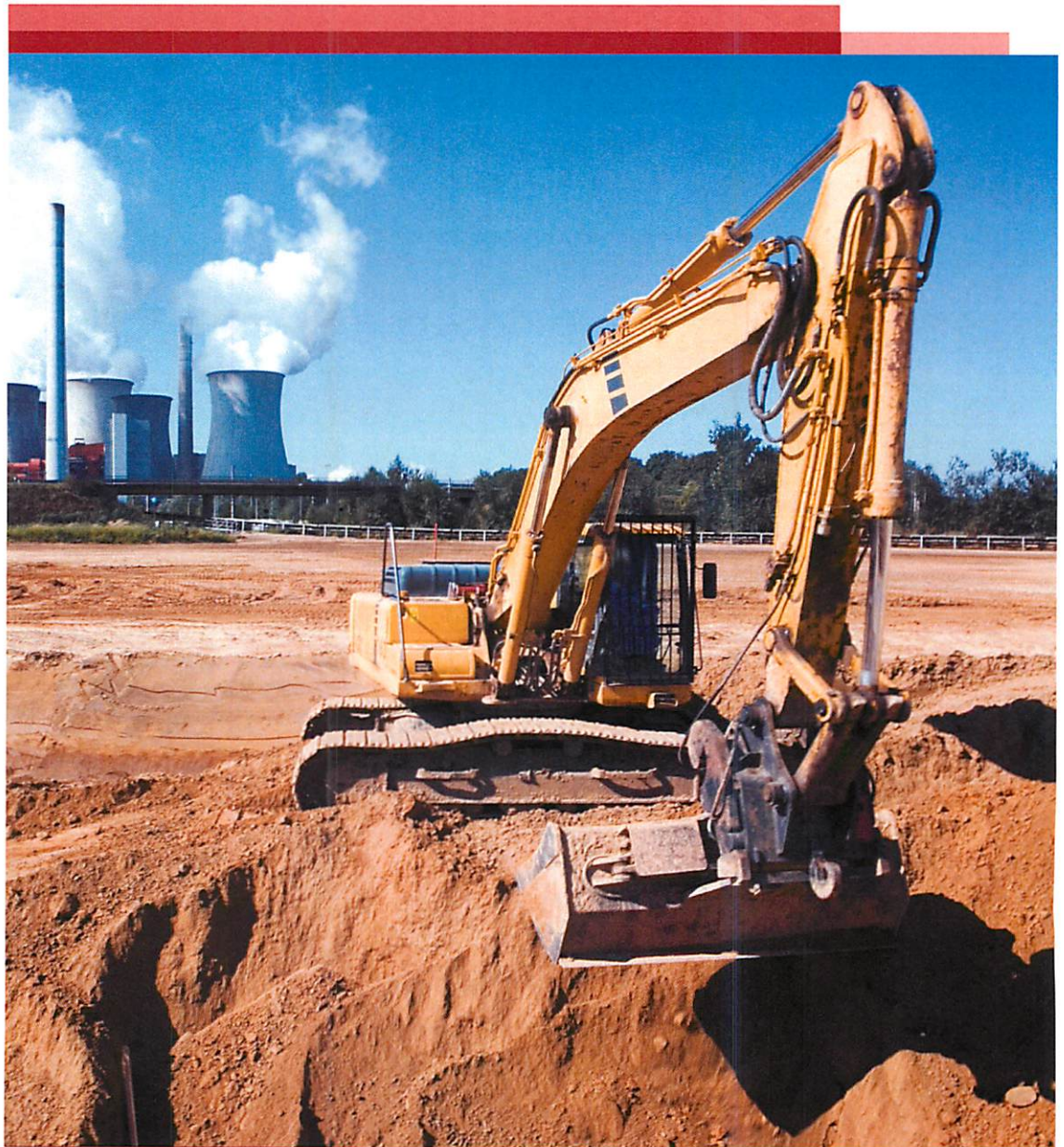


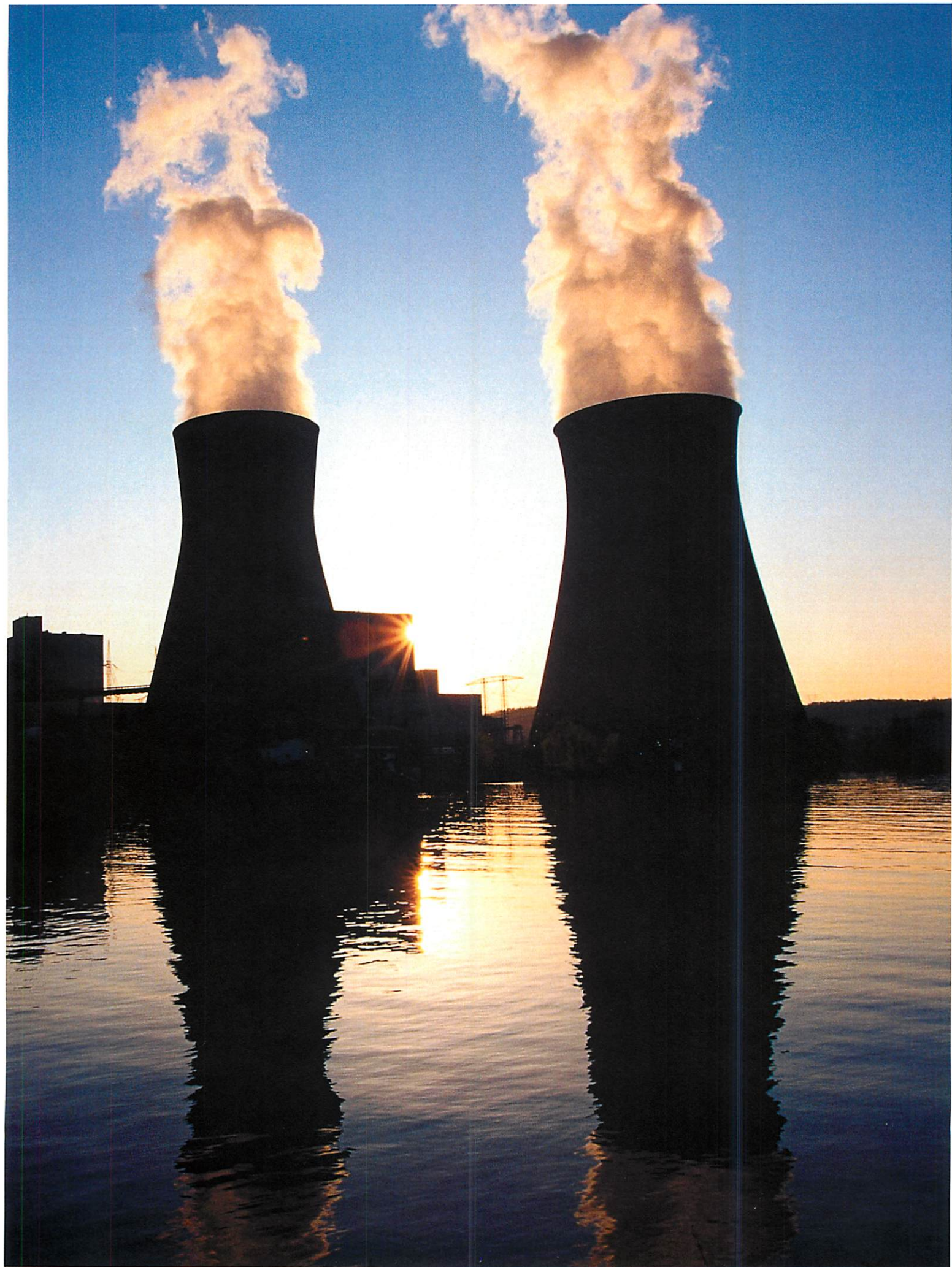
# *Analysis of allowable uses of nuclear decommissioning trust funds*

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*August 25, 2015*









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## *A. Introduction*

The U.S. Nuclear Regulatory Commission (NRC) has raised concerns regarding allowable uses of decommissioning trust funds for certain already- and to-be-incurred decommissioning expenses. NRC has suggested that some expenses should not be paid from decommissioning trust funds under NRC regulations at Title 10 Code of Federal Regulations (10 CFR) 50.2, 50.75 and/or 50.82. NRC has tentatively identified these costs as insurance, Nuclear Energy Institute (NEI) annual fees, and property taxes. NRC indicated that they are continuing to consider whether or not to allow other expenditures, including Security Phase I & II staff costs, payments in lieu of taxes, emergency plan and licensing contractors, asbestos shipments, legal, (other) security staff costs, 2018 spent fuel pool cleanup, removal and disposal of spent fuel pool racks, and bituminous roof replacement.

There are no NRC regulations delineating what are allowable or unallowable decommissioning expenses; however, these topics are discussed in NRC guidance. The purpose of this paper is to review NRC regulatory guidance, NRC past practice, and Internal Revenue Service (IRS) guidance in order to assess the basis for justifying these costs as being allowable decommissioning expenses.

## B. Applicable NRC regulations

NRC regulations at 10 CFR 50.2 define several terms relevant to decommissioning commercial nuclear power reactors. The following definitions from 10 CFR 50.2 are quoted here for their relevance to the discussions in this paper:

*Cost of service regulation means the traditional system of rate regulation, or similar regulation, including "price cap" or "incentive" regulation, in which a rate regulatory authority generally allows an electric utility to charge its customers the reasonable and prudent costs of providing electricity services, including capital, operations, maintenance, fuel, decommissioning, and other costs required to provide such services.*

*Decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits—*

1. *Release of the property for unrestricted use and termination of the license; or*
2. *Release of the property under restricted conditions and termination of the license.*

*Non-bypassable charges mean those charges imposed over an established time period by a government authority that affected persons or entities are required to pay to cover costs associated with the decommissioning of a nuclear power plant. Such charges include, but are not limited to, wire charges, stranded cost charges, transition charges, exit fees, other similar charges, or the securitized proceeds of a revenue stream.*

NRC Regulations at 10 CFR 50.82(a) identify permissible uses of the decommissioning trust funds:

*(8)(i) Decommissioning trust funds may be used by licensees if—*

- A. The withdrawals are for expenses for legitimate decommissioning activities consistent with the definition of decommissioning in § 50.2;*

*There are no other regulations that specify or list what activities are "legitimate decommissioning activities."*

NRC regulations at 10 CFR 50.75(h)(1)(iv) describe use of the trust funds for payments of "ordinary administrative expenses" incurred for management of the trust funds. This section of the NRC's regulations also address NRC's expectations with respect to distribution of the funds for payment of decommissioning expenses:

*Except for withdrawals being made under § 50.82(a)(8) or for payments of ordinary administrative costs (including taxes) and other incidental expenses of the fund (including legal, accounting, actuarial, and trustee expenses) in connection with the operation of the fund, no disbursement or payment may be made from the trust, escrow account, Government fund, or other account used to segregate and manage the funds until written notice of the intention to make a disbursement or payment has been given to the Director, Office of Nuclear Reactor Regulation, Director, Office of*

