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DECOMMISSIONING COST ANALYSIS

for the

PRAIRIE ISLAND

NUCLEAR GENERATING PLANT

prepared for

Xcel Energy Services, Inc.

prepared by

TLG Services, Inc.
Bridgewater, Connecticut

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APPROVALS

Project Manager	Francis W. Seymore	12/28/11 Date
Project Engineer	William J. Dietz	12/28/11 Date
Technical Manager	William A. Cloutier, Jr.	12/28/2011 Date

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REVISION LOG

No.	Date	Item Revised	Reason for Revision
0	9-15-11		Original Issue
1	12-28-11		Updated Property Tax values for all scenarios. Added a new Scenario (Scenario 1) for DOE start in 2025, Updated ISFSI Decontamination Cost in Period 3e

EXECUTIVE SUMMARY

This report presents estimates of the cost to promptly decommission the Prairie Island Nuclear Generating Plant (Prairie Island) following cessation of plant operations. The prompt decommissioning, or DECON method, as described below, was selected as it is the most cost-effective of the alternatives (in current dollars) to achieve the objectives of decommissioning. The analysis relies upon site-specific, technical information from an earlier evaluation prepared in 2008,[1] updated to reflect current assumptions pertaining to the disposition of the nuclear units and relevant industry experience in undertaking such projects. The current estimates are designed to provide Xcel Energy with sufficient information to assess their financial obligations, as they pertain to the eventual decommissioning of the nuclear units.

The primary goal of decommissioning is the removal and disposal of the contaminated systems and structures so that the plant's operating licenses can be terminated. This analysis recognizes that spent fuel will be stored at the site in the plant's storage pool and/or in an independent spent fuel storage installation (ISFSI) until such time that it can be transferred to a U.S. Department of Energy (DOE) facility. Consequently, the estimates also include those costs to manage and subsequently decommission these storage facilities.

The Prairie Island site currently consists of two operating pressurized water reactors. The two units are each nominally rated to produce approximately 536 megawatts of electricity (MW). The currently projected cost to decommission the station (Scenario 1) is estimated at $1,441 million, as reported in 2011 dollars. Three additional estimates are provided for extended spent fuel storage scenarios (Scenarios 2, 3, and 4). The estimates are based on numerous fundamental assumptions, including regulatory requirements, low-level radioactive waste disposal practices, high-level radioactive waste management options, site restoration requirements, and project contingencies. The estimates incorporate a minimum cooling period for the spent fuel that resides in the storage pool when operations cease. Any residual fuel remaining in the pool after the cooling period is relocated to the ISFSI to await transfer to a DOE facility. The estimates also include the dismantling of site structures and non-essential facilities and the limited restoration of the site.

1 "Decommissioning Cost Analysis Following 60 Years of Operation for the Prairie Island Nuclear Generating Plant," Document No. X01-1586-004, TLG Services, Inc., October 2008

An ISFSI is currently operating on the Prairie Island site. Based on the assumptions described in this study, 35 Transnuclear dry storage casks will be required to support 60 years of plant operations. The casks are single-purpose and the stored assemblies will be relicensed to meet transport regulations in support of final transfer to a DOE repository. An additional 34 Transnuclear casks will be purchased to accommodate all residual fuel remaining in the pool after final shutdown. Transfer of all spent fuel post-shutdown will require approximately 15 years to allow for radioactive decay to decrease heat loading prior to placement into dry cask storage. An additional 15 year decay is necessary prior to shipment of the fuel from the site due to cask licensing requirements. Spent fuel is expected to be completely removed from the site by 2065 (Scenario 1), 2077 (Scenario 2) or 2217 (Scenarios 3 and 4).

Alternatives and Regulations

The ultimate objective of the decommissioning process is to reduce the inventory of contaminated and activated material so that the license(s) can be terminated. The Nuclear Regulatory Commission (NRC or Commission) provided initial decommissioning requirements in its rule adopted on June 27, 1988.[2] In this rule, the NRC set forth financial criteria for decommissioning licensed nuclear power facilities. The regulations addressed planning needs, timing, funding methods, and environmental review requirements for decommissioning. The rule also defined three decommissioning alternatives as being acceptable to the NRC: DECON, SAFSTOR, and ENTOMB.

> DECON is defined as "the alternative in which the equipment, structures, and portions of a facility and site containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations."[3]
>
> SAFSTOR is defined as "the alternative in which the nuclear facility is placed and maintained in a condition that allows the nuclear facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use."[4] Decommissioning is to be completed within 60 years, although longer time periods will be considered when necessary to protect public health and safety.

