Energy Duane Arnold is currently seeking license renewal, the Irradiated Fuel Management Plan and Preliminary Decommissioning Cost Estimate are submitted based on the current operating license expiration date of February 21, 2014 for the Duane Arnold Energy Center. If the license is renewed, the current Irradiated Fuel Management Plan and Preliminary Decommissioning Cost Estimate would no longer be applicable and a new plan and cost estimate will be submitted five years prior to the expiration of the renewed license, in accordance with 10 CFR 50.54(bb) and 10 CFR 50.75(f)(3), respectively.

This letter contains no new commitments and no revisions to existing commitments.

If you have any questions, please contact Licensing Manager, Steve Catron at (319) 851-7234.

Richard L. Anderson
Vice President, Duane Arnold Energy Center
FPL Energy Duane Arnold, LLC

Enclosures (2)

cc: Administrator, Region III, USNRC
Project Manager, DAEC, USNRC
Resident Inspector, DAEC, USNRC

ENCLOSURE 1

IRRADIATED FUEL MANAGEMENT PLAN

Background

The Preliminary Decommissioning Cost Estimate (Enclosure 2) in accordance with 10 CFR 50.75(f)(3) for the Duane Arnold Energy Center (DAEC) evaluates the DECON strategy with operating license expiration of February 21, 2014. The Irradiated Fuel Management Plan is also based on the DECON analysis and current operating license expiration date. There is one independent spent fuel storage installation (ISFSI) on the DAEC site operating under a general Nuclear Regulatory Commission (NRC) license. FPL Energy reserves the right to choose the ultimate decommissioning option in accordance with its business needs, recognizing the need to ensure that the chosen option meets NRC requirements for decommissioning funding.

Spent Fuel Management Strategy

The NRC requires (10 CFR 50.54(bb)) that licensees establish a program to manage and provide for funding for the caretaking of all irradiated fuel at the reactor site until title of the fuel is transferred to the U.S. Department of Energy (DOE). Interim storage of the fuel will be in the fuel storage pool and/or Independent Spent Fuel Storage Installation (ISFSI) located at the Duane Arnold Energy Center site until the DOE has completed the transfer to a repository. The design of the ISFSI provides room for expansion that will accommodate the inventory of spent fuel in DAEC's storage pool at the conclusion of the required cooling period. The ISFSI, if expanded, would store all spent nuclear fuel on-site.

The spent fuel pool will remain in operation for a minimum of 5 years following the cessation of operations. This period allows the necessary cooling for the final irradiated fuel removed from the reactor core to meet dry storage canister requirements for decay heat. During this 5 year period, the spent fuel pool will be isolated and a spent fuel island created, and spent fuel will be packaged into casks for transfer to the DOE from the ISFSI. The ISFSI will remain operational and provide interim storage of spent fuel until such time that the DOE completes fuel acceptance.

The schedule for shipment of spent nuclear fuel assemblies to DOE during decommissioning is based upon several assumptions. First, a DOE repository would exist by an opening date of January 1, 2025. Second, DOE would begin accepting irradiated fuel from DAEC in 2027. The spent fuel shipping schedules are based in part on the DOE's "Acceptance Priority Ranking & Annual Capacity Report," dated July 2004. However, any delay in the startup of the repository or

decrease in the rate of acceptance would prolong the transfer process and result in the fuel remaining at the site longer. In the DECON scenario, the ISFSI will continue to operate until such time that the transfer of irradiated fuel to the DOE is complete. Finally, assuming that the DOE commences repository operation in 2025, irradiated fuel is projected to be removed from the DAEC site by 2054. Consequently, costs are included within the analysis for the continued operation of the storage pool and ISFSI, as required, and for the long-term caretaking of the spent fuel. At the conclusion of the spent fuel transfer process the ISFSI will be decommissioned.

Operation and maintenance costs for the storage facilities (ISFSI and the spent fuel pool) are included within the spent fuel cost estimate and address the cost of staffing the facilities, maintenance of necessary operational requirements as well as security, insurance, and licensing fees. The estimate also includes the costs to purchase and load fuel storage canisters and transfer of the canisters to an ISFSI. A cost estimate for irradiated fuel management at DAEC under the DECON scenario may be found in Appendix E, "Annual Cash Flow Tables," for Scenario 1, in Attachment 1 of Enclosure 2.