*New Reactors, or Director, Office of Nuclear Material Safety and Safeguards, as applicable, at least 30 working days before the date of the intended disbursement or payment. The disbursement or payment from the trust, escrow account, Government fund or other account may be made following the 30-working day notice period if the person responsible for managing the trust, escrow account, Government fund, or other account does not receive written notice of objection from the Director, Office of Nuclear Reactor Regulation, Director, Office of New Reactors, or Director, Office of Nuclear Material Safety and Safeguards, as applicable, within the notice period. Disbursements or payments from the trust, escrow account, Government fund, or other account used to segregate and manage the funds, other than for payment of ordinary administrative costs (including taxes) and other incidental expenses of the fund (including legal, accounting, actuarial, and trustee expenses) in connection with the operation of the fund, are restricted to decommissioning expenses or transfer to another financial assurance method acceptable under paragraph (e) of this section until final decommissioning has been completed. After decommissioning has begun and withdrawals from the decommissioning fund are made under § 50.82(a)(8), no further notification need be made to the NRC.*



## C. Applicable NRC guidance

*NUREG/CR-5884, Revised Analyses of Decommissioning for the Reference Pressurized Water Reactor Power Station and NUREG/CR-6174, Revised Analyses of Decommissioning for the Reference Boiling Water Reactor Power Station*

The NRC staff has relied upon studies<sup>1,2</sup> performed by Pacific Northwest Laboratory (PNL) to develop the nuclear plant decommissioning funding requirements found at 10 CFR 50.75(c). The formula amounts in this section of NRC regulations are based upon these PNL studies.

NUREG/CR-5884 (the PNL PWR Study), Table 3.1, footnote (f)<sup>3</sup> identifies the following DECON period-dependent (costs which are based upon the length of the decommissioning period) and undistributed (costs which are allocated to overhead for the period under consideration) costs:

*Includes all costs that are period-dependent, e.g., DOC [decommissioning operations contractor] mobilization/demobilization, utility and DOC overhead staff, nuclear insurance, regulatory costs, plant power usage, taxes, laundry services, and environmental monitoring.*

The PNL PWR Study makes it very clear that this list of costs is not meant to be all-inclusive.

Tables 3.2<sup>4</sup> and Table 3.3<sup>5</sup> list the utility and DOC staffing, which include staffing positions for security and legal. Chapter 4, “SAFSTOR for the Reference PWR Power Station,” of the PNL PWR Study reports similar expected costs.

Regulatory costs, which include both State and NRC regulatory fees for the reference plant, are shown in Table 3.26<sup>6</sup> for one of the decommissioning periods (dismantlement). Property taxes, nuclear insurance, and regulatory costs are discussed extensively in the PNL PWR Study Appendix B “Cost Estimating Bases,” Sections B.9<sup>7</sup>, B.10<sup>8</sup> and B.13<sup>9</sup>, respectively.

Asbestos removal, a decommissioning activity NRC has questioned as being allowable, is discussed by PNL in Section B.12:<sup>10</sup>

*Removal and disposal of residual asbestos is carried out simultaneously with the initial radiation survey activities. While perhaps 50,000 lb of asbestos is present in the site buildings, the bulk of that material is non-friable and is located outside of the three main buildings. Preliminary estimates developed by Portland General Electric suggest a total cost of about \$165,000 for removal and disposal of these materials. These costs are classified as cascading costs in this report. These costs do not include the cement asbestos boards contained in the cooling tower. These latter materials are removed during demolition of clean structures and are discussed in Appendix L.*

As noted in a footnote at the bottom of the page, cascading costs are defined as those costs associated with the removal of non-contaminated and releasable material in support of the decommissioning process (e.g., if it is considered necessary to remove portions of the top floors or a roof to get at a bottom floor nuclear component).

Asbestos removal and disposal costs are clearly identified as costs considered by the PNL PWR Study.

The PNL PWR Study Appendix I, "Regulatory Considerations for Decommissioning," expands upon regulatory costs expected during the decommissioning process. Appendix I also includes costs for Security and Safeguards Plans and Environmental Plans.<sup>11</sup>

In the PNL PWR Study Appendix M, "Comments and Responses on the Draft PWR Report," NRC responds to questions raised by stakeholders. A sampling of these questions and NRC's responses to these questions acknowledge that staffing overhead costs, undistributed overhead costs, property taxes, and security costs are included as decommissioning expenses.

#### Public comment

The utility staff overhead rate assumed at 42% seems very low. In general, employee fringe benefits (vacation and holidays), insurance (life, health and accidental death and dismemberment, and worker's compensation) and taxes (FICA, FUTA and SUTA) are a minimum of 32 to 35 %. Comprehensive general liability insurance, building overhead (rent or capital depreciation), utilities, furniture and fixtures, and consumables add a substantial cost to the utility burden. TLG has typically seen values in the range of 80 to 90 %.

Similarly, the DOC staff overhead rate varies for "home office staff" assigned to the site temporarily, and permanently assigned site management personnel. TLG has seen values ranging from 110 to 150%. It is presumed that the DOC overhead rates include per diem and travel expenses. PNL should consider separating the overhead costs into fixed and variable portions, to account for the changes in staffing levels throughout the different phases of the project.

There is no line item representing real estate taxes in Table D.4, "Estimated SNF Storage Operational Costs at the Reference PWR." Although real estate taxes for the spent fuel pool and ISFSI will be similar, they should be included for completeness.

Table 4.4: The total cost with contingency is 2.0 million per year. This compares with a NUREG/CR-0130 estimate of \$160,000 per year. The bulk of this increase is in security costs (increased from one full-time guard to 12 guards), and inspections, taxes, and licenses. In addition several full-time staff are added, who were not included in NUREG/CR-0130. These new positions should be explained.