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2 U.S. Code of Federal Regulations, Title 10, Parts 30, 40, 50, 51, 70 and 72 "General Requirements for Decommissioning Nuclear Facilities," Nuclear Regulatory Commission, Federal Register Volume 53, Number 123 (p 24018 et seq.), June 27, 1988

3 Ibid. Page FR24022, Column 3

4 Ibid.

> ENTOMB is defined as "the alternative in which radioactive contaminants are encased in a structurally long-lived material, such as concrete; the entombed structure is appropriately maintained and continued surveillance is carried out until the radioactive material decays to a level permitting unrestricted release of the property."[5] As with the SAFSTOR alternative, decommissioning is currently required to be completed within 60 years.
>
> The 60-year restriction has limited the practicality for the ENTOMB alternative at commercial reactors that generate significant amounts of long-lived radioactive material. In 1997, the Commission directed its staff to re-evaluate this alternative and identify the technical requirements and regulatory actions that would be necessary for entombment to become a viable option. The resulting evaluation provided several recommendations; however, rulemaking has been deferred pending the completion of additional research studies, for example, on engineered barriers.

In 1996, the NRC published revisions to the general requirements for decommissioning nuclear power plants to clarify ambiguities and codify procedures and terminology as a means of enhancing efficiency and uniformity in the decommissioning process.[6] The amendments allow for greater public participation and better define the transition process from operations to decommissioning. Regulatory Guide 1.184, issued in July 2000, further described the methods and procedures acceptable to the NRC staff for implementing the requirements of the 1996 revised rule relating to the initial activities and major phases of the decommissioning process. The costs and schedules presented in this analysis follow the general guidance and processes described in the amended regulations. The format and content of the estimates is also consistent with the recommendations of Regulatory Guide 1.202, issued in February 2005.[7]

Decommissioning Scenarios

The following scenarios were evaluated and are intended to bound the liability associated with the removal of spent fuel from the site. The current operating licenses expire in 2033 and 2034 for Units 1 and 2, respectively. In all four scenarios, decommissioning activities commence shortly after the cessation of plant operations. The spent fuel in the plant's spent fuel storage pool is transferred to the ISFSI within

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5 Ibid. Page FR24023, Column 2

6 U.S. Code of Federal Regulations, Title 10, Parts 2, 50, and 51, "Decommissioning of Nuclear Power Reactors," Nuclear Regulatory Commission, Federal Register Volume 61, (p 39278 et seq.), July 29, 1996

7 "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors," Regulatory Guide 1.202, U.S. Nuclear Regulatory Commission, February 2005

the first fifteen years. The equipment, structures, and portions of the plant containing radioactive contaminants are removed or decontaminated to a level that permits the facility to be released for unrestricted use. Non-essential structures are then demolished. Spent fuel storage operations continue at the site (at the ISFSI) until the transfer of the fuel to the DOE is completed (2065 in Scenario 1, 2077 in Scenario 2 and 2217 in Scenarios 3 and 4).

The difference between Scenarios 3 and 4 is in the need (in Scenario 3) to replace the Transnuclear casks after 100 years of operation. Cask replacement begins in 2095 and ends in 2149.

Scenario	1st Spent Fuel Canister Replacement	1st Spent Fuel Assembly Removed from Prairie Island	Last Spent Fuel Assembly Removed from Prairie Island
1	n/a	2027	2065
2	n/a	2051	2077
3	n/a	2191	2217
4	2095	2191	2217

Methodology

The methodology used to develop the estimates described within this document follows the basic approach originally presented in the cost estimating guidelines[8] developed by the Atomic Industrial Forum (now Nuclear Energy Institute). This reference describes a unit factor method for determining decommissioning activity costs. The unit factors used in this analysis incorporate site-specific costs and the latest available information on worker productivity in decommissioning.

An activity duration critical path is used to determine the total decommissioning program schedule. The schedule is relied upon in calculating the carrying costs, which include program management, administration, field engineering, equipment rental, and support services such as quality control and security. This systematic approach for assembling decommissioning estimates ensures a high degree of confidence in the reliability of the resulting cost estimate.

8 T.S. LaGuardia et al., "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates," AIF/NESP-036, May 1986

Contingency

Consistent with cost estimating practice, contingencies are applied to the decontamination and dismantling costs developed as "specific provision for unforeseeable elements of cost within the defined project scope, particularly important where previous experience relating estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur."[9] The cost elements in this estimates are based on ideal conditions; therefore, the types of unforeseeable events that are almost certain to occur in decommissioning, based on industry experience, are addressed through a percentage contingency applied on a line-item basis. This contingency factor is a nearly universal element in all large-scale construction and demolition projects. It should be noted that contingency, as used in this analysis, does not account for price escalation and inflation in the cost of decommissioning over the projected operating life of the station or duration of the decommissioning program and dry fuel storage period.

Contingency funds are expected to be fully expended throughout the program. As such, inclusion of contingency is necessary to provide assurance that sufficient funding will be available to accomplish the intended tasks.

Low-Level Radioactive Waste Disposal

The contaminated and activated material generated in the decontamination and dismantling of a commercial nuclear reactor is classified as low-level (radioactive) waste, although not all of the material is suitable for "shallow-land" disposal. With the passage of the "Low-Level Radioactive Waste Policy Act" in 1980,[10] and its Amendments of 1985,[11] the states became ultimately responsible for the disposition of low-level radioactive waste generated within their own borders. With the exception of Texas (where Waste Control Specialists is currently in the process of constructing a new facility), no new compact facilities have been successfully sited, licensed, and constructed.