In the event FPL Energy Duane Arnold ceases operation of DAEC in 2014, FPL Energy Duane Arnold will continue to comply with existing NRC licensing requirements, including the operation and maintenance of the systems and structures needed to support continued operation of the spent fuel pool and the ISFSI, as necessary, under the decommissioning scenario ultimately selected.

Cost Estimate and Funding for Spent Fuel Management Based on the DECON Methodology

The "Decommissioning Cost Estimate Study for the Duane Arnold Energy Center," developed by Energy*Solutions*, Inc. (Attachment 1 of Enclosure 2), includes a cost estimate of approximately $278.2 million for spent fuel management.

The decommissioning cost estimate divides spent fuel management costs into five periods, (1) Fuel Pool Island Design; (2) Spent Fuel Cooling and Transfer to Dry Storage; (3) Dry Storage During Dormancy; (4) Dry Storage Only; and (5) ISFSI Decommissioning. The estimated cost for each of these periods is listed below:

1) The estimated cost for Fuel Pool Island Design is approximately $1.3 million. Major activities include designing spent fuel support system modifications, designing control room relocation, and designing spent fuel storage security modifications.
2) The estimated cost for Spent Fuel Cooling and Transfer to Dry Storage is approximately $129.7 million. Major activities include installing Spent Fuel Pool System modifications, implementing control room modifications and spent fuel pool security modifications, and the purchase of dry storage modules.

3) The estimated cost for Dry Storage During Dormancy is approximately $26.1 million. Major activities include maintenance and inspection of the ISFSI, and spent fuel shipments to DOE.
4) The estimated cost for Dry Storage Only is approximately $113.8 million. Major activities include, maintenance and inspection of the ISFSI, and continued spent fuel shipments.
5) The estimated cost for ISFSI Decommissioning is approximately $7.3 million. Major activities include horizontal storage module verification survey, preparation of final report on decommissioning and NRC review, clean demolition of the ISFSI, and Part 50 License Termination.

The following schedule shows the estimated fuel management costs as they relate to decommissioning periods for DECON with dry storage scenario as found in Table 6-1 in Attachment 1 of Enclosure 2:

Period #	Title	Cost 2008 Dollars (Thousands)	Period Duration (Years)
1	Fuel Pool Island Design	1,256	0.66
2	Spent Fuel Cooling and Transfer to Dry Storage	129,721	4.99
3	Dry Storage During Dormancy	26,136	6.68
4	Dry Storage Only	113,846	27.74
5	ISFSI Decommissioning	7,274	1.23
	TOTALS	278,233	41.30

Appendix D, "Detailed Cost Tables," in Attachment 1 of Enclosure 2, contains detailed costs for each of the five decommissioning periods associated with spent fuel management.

The estimated annual cost for the operation of the selected option until DOE takes possession of the fuel can be found in Appendix E, "Annual Cash Flow Tables," Scenario No. 1, in Attachment 1 of Enclosure 2.

Because FPL Energy Duane Arnold is actively seeking renewal of the operating license for DAEC, it is unlikely that permanent cessation of operation will occur in 2014. Nonetheless, in the event the NRC does not renew the DAEC operating license, the owners propose the following financial mechanisms in order to provide reasonable assurance that onsite management of irradiated fuel will be adequately funded until the irradiated fuel is transferred to the DOE:

(1) FPL Energy Duane Arnold, LLC plans to obtain a parent company guarantee from FPL Group Capital Inc. covering FPL Energy Duane

Arnold's pro rata share (70%) of the estimated irradiated fuel management costs within 60 days of written notice from the NRC that the license renewal application for DAEC has been denied. FPL Group Capital Inc. has an "A" credit rating from Standard & Poor's and FitchRatings. The NRC has previously deemed FPL Group Capital Inc. as an acceptable guarantor (Reference letters from FPL Energy Duane Arnold to NRC, "Condition (4) of Order Approving Transfer of DPR-049," dated February 20, 2006, and "Revised Decommissioning Funding Status Report for the Duane Arnold Energy Center," dated June 28, 2007). With the NRC schedule of 22 months for the review of a license renewal application (or 30 months with a hearing), there will be adequate time following any adverse decision on license renewal for FPL Energy Duane Arnold to obtain a parent guarantee within the period of licensed operation.

(2) Central Iowa Power Cooperative (CIPCO) has investments outside of funds designated for decommissioning available to use towards its pro rata share (20%) of the estimated irradiated fuel management costs. Additionally, CIPCO plans to use operating revenue to cover the estimated irradiated fuel management costs over the long-term disposal period. CIPCO has an "A" credit rating from Standard & Poor's.