Property taxes have not been considered decommissioning costs before this study. These taxes exist whether the facility is decommissioned, dismantled, or not.

#### NRC response

The rather low 42 % overhead rate for utility staff were provided by Portland General Electric Company. The DOC overhead rate is inclusive of all adders except for mobilization/demobilization costs.

That entry was inadvertently omitted from the table, and is now included.

The size of the security staff needed to guard the safe stored plant is largely up to the owner's perception of his risks. The indicated staffing would provide 2 persons on site at all times. Some of the other staff could be on a call-in basis, if appropriate. This level of staffing is believed to represent a reasonable upper bound.

The taxing rates change when an income-producing property is no longer producing income. They are also very site-specific. They are also costs to the owner throughout the decommissioning period(s), and should be included in the cost.

Finally, while the above citations are from the PWR study NUREG/CR-5884 (which was used here because of its inclusion of stakeholder questions and NRC responses), similar costs are cited in the NUREG/CR-6174 (the PNL BWR Study).



*NUREG-1713, Standard Review  
Plan for Decommissioning Cost  
Estimates for Nuclear  
Power Reactors*

NUREG-1713<sup>12</sup> (the DCE SRP) provides additional insight into which costs NRC considers to be decommissioning expenses. In Table 1<sup>13</sup>, NRC identifies various decommissioning expenses from the PNL PWR and BWR studies that require escalation when using NRC formula for determining decommissioning funding sufficiency. These costs identified in the DCE SRP include:

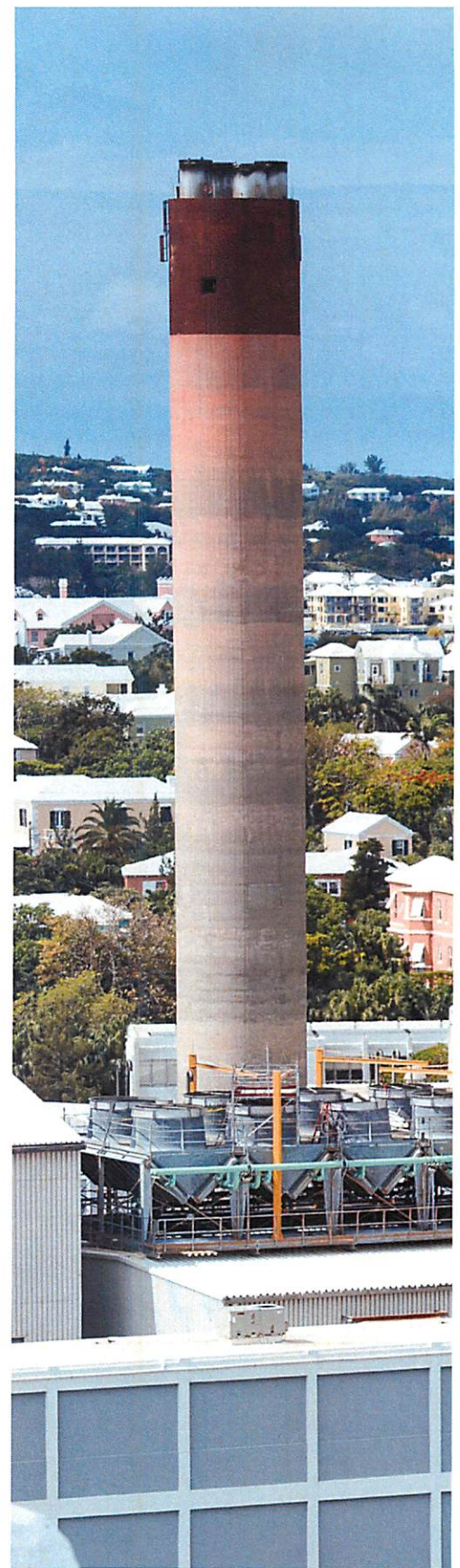
- Consultant/other staff
- Regulatory costs
- Monitoring costs
- Nuclear liability insurance
- Property taxes

Additionally, the DCE SRP provides guidance to NRC reviewers, and several of the items cited are among those now being questioned:<sup>14</sup>

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*The reviewer should confirm that the cost estimate accounts for the entire decommissioning work scope, but not for items that are outside the scope of the decommissioning process, such as the maintenance and storage of spent fuel in the spent fuel pool, the design or construction of spent fuel dry storage facilities, or other activities not directly related to the long-term storage, radiological D&D of the facility, or radiological decontamination of the site.*

- *Management and support-labor costs of support staff and decommissioning contractor's staff, energy costs, regulatory costs, small tools, insurance, etc.*
- 







While not directly applicable to commercial nuclear plant licensees, NRC provides additional detail<sup>15</sup> as to what costs a materials licensee may incur during decommissioning. This list of expenses is typical of those nuclear plant licensees are likely to encounter during decommissioning. In discussing labor costs, NRC notes:

.....  
*The term “overhead” typically includes costs that are not directly traceable to any particular product produced or project conducted by the firm. Thus, overhead typically includes “period” costs, such as insurance, utilities, rent, supplies, property taxes, depreciation, and the costs of any wages, salaries, and benefits incurred as a result of the corporation’s officers and support staff (e.g., accounting staff, legal staff, janitorial staff, security staff).*  
.....