The disposal facility in Barnwell, South Carolina is currently closed to generators outside the Atlantic Compact (comprising the states of Connecticut, New Jersey and South Carolina). This leaves Energy*Solutions*' disposal facility in Clive, Utah as the only available option for the disposal of the majority of the low-level radioactive waste generated from decommissioning.

9 Project and Cost Engineers' Handbook, Second Edition, American Association of Cost Engineers, Marcel Dekker, Inc., New York, New York, p. 239
10 "Low-Level Radioactive Waste Policy Act of 1980," Public Law 96-573, 1980
11 "Low-Level Radioactive Waste Policy Amendments Act of 1985," Public Law 99-240, 1986

For the purpose of this analysis, Xcel Energy's "Utilities Service Alliance" agreement with Energy*Solutions* for offsite processing and disposal is used as the basis for estimating the cost for disposition of the majority of the radioactive waste (Class A,[12]). Energy*Solutions* does not have a license to dispose of the more highly radioactive waste (Classes B and C), for example, generated in the dismantling of the reactor vessel. As a proxy, the disposal cost for this material is based upon the last published rate schedule for non-compact waste for the Barnwell facility.

The dismantling of the components residing closest to the reactor core generates radioactive waste that may be considered unsuitable for shallow-land disposal (i.e., low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the NRC for Class C radioactive waste (GTCC)). The Low-Level Radioactive Waste Policy Amendments Act of 1985 assigned the federal government the responsibility for the disposal of this material. The Act also stated that the beneficiaries of the activities resulting in the generation of such radioactive waste bear all reasonable costs of disposing of such waste. However, to date, the federal government has not identified a cost for disposing of GTCC or a schedule for acceptance.

For purposes of this analysis, the GTCC radioactive waste is assumed to be packaged and disposed of in a similar manner as the spent fuel and at a cost equivalent to that envisioned for the spent fuel. The GTCC material is stored on site with the spent fuel and shipped once the spent fuel has been removed from the site.

A significant portion of the waste material generated during decommissioning may only be potentially contaminated by radioactive materials. This waste can be analyzed on site or shipped off site to licensed facilities for further analysis, for processing and/or for conditioning/recovery. Reduction in the volume of low-level radioactive waste requiring disposal in a licensed low-level radioactive waste disposal facility can be accomplished through a variety of methods, including analyses and surveys or decontamination to eliminate the portion of waste that does not require disposal as radioactive waste, compaction, incineration or metal melt. The estimates for Prairie Island reflect the savings from waste recovery/volume reduction.

<u>High-Level Radioactive Waste Management</u>

Congress passed the "Nuclear Waste Policy Act"[13] (NWPA) in 1982, assigning the federal government's long-standing responsibility for disposal of the spent nuclear fuel

12 U.S. Code of Federal Regulations, Title 10, Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste"

13 "Nuclear Waste Policy Act of 1982 and Amendments," DOE's Office of Civilian Radioactive Management, 1982

created by the commercial nuclear generating plants to the DOE. The NWPA provided that DOE would enter into contracts with utilities in which DOE would promise to take the utilities' spent fuel and high-level radioactive waste and utilities would pay the cost of the disposition services for that material. NWPA, along with the individual contracts with the utilities, specified that the DOE was to begin accepting spent fuel by January 31, 1998.

Since the original legislation, the DOE has announced several delays in the program schedule. By January 1998, the DOE had failed to accept any spent fuel or high level waste, as required by the NWPA and utility contracts. Delays continue and, as a result, generators have initiated legal action against the DOE in an attempt to obtain compensation for DOE's breach of contract.

Completion of the entire decommissioning process is dependent upon the DOE's ability to remove spent fuel from the site in a timely manner. Politically, the country is at an impasse on high-level waste disposal. The current administration has cut the budget for the geological repository program while promising to "conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle and recommend a new plan." Towards this goal, the administration appointed a Blue Ribbon Commission on America's Nuclear Future (Commission) to make recommendations for a new plan for nuclear waste disposal.

Recommendations by the Commission have included:

- "The United States should proceed expeditiously to establish one or more consolidated interim storage facilities as part of an integrated, comprehensive plan for managing the back end of the nuclear fuel cycle."
- "The United States should proceed expeditiously to develop one or more permanent deep geological facilities for the safe disposal of high-level nuclear waste."

