

10 CFR 50.75(f)(1)  
10 CFR 50.82(a)(8)

March 28, 2022

ZS-2022-0008

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Zion Nuclear Power Station, Units 1 and 2  
Facility Operating License Nos. DPR-39 and DPR-48  
NRC Docket Nos. 50-295 and 50-304

Subject: Report on Status of Decommissioning Funding for Shutdown Reactors

- References:
1. Exelon Generation Corporation (EGC) Letter RS-08-009, "Application for License Transfers and Conforming Administrative License Amendments," dated January 25, 2008
  2. Nuclear Regulatory Commission (NRC) Letter, J. Hickman to P. Daly, *ZionSolutions, LLC*, "Order Approving Transfer of Licenses and Conforming Amendments Relating to Zion Nuclear Power Station, Units 1 and 2," dated May 4, 2009
  3. *ZionSolutions, LLC* Letter, P. Daly to NRC, "Notification of Amended Post-Shutdown Decommissioning Activities Report (PSDAR) for Zion Nuclear Power Station, Units 1 and 2," dated March 18, 2008
  4. *ZionSolutions, LLC* Letter, D. Beckman to J. Hickman, "Notification of a Significant Schedule Change from that provided in the Amended Post-Shutdown Decommissioning Activity Report," dated November 23, 2010
  5. NRC Letter, A. Persinko to J. Sauger, *ZionSolutions, LLC*, "Zion Nuclear Power Station, Units 1 and 2, Request for Exemption from Certain Decommissioning Trust Fund Requirements of the Decommissioning Regulations," dated July 21, 2014
  6. *ZionSolutions, LLC* Letter, G. van Noordennen, "Report on Status of Decommissioning Funding for Shutdown Reactors," dated March 25, 2021

In accordance with 10 CFR 50.75, "Reporting and recordkeeping for decommissioning planning," paragraph (f)(1), and 10 CFR 50.82, "Termination of license," paragraph (a)(8), *ZionSolutions, LLC (ZS)* is submitting a report on the status of funding for decommissioning Zion Nuclear Power Station (ZNPS), Units 1 and 2, and managing the associated irradiated fuel. The revised annual radiological decommissioning and irradiated fuel management funding assurance report for ZNPS is provided in Attachment 1 to this letter for the period ending December 31, 2021.

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The minimum required decommissioning funding assurance amount is based on a site-specific decommissioning cost estimate determined in accordance with 10 CFR 50.82(a). A change to the spent fuel management strategy was described in the application for license transfer (Reference 1), accepted by the NRC in Reference 2, and further described in the amended PSDAR (Reference 3). Reference 4 provided the decommissioning schedule that included adjustments resulting from incorporation of the actual calendar date of the asset and NRC license transfers as well as refinement of individual activity sequencing as the project planning achieved more detail.

Each of those references addressed the project's planning and scheduling basis, the associated estimated costs and the available funds for decommissioning, decontamination, dismantlement, and spent fuel management of both ZNPS units as an integrated project. As described in those references, radiological decommissioning as represented by the ZNPS integrated plan included removal of the fuel to a dry storage facility and the decontamination and dismantlement of the radiologically involved systems, structures, and components. The attached decommissioning cost estimate does not include the costs of dismantling non-radiological systems and structures and other non-radiological site restoration. An exemption was issued by the NRC to authorize ZS to use decommissioning trust funds for costs associated with both decommissioning activities and spent fuel management (Reference 5).

ZS agreements with EGC include rights that will enable ZS to return the decontaminated site and transfer the Independent Spent Fuel Storage Installation (ISFSI), spent fuel, remaining Greater than Class C (GTCC) waste, and associated NRC licenses to EGC, now Constellation Energy Generation, LLC (CEG). Once these transfers are accomplished, CEG would maintain the irradiated fuel, including ongoing financial responsibility, until title to and possession of the irradiated fuel is transferred to the Department of Energy for its ultimate disposition. These latter, ongoing costs are not included in the decommissioning estimates herein.

NRC review of the decommissioning management strategy and the associated funding and cost estimate was completed as part of the NRC approval of the transfer of the ZNPS operating licenses to ZS (Reference 2). For purposes of consistency with References 1, 2 and 3, the results of the end of year 2021 funding and cost estimate shown in Attachment 1 are aggregated for the entire project as Unit 1 and Unit 2 are being decommissioned concurrently as a single integrated project. This is consistent with the licensing basis and integrated plans for sequencing radiological decommissioning and fuel management reflected in the references. Since the time of the estimate provided in Reference 3, the cost and funding estimate have been adjusted for market value changes in the decommissioning trust fund (DTF), refinement of the cost and schedule estimate reflecting knowledge gained from decommissioning and fuel management activities, and more developed cost allocations among the activities for radiological and non-radiological work. While this report excludes costs and discussion of non-radiological site restoration, ZS will complete that work as part of the contract scope with CEG.