(3) Corn Belt Power Cooperative (CBPC) has investments outside of funds designated for decommissioning available to use towards its pro rata share (10%) of the estimated irradiated fuel management costs. Additionally, CBPC plans to use operating revenue to cover the estimated irradiated fuel management costs over the long-term disposal period.

ENCLOSURE 2

PRELIMINARY DECOMMISIONING COST ESTMATE

Introduction

This report presents a summary of the preliminary estimate of the cost to decommission the Duane Arnold Energy Center (DAEC), as required by 10 CFR 50.75(f)(3). This cost estimate is based on the "Decommissioning Cost Estimate Study for the Duane Arnold Energy Center," (Attachment 1) conducted by Energy*Solutions*, Inc. and premised on the assumption that the plant permanently ceases to operate in February 2014. The estimate assumes the eventual removal of all contaminated and activated plant components and structural materials, such that the operating license may be terminated to permit unrestricted use of the site. Although FPL Energy Duane Arnold is currently seeking license renewal for DAEC, this cost estimate is being submitted based on the current operating license expiration date for DAEC of February 21, 2014. If license renewal for DAEC is granted, this Preliminary Decommissioning Cost Estimate would no longer be applicable and a new estimate will be submitted in accordance with 10 CFR 50.75(f)(3).

Assessment of Major Factors That Could Affect Preliminary Cost Estimate

The Preliminary Decommissioning Cost Estimate assumes a DECON decommissioning option with dry storage of spent nuclear fuel. This estimate assumes cessation of operation in February 2014 and a Department of Energy (DOE) spent fuel repository opening in 2025 with the first fuel leaving the plant in 2027. Interim storage of the fuel will be in the storage pool and/or ISFSI located at the DAEC site until the DOE assumes title to the spent fuel. The ISFSI will accommodate the inventory of spent fuel residing in DAEC's storage pool at the conclusion of the required cooling period. Decommissioning of the ISFSI will commence once DOE has accepted title to all of DAEC's fuel. This cost estimate scenario includes equipment, structures, and portions of the facility and site that contain radioactive contaminants that are promptly removed or decontaminated to a level that permits termination of the license after cessation of operations.

Potential for Known or Suspected Contamination

No known areas of radiologically contaminated soil have been identified. Additionally, documented tritium levels in ground water are below drinking water standards. Therefore, no soil or groundwater remediation costs were assumed. However, costs for environmental monitoring performed during decommissioning include groundwater monitoring.

Waste Disposition Plan

All Class A waste that meets the Clive, Utah facility waste acceptance criteria is to be disposed of at Clive. All reported waste disposal costs include packaging, transportation, and any applicable surcharges. Rates for Class A disposal at the Clive facility are provided in Section 5.0 of Attachment 1.

Class B, C, and Greater-than-Class-C (GTCC) waste disposal costs are based on the July 2008 published rates for the Barnwell facility, including applicable curie and dose rate charges.

The scenario for the DECON methodology (Scenario 1 as described in Attachment 1) includes the disposition of two GTCC waste containers. All spent fuel and GTCC will be removed from the ISFSI by 2054.

In Attachment 1, Table 6-4, waste disposal volumes and costs are itemized by packaging, transportation, surcharges, and disposal costs by waste class and facility. The waste disposal cost provided in Table 6-4 does not include contingency. Scenario 1 assumes Class B and C waste generated during operations will be stored on site until 2025, at which time a facility licensed to dispose of Class B and C wastes will become available.

Preliminary Schedule of Decommissioning Activities

Table 6-1 of Attachment 1 is a cost and schedule summary for the DECON methodology (Scenario 1). A detailed schedule of the DECON methodology (Scenario 1) is illustrated in Appendix C of Attachment 1.

Other Factors That Could Significantly Affect the Cost to Decommission

Contingencies were applied to cost estimates primarily to allow for unknown or unplanned occurrences during the actual program, e.g., increased radioactive waste materials volumes over that expected, equipment breakdowns, weather delays, labor strikes, etc. Contingencies were developed specific to decommissioning estimates utilizing the information presented in AIF/NESP-0036, "Guidelines for Producing Nuclear Plant Decommissioning Cost Estimates," and consistent with DOE Cost Estimating Guide, DOE G 430.1-1, 3-28-97 (DOE G).