The Commission also recognized that it would take some time to establish away-from-reactor storage and disposal sites, stating that "… it will take years to more a decade to open one of more consolidated storage facilities and even longer to open one or more permanent disposal facilities." [14]

With all this uncertainty, the state of Minnesota directed the Public Utilities Commission, "when considering approval of a plan for the accrual of funds for the decommissioning of nuclear facilities" …to "include an evaluation of the costs, if any,

14 "Blue Ribbon Commission on America's Nuclear Future, Draft Report to the Secretary of Energy," July 2011, p. 49

arising from storage of used nuclear fuel that may be incurred by the state of Minnesota, and any tribal community, county, city, or township where used nuclear fuel is located following the cessation of operations at a nuclear plant."[15]
The state of Minnesota statute also prescribed the parameters to be used in evaluating spent fuel management costs. "To assist the commission in making the determination … the filing shall provide cost estimates, including ratepayer impacts, assuming used nuclear fuel will be stored in the state for 60 years, 100 years, and 200 years following the cessation of operation of the nuclear plant." [16]

Xcel Energy's current spent fuel management plan for the Prairie Island spent fuel is based in general upon: 1) fuel transferred from the pool to the ISFSI within 15 years; 2) exchange of Prairie Island and Monticello spent fuel acceptance rights to best manage the overall cost of spent fuel storage for both plants; 3) fuel will be shipped in the existing Transnuclear casks (Scenarios 1,2 and 3); and 4) availability of a DOE interim or permanent storage repository by 2025 (Scenario 1), 2049 (Scenario 2) or 2189 (Scenarios 3 and 4).

The NRC requires that licensees establish a program to manage and provide funding for the management of all irradiated fuel at the reactor site until title of the fuel is transferred to the Secretary of Energy, pursuant to 10 CFR Part 50.54(bb).[17] This requirement is prepared for through inclusion of certain cost elements in the decommissioning estimates, for example, associated with the isolation and continued operation of the spent fuel pool and the ISFSI.

The spent fuel pool is expected to contain freshly discharged assemblies (from the most recent refueling cycles) as well as the final reactor core at shutdown. Over the following fifteen years, the assemblies are packaged into multipurpose canisters for transfer to the ISFSI for interim storage. It is assumed that this period provides the necessary cooling for the final core to meet the storage requirements for decay heat.

An ISFSI, operated under a Part 72 Site Specific License (in accordance with 10 CFR 72[18]), has been constructed to support continued plant operations. The facility is assumed to be expanded to support decommissioning. This will allow decommissioning activities to proceed within the auxiliary building.

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15 Minnesota Statute 216B.1614, "Nuclear Power Plant Decommissioning and Storage of Used Nuclear Fuel"
16 Ibid.
17 U.S. Code of Federal Regulations, Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," Subpart 54 (bb), "Conditions of Licenses"
18 U.S. Code of Federal Regulations, Title 10, Part 72.40

Xcel Energy's position is that the DOE has a contractual obligation to accept Prairie Island' fuel earlier than the projections set out above consistent with its contract commitments. No assumption made in this study should be interpreted to be inconsistent with this claim. However, at this time, including the cost of storing spent fuel in this study is the most reasonable approach because it insures the availability of sufficient decommissioning funds at the end of the station's life if, contrary to its contractual obligation, the DOE has not performed earlier.

Site Restoration

Prompt dismantling of site structures (once the facilities are decontaminated) is clearly the most appropriate and cost-effective option. It is unreasonable to anticipate that these structures would be repaired and preserved after the radiological contamination is removed. The cost to dismantle site structures with a work force already mobilized on site is more efficient than if the process is deferred. Site facilities quickly degrade without maintenance, adding additional expense and creating potential hazards to the public and the demolition work force. Consequently, this study assumes that site structures are removed to a nominal depth of three feet below the local grade level wherever possible. The site is then to be graded and stabilized.

Summary

The cost to promptly decommission the Prairie Island units assumes the removal of all contaminated and activated plant components and structural materials such that Xcel Energy may then have unrestricted use of the site (exclusive of the ISFSI) with no further requirements for an operating license. Low-level radioactive waste, other than GTCC waste, is sent to a commercial processor for treatment/conditioning or a controlled disposal facility.

The decommissioning scenarios are described in Section 2. The assumptions are presented in Section 3, along with schedules of annual expenditures. The major cost contributors are identified in Section 6, with detailed activity costs, waste volumes, and associated manpower requirements delineated in Appendices C through F. The major cost components are also identified in the cost summary provided at the end of this section.

The cost elements in the estimates are assigned to one of three subcategories: NRC License Termination, Spent Fuel Management, and Site Restoration. The subcategory "NRC License Termination" is used to accumulate costs that are consistent with "decommissioning" as defined by the NRC in its financial assurance regulations (i.e., 10 CFR Part 50.75). The cost reported for this subcategory is generally sufficient to

terminate the units' operating licenses, recognizing that there may be some additional cost impact from spent fuel management.

The "Spent Fuel Management" subcategory contains costs associated with the containerization and transfer of spent fuel to the ISFSI, and the management of the ISFSI until such time that the transfer of all fuel from this facility to an off-site location (e.g., geologic repository) is complete.

"Site Restoration" is used to capture costs associated with the dismantling and demolition of buildings and facilities demonstrated to be free from contamination. This includes structures never exposed to radioactive materials, as well as those facilities that have been decontaminated to appropriate levels. Structures are removed to a depth of three feet and backfilled to conform to local grade.