Attachment 1 provides the aggregated, minimum estimated cost (funds needed) for concurrent radiological decommissioning of both nuclear units and for used fuel management for the remainder of the contract period (corresponding to Item B in Attachment 1), as described in the prior submittals, planned decommissioning sequences, and work breakdown structure. This estimate has been developed from the site aggregate decommissioning schedule and provides the cost and funding allocation necessary to complete decommissioning of the radiologically involved systems, structures and components consistent with the NRC accepted decommissioning strategy. For completeness, the attached report includes the funding amount from the trust for both Unit 1 and Unit 2, as components of the total DTF value (Item A); the projected end of project surplus (Item D), based on the trust fund amount as of December 31, 2021, less the estimate of costs to complete decommissioning, plus annual earnings and less taxes through the end of the project on or before September 30, 2022; the estimated cost to complete decommissioning activities (Item E); the projected costs to manage the irradiated fuel until fuel

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management responsibility transfers back to CEG (Item F); and the total amount spent on decommissioning (Item G), both cumulatively (September 2010 – December 31, 2021) and for calendar year 2021. The information included in the attached report is accurate as of December 31, 2021.

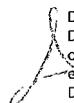
Disbursements from the trust fund have been made in accordance with the conditions of the ZNPS licenses, including the required advance notifications to the Office of Nuclear Reactor Regulation.

There are no regulatory commitments contained within this letter.

If you have any questions about this letter, please contact me at (860) 462-9707.

Respectfully,

**Gerard van  
Noordennen**

 Digitally signed by Gerard van Noordennen  
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Gerard van Noordennen  
Senior Vice President Regulatory Affairs

cc: Kimberly Conway, U.S. NRC Project Manager  
Regional Administrator, U.S. NRC Region III  
Service List (Cover letter only, no attachments)

Attachment:

Annual Radiological Decommissioning and Irradiated Fuel Management Funding Assurance Report for Zion Nuclear Power Station, Aggregate Costs

**Zion Nuclear Power Station, Unit 1 and 2 License Transfer Service List**

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**ATTACHMENT 1**  
**Annual Radiological Decommissioning and Irradiated Fuel Management Funding Assurance Report for Zion Nuclear Power Station, Aggregate Costs**

December 31, 2021  
 (2021 dollars, millions)

<u>Trust Fund Amount at December 31, 2021 (A1)</u>	<u>\$0.5M</u>
<u>Funding Assurance (ES Parent Funding) other than the Trust Fund Amount (A2)</u>	<u>\$6.3M</u>
<u>NRC Required Minimum Funding Assurance Amount at December 31, 2021</u>	
<u>(B)=(E)+(F)</u>	<u>\$6.8M</u>
<u>Difference in Trust Fund Amount versus Required Minimum Funding</u>	
<u>at December 31, 2021 – Surplus/(Shortfall) (C) = (A1) - (B)</u>	<u>(\$6.3M)</u>
<u>Difference in Total Funding Assurance Amount versus Required Minimum</u>	
<u>Funding Assurance at December 31, 2021 (A1)+(A2)-(B)</u>	<u>\$0</u>
<u>Projected End of Project Surplus at December 31, 2021 (D)</u>	<u>\$0<sup>1</sup></u>
<u>Estimated Costs to Complete Decommissioning at December 31, 2021 (E)</u>	<u>\$4.6M</u>
<u>Projected Costs to Manage Irradiated Fuel at December 31, 2021 (F)</u>	<u>\$2.2M<sup>2</sup></u>
<u>Amount Spent on Decommissioning (G):</u>	
<u>Cumulative (September 2010 – December 31, 2020)</u>	<u>\$659.6M</u>
<u>Calendar Year 2021</u>	<u>\$2.6M</u>
<u>Cumulative (September 2010 – December 31, 2021)</u>	<u>\$662.2M</u>

<sup>1</sup> Value is based on the trust fund amount as of December 31, 2021, less the estimate of costs to complete decommissioning, plus annual earnings and less tax through the end of the project.

<sup>2</sup> This represents the costs to complete the safe, secure operation of the ISFSI and associated infrastructure until the Zion site transitions back to CEG.

General Notes:

- The required minimum funding assurance amount is based on the decommissioning scenario from the site-specific decommissioning cost estimate provided in Reference 3. The cost estimate reflects actual experience to date, as well as forecast refinements made through the date of this filing.
- There are no additional funds to be collected.
- A 2% annual real rate of return is assumed in these calculations.
- There are no contracts relied upon pursuant to 10 CFR 50.75(e)(1)(v).
- There are no material changes to the trust fund agreements or financial assurance contracts as described at the time of transfer of the licenses, except for the reduction of the Letter of Credit held by EGC. As of December 31, 2020, the Letter of Credit amount had been reduced to \$0.
- ZS has funds sufficient to meet its obligations to manage spent fuel safely as requisite to the current cost estimates for the project and pursuant to 10 CFR 50.82(a)(8)(vii). The estimated cost to manage the irradiated fuel, as reported above (Item F), includes O&M and Security costs associated with managing the ISFSI until the site transitions back to CEG.
- Upon completion of the decommissioning project, ZS will transfer the ISFSI to CEG. CEG will assume responsibility to manage the spent fuel safely from that date until title to and possession of the irradiated fuel is transferred to the Secretary of Energy for its ultimate disposition. On September 1, 2010, in accordance with the ASA, EGC retained \$25 million of the Decommissioning Trust Fund for this purpose. The \$25 million retained by EGC is not included in the remaining Decommissioning Trust Fund amount as reported above (Item A).
- Inquiries regarding the management of spent nuclear fuel beyond completion of the decommissioning project should be directed to CEG.