## NRC Regulatory Guides

In U.S. NRC Regulatory Guides (Reg. Guide) 1.159, Reg. Guide 1.184, Reg. Guide 1.185, and Reg. Guide 1.202, NRC staff has identified some of the costs they consider to be decommissioning expenses. Reg. Guide 1.159 provides the following information:<sup>16</sup>

*Cost estimates should provide costs for each of the following (or similar) major activities and phases, with a level of detail appropriate to the type of cost estimate:*

3. *management and support (undistributed costs)—expenses such as labor costs of utility support staff and decommissioning contractor staff, energy costs, regulatory costs, small tools, insurance, and others;*

Reg. Guide 1.184 highlights for licensees certain NUREG documents the licensee may rely on to help develop site-specific cost estimates. NRC identifies the PNL studies as suitable for this purpose (in addition to NRC's use of these documents to develop the funding assurance formula found in 10 CFR 50.75):<sup>17</sup>

*Information in the following documents may be helpful in developing the site-specific cost estimate:*

*NUREG/CR-0672, "Technology, Safety and Costs of Decommissioning a Reference Boiling Water Reactor Power Station" (including Addenda 1 through 4); NUREG/CR-0130, "Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station" (including Addenda 1 through 4); NUREG/CR-5884, "Revised Analyses of Decommissioning for the Reference Pressurized Water Reactor Power Station"; and NUREG/CR-6174,*

*"Revised Analyses of Decommissioning for the Reference Boiling Water Reactor Power Station." (References removed.)*

Reg. Guide 1.185 provides similar recommendations.<sup>18</sup>

Reg. Guide 1.202 expands upon those costs NRC views as decommissioning expenses.<sup>19</sup> In this Regulatory Guide, NRC provides general information to assist the licensee in assembling a site-specific decommissioning cost estimate. The following items are included among the decommissioning costs NRC identifies:

*Summarize undistributed costs, such as property taxes, consultancy costs, nuclear liability insurance costs, energy costs, annual maintenance costs for SAFSTOR phases, site termination survey costs, and regulatory costs (inspections, miscellaneous fees, etc.)*

As with the other guidance documents referenced above, NRC does not provide an exhaustive list of decommissioning expenses they consider to be allowable undistributed decommissioning costs. NRC only provides examples of allowable costs.

NRC has questioned the use of decommissioning trust funds for "NEI Fees." NEI serves the commercial nuclear industry in many ways, including acting as its trade and advocacy organization.

NEI provides a clearinghouse for technical and regulatory information to help ensure its members are following current regulatory requirements. NEI also provides a forum for licensees to share their operating (and decommissioning)

experiences, which gives other members an opportunity to learn from those experiences. Finally, NEI offers members networking opportunities that enable licensees to ask their peers questions that arise while executing site activities. To the extent that "NEI fees" include only those ordinary costs associated with a licensee's limited participation in NEI activities, which support the licensee's need to ensure decommissioning proceeds in a safe and productive manner, NEI fees should be considered a reasonable decommissioning expense. In this regard, a licensee's use of NEI's services, to act as its consultants in these areas, avoids the costs which might otherwise be incurred if these necessary consulting services were to be contracted for elsewhere. The use of a consolidated consulting resource, such as NEI, is a reasonable practice to support decommissioning activities.



## *D. NRC staff review of the decommissioning funding assurance formula*

On June 20, 2013, NRC staff issued SECY-13-0066. According to NRC staff, the purpose of this SECY is:<sup>20</sup>

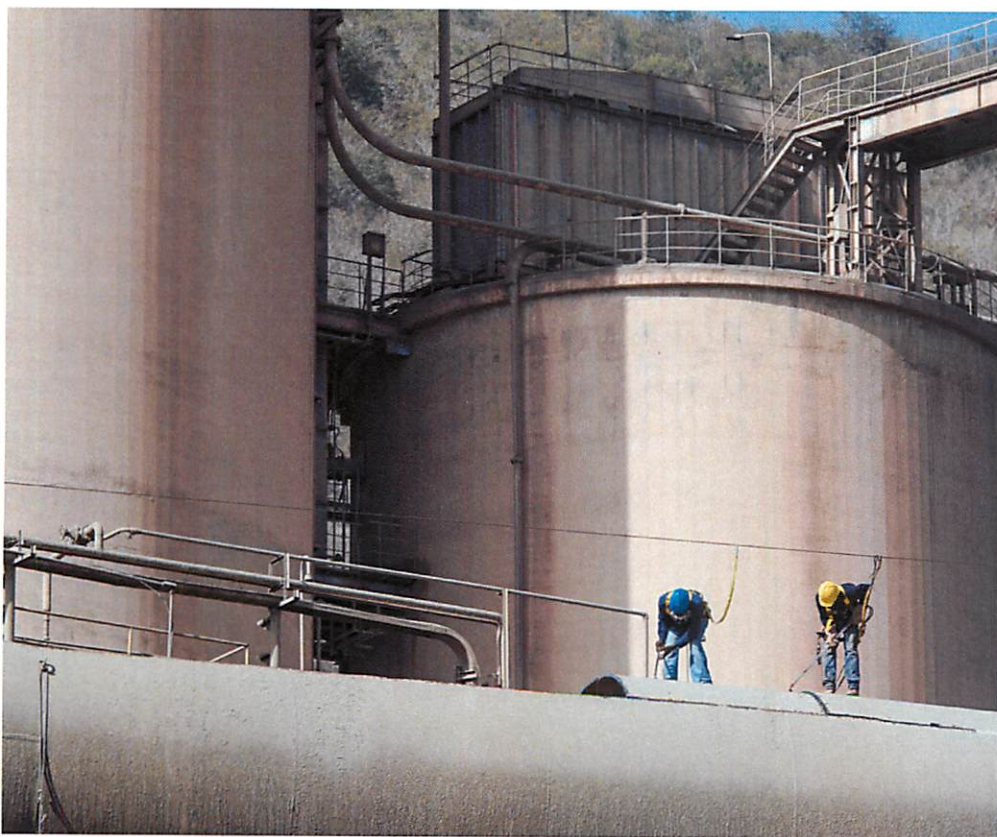
*To provide the Commission with a response to Staff Requirements Memorandum (SRM) SECY-06-0065, "Office of the Inspector General Recommendations on Decommissioning Funding Assurance," specifically;*