It should be noted that the costs assigned to these subcategories are allocations. Delegation of cost elements is for the purposes of comparison (e.g., with NRC financial guidelines) or to permit specific financial treatment (e.g., ARO determinations). In reality, there can be considerable interaction between the activities in the three subcategories. For example, an owner may decide to remove non-contaminated structures early in the project to improve access to highly contaminated facilities or plant components. In these instances, the non-contaminated removal costs could be reassigned from Site Restoration to an NRC License Termination support activity. However, in general, the allocations represent a reasonable accounting of those costs that can be expected to be incurred for the specific subcomponents of the total estimated program cost, if executed as described.

The estimates presented in this document reflects the total cost to decontaminate the nuclear units, manage the spent fuel until the DOE is able to complete the transfer to a federal facility, dismantle the plant and restore the site for alternative use.

As noted within this document, the estimates were developed and costs are presented in 2011 dollars. As such, the estimates do not reflect the escalation of costs (due to inflationary and market forces) over the remaining operating life of the reactors or during the decommissioning period.

SCENARIO 1
COST SUMMARY
DECOMMISSIONING COST ELEMENTS
(thousands of 2011 dollars)

Cost Element	Unit 1	Unit 2
Decontamination	9,733	15,350
Removal	82,684	105,582
Packaging	37,990	30,704
Transportation	7,009	7,347
Waste Disposal	49,446	49,952
Off-site Waste Processing	12,038	14,274
Program Management [1]	218,068	330,117
Spent Fuel Pool Isolation	5,911	5,911
Spent Fuel Management (direct costs) [2]	147,441	145,903
Insurance and Regulatory Fees	20,327	17,792
Energy	23,541	23,130
Characterization and Licensing Surveys	7,559	9,609
Property Taxes	23,810	22,113
Miscellaneous Equipment	6,912	6,912
Railroad Track Maintenance	1,891	1,821
Total [3]	654,359	786,517

Cost Element	Unit 1	Unit 2
License Termination	428,772	552,230
Spent Fuel Management	190,717	189,180
Site Restoration	34,870	45,108
Total [3]	654,359	786,517

[1] Includes engineering and security costs
[2] Excludes program management costs (staffing) but includes capital expenditures for ISFSI construction, costs for spent fuel loading/packaging/spent fuel pool O&M and EP fees
[3] Columns may not add due to rounding

SCENARIO 2
COST SUMMARY
DECOMMISSIONING COST ELEMENTS
(thousands of 2011 dollars)

Cost Element	Unit 1	Unit 2
Decontamination	9,733	15,350
Removal	82,781	105,679
Packaging	37,990	30,704
Transportation	7,009	7,347
Waste Disposal	49,446	49,953
Off-site Waste Processing	12,038	14,274
Program Management [1]	243,615	355,664
Spent Fuel Pool Isolation	5,911	5,911
Spent Fuel Management (direct costs) [2]	160,235	158,697
Insurance and Regulatory Fees	22,861	20,326
Energy	23,541	23,130
Characterization and Licensing Surveys	7,559	9,609
Property Taxes	28,556	26,859
Miscellaneous Equipment	6,912	6,912
Railroad Track Maintenance	2,581	2,511
Total [3]	700,767	832,926

Cost Element	Unit 1	Unit 2
License Termination	428,772	552,230
Spent Fuel Management	237,125	235,588
Site Restoration	34,870	45,108
Total [3]	700,767	832,926

[1] Includes engineering and security costs
[2] Excludes program management costs (staffing) but includes capital expenditures for ISFSI construction, costs for spent fuel loading/packaging/spent fuel pool O&M and EP fees
[3] Columns may not add due to rounding

SCENARIO 3
COST SUMMARY
DECOMMISSIONING COST ELEMENTS
(thousands of 2011 dollars)

Cost Element	Unit 1	Unit 2
Decontamination	9,733	15,350
Removal	82,781	105,679
Packaging	37,990	30,704
Transportation	7,009	7,347
Waste Disposal	49,446	49,953
Off-site Waste Processing	12,038	14,274
Program Management [1]	541,665	653,713
Spent Fuel Pool Isolation	5,911	5,911
Spent Fuel Management (direct costs) [2]	196,901	195,364
Insurance and Regulatory Fees	52,421	49,885
Energy	23,541	23,130
Characterization and Licensing Surveys	7,559	9,609
Property Taxes	83,922	82,225
Miscellaneous Equipment	6,912	6,912
Railroad Track Maintenance	2,723	2,653
Total [3]	1,120,551	1,252,710

Cost Element	Unit 1	Unit 2
License Termination	428,772	552,230
Spent Fuel Management	656,909	655,372
Site Restoration	34,870	45,108
Total [3]	1,120,551	1,252,710

[1] Includes engineering and security costs
[2] Excludes program management costs (staffing) but includes capital expenditures for ISFSI construction, costs for spent fuel loading/packaging/spent fuel pool O&M and EP fees
[3] Columns may not add due to rounding

SCENARIO 4
COST SUMMARY
DECOMMISSIONING COST ELEMENTS
(thousands of 2011 dollars)