Preliminary Cost Estimate Considerations

The Preliminary Decommissioning Cost Estimate for the DECON methodology is based on costs associated with the entire decommissioning work scope, including those activities related to the following periods of the decommissioning project:

1) Decommissioning Planning Prior to Shutdown
2) Site Modifications and Preparations
3) Major Component Removal

4) Balance of Plant Decontamination
5) Interim Waste Storage Facility Operation
6) Fuel Pool Island Design
7) Spent Fuel Cooling and Transfer to Dry Storage
8) Dry Storage During Decommissioning
9) Dry Storage Only
10) ISFSI Decommissioning
11) Clean Building Demolition
12) Site Restoration

Refer to Attachment 1, Appendix D, "Detailed Cost Tables," for detailed costs associated with Scenario Number 1, DECON methodology activities.

Preliminary Cost Estimate and Plans for Adjusting Levels of Funding

Using the DECON methodology (Scenario 1 in Attachment 1) the License Termination cost (10 CFR 50.75(c)) is approximately $495.7 million.

Although FPL Energy Duane Arnold is seeking license renewal, the Preliminary Decommissioning cost Estimate is submitted based on the current operating license expiration date of February 21, 2014. If license renewal is granted, the Preliminary Decommissioning Cost Estimate would no longer be applicable and a new plan and cost estimate will be submitted in accordance with 10 CFR 50.75(f)(3).

As indicated in the "Revised Decommissioning Funding Status Report for the Duane Arnold Energy Center," from FPL Energy to NRC dated June 28, 2007, FPL Energy Duane Arnold, LLC (70% ownership), and joint owners Central Iowa Power Cooperative (CIPCO) (20% ownership), and Corn Belt Power Cooperative (CBPC) (10% ownership) use the external sinking fund method of providing decommissioning funding assurance. Actual annual contributions to the external sinking fund vary based upon reassessment of owner's decommissioning funding obligations in light of NRC requirements, actual inflation, actual fund earnings, and other factors. Projected funds include a $93 million parent guaranty from FPL Group Capital Inc., and an additional contribution of $24.5 million by CIPCO in 2013. As reported in the 2007 Revised Decommissioning Funding Status Report, projected funds in 2014 were estimated to be approximately $484.3 million.

The total of the decommissioning trust fund balances combined for FPL Energy Duane Arnold, LLC, CIPCO and CBPC accumulated at the end of 2008 was approximately $203.1 million. The 2008 year end minimum decommissioning fund amount required pursuant to 10 CFR 50.75(b) and (c) is approximately $503.8 million. Thus, the value derived from the NRC formula is higher than the Preliminary Decommissioning Cost Estimate of $495.7 million. FPL Energy Duane Arnold, LLC along with joint owners CIPCO and CBPC plan to provide reasonable assurance in conjunction with the next Decommissioning Funding Status Report (due in March 2009), that the required minimum funding of approximately $503.8 million will be

available for decommissioning costs by adjusting the level of funds by the following means:

(1) FPL Energy Duane Arnold, LLC plans to increase the existing parent guarantee in order to meet its share of the decommissioning obligation (pro rata share 70%).

(2) CIPCO currently has funds in trust designated for decommissioning as well as other funds designated for decommissioning. CIPCO is a tax-exempt cooperative under IRS section 501(c)(12). This exempt status allows for a higher rate of earnings that results in higher projected real rates of return. CIPCO's rates are not regulated by any state or federal agency. CIPCO's rates are determined annually based on a budget approved by the Board of Directors. If the cooperative does not obtain the projected earnings rates on the decommissioning fund, it has the ability to increase future funding to meet its share of the decommissioning obligation (pro rata share 20%).

(3) CBPC currently has funds in trust designated for decommissioning. CBPC is a tax-exempt cooperative under IRS section 501(c)(12). This exempt status allows for higher rate of earnings that results in higher projected real rates of return. CBPC's rates are not regulated by any state or federal agency. CBPC rates are determined annually based on a budget approved by the Board of Directors. If the cooperative does not obtain the projected earnings rates on the decommissioning fund, it has the ability to increase future funding to meet its share of the decommissioning obligation (pro rata share 10%).

ATTACHMENT 1 TO ENCLOSURE 2

DECOMMISSIONING COST ESTIMATE STUDY FOR THE DUANE ARNOLD ENERGY CENTER

190 Pages Follow