*"In the future (circa 2011) when more cost return information is available, NRR should review the formula used for decommissioning funding requirements and adjust it, if necessary."*

This SECY culminated the staff's multi-year process, undertaken at the direction of the Commission, to review the 10 CFR 50.75 formula amounts for decommissioning funding assurance. NRC staff concluded that no modification to the formula was necessary at this time.

While this SECY was not written to address decommissioning expenses in detail, the SECY did address the matter of property taxes to some degree. NRC staff concluded that property taxes must be included in site-specific decommissioning cost estimates, and are recognizable decommissioning expenses:

*At a public meeting held March 2, 2011, the NRC staff informed stakeholders that it was concerned that the minimum formula did not include property taxes or remediating soil contamination as part of the cost of decommissioning (ADAMS Accession No. ML110690199). However, the staff has concluded that these costs are not needed in the formula for the following reasons. These costs are highly site-specific, and difficult to incorporate into the minimum formula. With respect to property taxes, the amount of tax is not a significant cost driver for immediate decommissioning. Property taxes can be significant if decommissioning is carried out over many years, as the SAFSTOR option provides. However, when a licensee chooses the SAFSTOR option, it must also account for annual costs of safe storage until the license is terminated. These costs as well as property taxes must be included in the SSCE.*





## *E. NRC past practice*

### *Reviewing Decommissioning Cost Estimates*

NRC has received numerous decommissioning cost estimates and analyses from nuclear power plant licensees. Many of these estimates were sent in response to NRC-specific requests for additional information on decommissioning liabilities. Some were provided in response to specific NRC requests as part of their review of a licensee's compliance with NRC's funding assurance regulations at 10 CFR 50.75. NRC's reliance upon the decommissioning cost estimates in these instances constitute its approval that decommissioning costs presented in the estimates are true, accurate, and allowable.

Additionally, several licensees have submitted five-year, pre-shutdown, preliminary decommissioning cost estimates, in compliance with 10 CFR 50.75(f)(3). NRC staff has reviewed these documents and provided Safety Evaluation Reports (SER), which find costs identified by the decommissioning cost estimates to be reasonable. Since the SERs produced by NRC staff are formal responses, they constitute NRC's approval that decommissioning costs presented in the estimates are true, accurate, and allowable.

The three examples provided below reference the licensees' original five-year, pre-shutdown, preliminary decommissioning cost estimate submission to NRC, and NRC's Safety Evaluation Reports to the licensees.

#### **Vermont Yankee**

ADAMS Accession No. ML080430658 –  
*Vermont Yankee Nuclear Power Station  
License No. DPR-28 (Docket No. 50-271)  
Report pursuant to 10CFR 50.75(f)(3)*

ADAMS Accession No. ML083390193 –  
*Vermont Yankee Nuclear Power Station –  
Safety Evaluation re: Spent Fuel  
Management Program and Preliminary  
Decommissioning Cost Estimate (TAC Nos.  
MD8035 and MD8051)*

#### **Oyster Creek**

ADAMS Accession No. ML041130434 –  
*Submittal of Preliminary Decommissioning  
Cost Estimate*

ADAMS Accession No. ML050550242 –  
*Oyster Creek Nuclear Generating Station  
(OCNGS) – Safety Evaluation re:  
Preliminary Decommissioning Cost Estimate  
and Spent Fuel Management Program (TAC  
Nos. MC2996 and MC4994)*

#### **Kewaunee**

ADAMS Accession No. ML090300120 –  
*Dominion Energy Kewaunee, Inc.  
Kewaunee Power Station Report Pursuant  
to 10 CFR 50.75(f)(3)*

ADAMS Accession No. ML090300484 –  
*Decommissioning Cost Estimate Study of  
the Kewaunee Nuclear Power Plant*

ADAMS Accession No. ML091130661 –  
*Kewaunee – Revised RAI re. Preliminary  
Decommissioning Cost Estimate  
(TACME253)*

ADAMS Accession No. ML092321079 –  
*(Safety Evaluation Report) Kewaunee  
Power Station – Irradiated Fuel  
Management Program and Preliminary  
Decommissioning Cost Estimate (TAC Nos.  
ME0253 and ME0275)*



Two different cost estimators prepared these decommissioning cost estimates. The line-item costs for each estimator's studies are similar in that both include line-item costs including:

- Insurance
- Property tax
- Regulatory fees
- Corporate overhead
- Security staff
- Preparation of licensing documents
- Bituminous roof replacement
- Asbestos abatement
- Supplies and services

In the Kewaunee review, the NRC also challenges the proposal by the licensee that costs related to the cooling and ultimate transfer from wet to dry storage of the last core be considered a spent fuel management cost (rather than a decommissioning cost). In the email Request for Additional Information from NRC to Dominion Energy Kewaunee (DEK), ADAMS Accession No. MLO91130661, NRC argues:

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*DEK has selected immediate dismantlement (DECON) as its decommissioning option. For immediate dismantlement, the cost associated with isolation of the spent fuel pool (wet storage) to support cooling the last core while the plant is being dismantled was not identified as part of KPS's radiological decommissioning cost. The staff disagrees with allocating that cost under "spent fuel" as it is a necessary step to DECON the plant. DEK has estimated a cost of \$20.8 million for fuel pool planning and design, and an additional \$103.3 million associated with the cost for fuel cooling, wet storage, and eventual transfer to dry cast storage. The staff has taken the position that these are essential activities necessary to support immediate dismantlement and part of the radiological decommissioning costs, and therefore it is necessary to have the supporting funding set aside as part of the decommissioning trust funds (DTF) to complete radiological decommissioning.*

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In this email, NRC staff identifies costs associated with managing spent fuel from the time of permanent cessation of operations, through the time when all spent fuel has been placed into dry storage at the Independent Spent Fuel Storage

Installation (ISFSI), as being radiological decommissioning costs. NRC identifies these decommissioning expenses as "necessary to support immediate dismantlement."

NRC has identified that *planning* for the management of spent fuel from the time cessation of operations until the time it is placed into dry storage is necessary to perform DECON. For plants that are not proceeding to DECON, but are placing their spent fuel into dry storage on the same schedule as would be the case if they were going to DECON, there is no difference in the expenditures for planning for management. Thus these costs should be considered reasonable given NRC's own arguments.

It could be extrapolated that the planning for the management of spent fuel would be an allowable cost for any decommissioning plant. Regardless of whether a plant is undergoing DECON or SAFSTOR, or when the fuel is going into dry storage, establishing a plan for the safe management of spent fuel is a necessary component of decommissioning.



## *Approving Licensee Expenditures*

NRC regulations at 10 CFR 50.75(h)(1)(iv) require that notice be given to the Director of the Office of Nuclear Reactor Regulation "... at least 30 working days before the date of the intended disbursement or payment" (other than withdrawals under § 50.82(a)(8) for administrative costs). The withdrawals may proceed if no notice of objection is received within the notice period. There are numerous examples<sup>21</sup> of such notices being given and the withdrawals proceeding. It has not been NRC practice to review or question the expenditures covered by such

requests. Thus, NRC has given tacit approval for the use of decommissioning trust funds for the payment of a variety of expenditures, including those it is now apparently questioning. As with the other examples herein regarding its practice to date, NRC can change what it determines to be allowable in the future. However, this and other examples illustrate the current practice. NRC should be expected to formally notice and consider public input prior to any substantive change to these practices.





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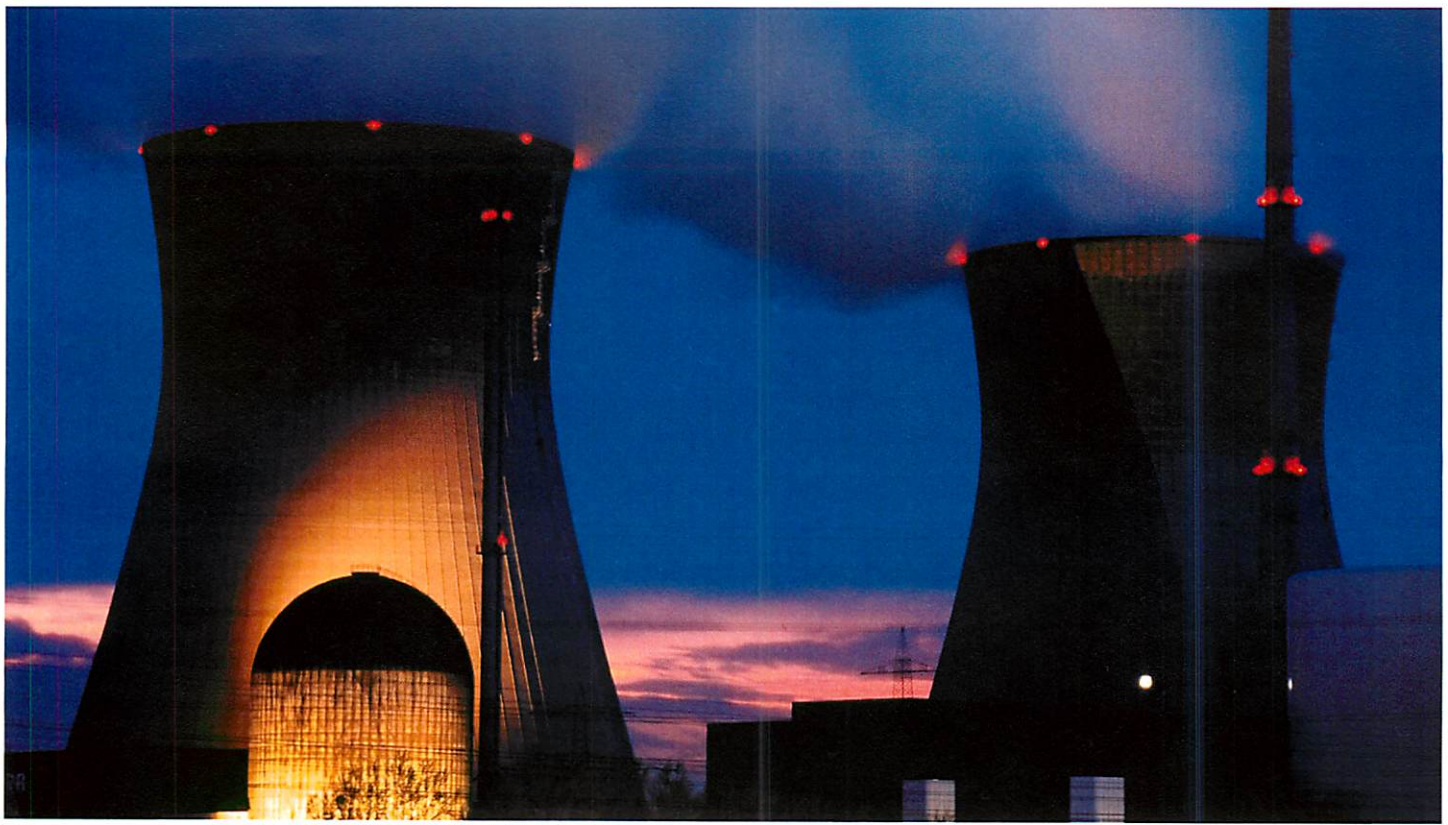
## ***F. Internal revenue service and allowable decommissioning costs***