Cost Element	Unit 1	Unit 2
Decontamination	9,750	15,367
Removal	82,933	105,831
Packaging	37,990	30,704
Transportation	9,090	9,428
Waste Disposal	70,292	70,799
Off-site Waste Processing	12,038	14,274
Program Management [1]	541,665	653,713
Spent Fuel Pool Isolation	5,911	5,911
Spent Fuel Management (direct costs) [2]	532,657	531,120
Insurance and Regulatory Fees	52,421	49,885
Energy	23,541	23,130
Characterization and Licensing Surveys	7,559	9,609
Property Taxes	83,922	82,225
Miscellaneous Equipment	6,912	6,912
Railroad Track Maintenance	2,723	2,653
Total [3]	1,479,403	1,611,562

Cost Element	Unit 1	Unit 2
License Termination	428,772	552,230
Spent Fuel Management	1,015,761	1,014,224
Site Restoration	34,870	45,108
Total [3]	1,479,403	1,611,562

[1] Includes engineering and security costs
[2] Excludes program management costs (staffing) but includes capital expenditures for ISFSI construction, costs for spent fuel loading/packaging/spent fuel pool O&M and EP fees
[3] Columns may not add due to rounding

1. INTRODUCTION

This report presents estimates of the cost to promptly decommission the Prairie Island Nuclear Generating Plant (Prairie Island) following the scheduled cessation of plant operations. The analysis relies upon site-specific, technical information from an earlier evaluation prepared in 2008,[1] updated to reflect current assumptions pertaining to the disposition of the nuclear units and relevant industry experience in undertaking such projects. The current estimates are designed to provide Xcel Energy with sufficient information to assess its financial obligations, as they pertain to the eventual decommissioning of the nuclear units. It is not a detailed engineering document, but a financial analysis prepared in advance of the detailed engineering that will be required to carry out the decommissioning.

1.1 OBJECTIVES OF STUDY

The objectives of this study are to prepare a comprehensive estimate of the cost to decommission the Prairie Island nuclear units, to provide a sequence or schedule for the associated activities, and to develop waste stream projections from the decontamination and dismantling activities.

The operating licenses were originally issued for the plant in August 1973 and October 1974 for Units 1 and 2, respectively, and were valid for a period of 40 years. In April 2008, Nuclear Management Company (as agent for Xcel Energy), submitted an application for renewed licenses (i.e., 20 year extensions). The application was approved by the NRC in June 2011. Therefore, for the purposes of this study, final shutdown dates (license expiration) for Unit 1 and Unit 2 are August 9, 2033 and October 29, 2034, respectively, assuming a 60-year operating life (the current operating licenses' expiration dates).

1.2 SITE DESCRIPTION

Prairie Island is located on the west bank of the Mississippi River, approximately 26 miles southeast of the Twin City Metropolitan Area and within the city limits of Red Wing. The site is in Goodhue County, Minnesota.

The Nuclear Steam Supply System (NSSS) consists of a pressurized water reactor and a two-loop reactor coolant system. The system is comprised of the reactor vessel and two closed reactor coolant loops connected in parallel to the reactor vessel, each containing a reactor coolant pump and a steam generator. An electrically heated pressurizer is connected to one of the loops. The

components were supplied by the Westinghouse Electric Corporation, with the reactor rated at a net core power output of 1650 MW(t). The steam and power conversion equipment, including the turbine-generator, has a maximum dependable capacity of 522 MW(e).

The system is housed within the reactor containment vessel, a free-standing cylindrical steel shell with a hemispherical dome and ellipsoidal bottom designed to withstand the internal pressure accompanying a loss-of-coolant accident. The reactor containment vessel is surrounded by a cylindrical shield building constructed of reinforced concrete, which serves as a radiation shielding for normal operations and for the loss-of-coolant condition.

Heat produced in the reactor is converted to electrical energy by the plant's power conversion system. A turbine-generator converts the thermal energy of steam produced in the steam generators into mechanical shaft power and then into electrical energy. The turbine-generator consists of one high-pressure, double-flow and two low-pressure, double-flow elements driving a direct-coupled generator at 1800 rpm. The turbines are operated in a closed feedwater cycle in which the steam is condensed and returned to the steam generators by the feedwater system.

Heat rejected in the main condensers is removed by the circulating water system, which provides the heat sink for the removal of the waste heat in the power plant's thermal cycle. The majority of the heat is removed through dilution with river water in the discharge canal. Forced draft cooling towers provided supplemental heat removal.

1.3 REGULATORY GUIDANCE

The Nuclear Regulatory Commission (NRC or Commission) provided initial decommissioning requirements in its rule "General Requirements for Decommissioning Nuclear Facilities," issued in June 1988.[2] This rule set forth financial criteria for decommissioning licensed nuclear power facilities. The regulation addressed decommissioning planning needs, timing, funding methods, and environmental review requirements. The intent of the rule was to ensure that decommissioning would be accomplished in a safe and timely manner and that adequate funds would be available for this purpose. Subsequent to the rule, the NRC issued Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors,"[3] which provided additional guidance to the licensees of nuclear facilities on the financial methods acceptable to the NRC staff for complying with the requirements of the rule. The regulatory guide addressed the funding

requirements and provided guidance on the content and form of the financial assurance mechanisms indicated in the rule.

The rule defined three decommissioning alternatives as being acceptable to the NRC: DECON, SAFSTOR, and ENTOMB. The DECON alternative assumes that any contaminated or activated portion of the plant's systems, structures and facilities are removed or decontaminated to levels that permit the site to be released for unrestricted use shortly after the cessation of plant operations. The rule also placed limits on the time allowed to complete the decommissioning process. For SAFSTOR, the process is restricted in overall duration to 60 years, unless it can be shown that a longer duration is necessary to protect public health and safety. The guidelines for ENTOMB are similar, providing the NRC with both sufficient leverage and flexibility to ensure that this deferred option is only used in situations where it is reasonable and consistent with the definition of decommissioning. At the conclusion of a 60-year dormancy period (or longer for ENTOMB if the NRC approves such a case), the site would still require significant remediation to meet the unrestricted release limits for license termination.

The ENTOMB alternative has not been viewed as a viable option for power reactors due to the significant time required to isolate the long-lived radionuclides for decay to permissible levels. With rulemaking permitting the controlled release of a site,[4] the NRC has re-evaluated this alternative. The resulting feasibility study, based upon an assessment by Pacific Northwest National Laboratory, concluded that the method did have conditional merit for some, if not most reactors. However, the staff also found that additional rulemaking would be needed before this option could be treated as a generic alternative. The NRC considered rulemaking to alter the 60-year time for completing decommissioning and to clarify the use of engineered barriers for reactor entombments.[5] At this time, however, the NRC's staff has recommended that rulemaking be deferred, based upon several factors including that no licensee has committed to pursuing the entombment option, the unresolved issues associated with the disposition of greater-than-Class C material (GTCC), and the NRC's current priorities, at least until after the additional research studies are complete. The Commission concurred with the staff's recommendation.

In 1996, the NRC published revisions to the general requirements for decommissioning nuclear power plants.[6] When the decommissioning regulations were adopted in 1988, it was assumed that the majority of licensees would decommission at the end of the facility's operating licensed life. Since that time, several licensees permanently and prematurely ceased

operations. Exemptions from certain operating requirements were required once the reactor was defueled to facilitate the decommissioning. Each case was handled individually, without clearly defined generic requirements. The NRC amended the decommissioning regulations in 1996 to clarify ambiguities and codify procedures and terminology as a means of enhancing efficiency and uniformity in the decommissioning process. The amendments allow for greater public participation and better define the transition process from operations to decommissioning.

Under the revised regulations, licensees will submit written certification to the NRC within 30 days after the decision to cease operations. Certification will also be required once the fuel is permanently removed from the reactor vessel. Submittal of these notices will entitle the licensee to a fee reduction and eliminate the obligation to follow certain requirements needed only during operation of the reactor. Within two years of submitting notice of permanent cessation of operations, the licensee is required to submit a Post-Shutdown Decommissioning Activities Report (PSDAR) to the NRC. The PSDAR describes the planned decommissioning activities, the associated sequence and schedule, and an estimate of expected costs. Prior to completing decommissioning, the licensee is required to submit an application to the NRC to terminate the license, which will include a license termination plan (LTP).

1.3.1 Nuclear Waste Policy Act

Congress passed the "Nuclear Waste Policy Act"[7] (NWPA) in 1982, assigning the federal government's long-standing responsibility for disposal of the spent nuclear fuel created by the commercial nuclear generating plants to the DOE. The NWPA provided that DOE would enter into contracts with utilities in which DOE would promise to take the utilities' spent fuel and high level waste, and utilities would pay the cost of the disposition services for that material. NWPA, along with the individual disposal contracts with the utilities, specified that the DOE was to begin accepting spent fuel by January 31, 1998.

Since the original legislation, the DOE has announced several delays in the program schedule. By January 1998, the DOE had failed to accept spent nuclear fuel and high level waste, as required by the NWPA and utility contracts. Delays continue and, as a result, generators have initiated legal action against the DOE in an attempt to obtain compensation for DOE's breach of contract.

Completion of the entire decommissioning process is dependent upon the DOE's ability to remove spent fuel from the site in a timely manner. Politically, the country is at an impasse on high-level waste disposal. The current administration has cut the budget for the geological repository program while promising to "conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle and recommend a new plan." Towards this goal, the administration appointed a Blue Ribbon Commission on America's Nuclear Future (Commission) to make recommendations for a new plan for nuclear waste disposal.

Recommendations by the Commission have included:

- "The United States should proceed expeditiously to establish one or more consolidated interim storage facilities as part of an integrated, comprehensive plan for managing the back end of the nuclear fuel cycle."
- "The United States should proceed expeditiously to develop one or more permanent deep geological facilities for the safe disposal of high-level nuclear waste."