The Internal Revenue Service (IRS) has promulgated regulations for licensees to establish tax-qualified decommissioning trust funds at 26 CFR 1.468(A). At 26 CFR 1.468(A)-1(b)(6), the IRS defines decommissioning costs as follows:

*The term **nuclear decommissioning costs** or **decommissioning costs** includes all otherwise deductible expenses to be incurred in connection with the entombment, decontamination, dismantlement, removal, and disposal of the structures, systems and components of a nuclear power plant, whether that nuclear power plant will continue to produce electric energy or has permanently ceased to produce electric energy. Such term includes all otherwise deductible expenses to be incurred in connection with the preparation for decommissioning, such as engineering and other planning expenses, and all otherwise deductible expenses to be incurred with respect to the plant after the actual decommissioning occurs, such as physical security and radiation monitoring expenses. Such term also includes costs incurred in connection with the construction, operation, and ultimate decommissioning of a facility used solely to store, pending acceptance by the government for permanent storage or disposal, spent nuclear fuel generated by the nuclear power plant or plants located on the same site as the storage facility. Such term does not include otherwise deductible expenses to be incurred in connection with the disposal of spent nuclear fuel under the Nuclear Waste Policy Act of 1982 (Pub. L. 97-425). An expense is otherwise deductible for purposes of this paragraph (b)(6) if it would be deductible under chapter 1 of the Internal Revenue Code without regard to section 280B.*

The IRS has broadly defined decommissioning costs (including spent fuel management at an ISFSI) as those "otherwise deductible expenses" to decontaminate, dismantle, remove, and dispose of structures, systems, and components of a nuclear power plant. (See Title 26 U.S. Code, Chapter 1, Subchapter B regarding deductible expenses.)





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## ***G. Conclusions***

We have identified numerous instances in NRC regulations, guidance, and previous approvals of licensing submittals that identify all of the items the staff has recently challenged as legitimate decommissioning expenses. While this does not prevent staff from revising its positions on these expenses in the future, it does clearly indicate that doing so would go beyond the status quo.



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***To have a deeper conversation about how this subject may affect your business, please contact:***

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## Endnotes

<sup>1</sup> ADAMS Accession No. ML140008A187 – NUREG/CR-5884, "Revised Analyses of Decommissioning for the Reference Pressurized Water Reactor Power Station," Volumes 1 and 2, November 1995.

<sup>2</sup> ADAMS Accession No. ML140008A186 – NUREG/CR-6174, "Revised Analyses of Decommissioning for the Reference Boiling Water Reactor Power Station," Volumes 1 and 2, July 1996.

<sup>3</sup> NUREG/CR-5884, Vol. 1, page 3.3.

<sup>4</sup> NUREG/CR-5884, Vol. 1, page 3.4.

<sup>5</sup> NUREG/CR-5884, Vol. 1, page 3.5.

<sup>6</sup> NUREG/CR-5884, Vol. 1, page 3.39.

<sup>7</sup> NUREG/CR-5884, Vol. 2, page B.2.

<sup>8</sup> NUREG/CR-5884, Vol. 2, page B.2.

<sup>9</sup> NUREG/CR-5884, Vol. 2, page B.34.

<sup>10</sup> NUREG/CR-5884, Vol. 2, page B.34.

<sup>11</sup> NUREG/CR-5884, Vol. 2, page I.7.

<sup>12</sup> ADAMS Accession No. ML043510113 – NUREG-1713, "Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors," December 2004.

<sup>13</sup> NUREG-1713, page 6.

<sup>14</sup> NUREG-1713, page 26.

<sup>15</sup> ADAMS Accession No. ML12048A683 – NUREG-1757, "Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping and Timeliness," Volume 3, Revision 1, February 2012, page A-24.

<sup>16</sup> ADAMS Accession No. ML112160012 – U.S. NRC Regulatory Guide 1.159, Revision 2, October 2011, page 11.

<sup>17</sup> ADAMS Accession No. ML13144A840 – U.S. NRC Regulatory Guide 1.184, Revision 1, October 2013, page 6.

<sup>18</sup> ADAMS Accession No. ML13140A038 – U.S. NRC Regulatory Guide 1.185, Revision 1, June 2013, page 9.

<sup>19</sup> ADAMS Accession No. ML050230008 – U.S. NRC Regulatory Guide 1.202, February 2005, page 9.

<sup>20</sup> ADAMS Accession No. ML13127A234 – SECY-13-0066, "Staff Findings on the Table of Minimum Amounts Required to Demonstrate Decommissioning Funding Assurance," June 20, 2013, page 7.

<sup>21</sup> See for example, Letter, G. van Noordennen and J. Japalucci to E. Leeds, Director NRR, Zion Nuclear Power Station, Units 1 and 2 Pre-Notice of Disbursement from Decommissioning Trust, May 22, 2014.