The Commission also recognized that it would take some time to establish away-from-reactor storage and disposal sites, stating that "… it will take years to more a decade to open one of more consolidated storage facilities and even longer to open one or more permanent disposal facilities." [8]

With all this uncertainty, the state of Minnesota directed the Public Utilities Commission, "when considering approval of a plan for the accrual of funds for the decommissioning of nuclear facilities" …to "include an evaluation of the costs, if any, arising from storage of used nuclear fuel that may be incurred by the state of Minnesota, and any tribal community, county, city, or township where used nuclear fuel is located following the cessation of operations at a nuclear plant."[9]

The state of Minnesota statute also prescribed the parameters to be used in evaluating spent fuel management costs. "To assist the commission in making the determination … the filing shall provide cost estimates, including ratepayer impacts, assuming used nuclear fuel will be stored in the state for 60 years, 100 years, and 200 years following the cessation of operation of the nuclear plant." [9]

Xcel Energy's current spent fuel management plan for the Prairie Island spent fuel is based in general upon: 1) fuel transferred from the pool to the

ISFSI within 15 years of Unit 2 shutdown; 2) exchange of Prairie Island and Monticello spent fuel acceptance rights to best manage the overall cost of spent fuel storage for both plants; 3) fuel will be shipped in the existing Transnuclear casks (Scenarios 1, 2, and 3); and 4) availability of a DOE interim or permanent storage repository by 2025 (Scenario 1), 2049 (Scenario 2) or 2189 (Scenario 3 and 4).

The NRC requires that licensees establish a program to manage and provide funding for the management of all irradiated fuel at the reactor site until title of the fuel is transferred to the Secretary of Energy, pursuant to 10 CFR Part 50.54(bb).[10] This requirement is prepared for through inclusion of certain cost elements in the decommissioning estimates, for example, associated with the isolation and continued operation of the spent fuel pool and the ISFSI.

The spent fuel pool is expected to contain freshly discharged assemblies (from the most recent refueling cycles) as well as the final reactor cores at shutdown. Over the following fifteen years, the assemblies are packaged into Transnuclear casks for transfer to the ISFSI for interim storage. It is assumed that this period provides the necessary cooling for the final core to meet the storage requirements for decay heat.

An ISFSI, operated under a Part 72 Site Specific License (in accordance with 10 CFR 72[11]), has been constructed to support continued plant operations. The facility is assumed to be expanded to support decommissioning. This will allow decommissioning activities to proceed within the auxiliary building.

Xcel Energy's position is that the DOE has a contractual obligation to accept Prairie Island's fuel earlier than the projections set out above consistent with its contract commitments. No assumption made in this study should be interpreted to be inconsistent with this claim. However, at this time, including the cost of storing spent fuel in this study is the most reasonable approach because it insures the availability of sufficient decommissioning funds if, contrary to its contractual obligations, the DOE has not performed.

1.3.2 Low-Level Radioactive Waste Acts

The contaminated and activated material generated in the decontamination and dismantling of a commercial nuclear reactor is classified as low-level (radioactive) waste, although not all of the material

is suitable for "shallow-land" disposal. With the passage of the "Low-Level Radioactive Waste Policy Act" in 1980,[12] and its Amendments of 1985,[13] the states became ultimately responsible for the disposition of low-level radioactive waste generated within their own borders. With the exception of Texas (where Waste Control Specialists is currently in the process of constructing a new facility), no new compact facilities have been successfully sited, licensed, and constructed.

The disposal facility in Barnwell, South Carolina is currently closed to generators outside the Atlantic Compact (comprising the states of Connecticut, New Jersey and South Carolina). This leaves Energy*Solutions*' disposal facility in Clive, Utah as the only available option for the disposal of the majority of the low-level radioactive waste generated from decommissioning.

For the purpose of this analysis, Xcel Energy's "Utilities Service Alliance" agreement with Energy*Solutions* for offsite processing and disposal is used as the basis for estimating the disposal cost for the majority of the radioactive waste (Class A,[14]). Energy*Solutions* does not have a license to dispose of the more highly radioactive waste (Classes B and C), for example, generated in the dismantling of the reactor vessel. As a proxy, the disposal cost for this material is based upon the last published rate schedule for non-compact waste for the Barnwell facility.

The dismantling of the components residing closest to the reactor core generates radioactive waste that may be considered unsuitable for shallow-land disposal (i.e., low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the NRC for Class C radioactive waste (GTCC)). The Low-Level Radioactive Waste Policy Amendments Act of 1985 assigned the federal government the responsibility for the disposal of this material. The Act also stated that the beneficiaries of the activities resulting in the generation of such radioactive waste bear all reasonable costs of disposing of such waste. However, to date, the federal government has not identified a cost for disposing of GTCC or a schedule for acceptance.

For purposes of this analysis, the GTCC radioactive waste is assumed to be packaged and disposed of in a similar manner as the spent fuel and at a cost equivalent to that envisioned for the spent fuel. The GTCC material is stored on site with the spent fuel and shipped once the spent fuel has been removed from the site.

A significant portion of the waste material generated during decommissioning may only be potentially contaminated by radioactive materials. This waste can be analyzed on site or shipped off site to licensed facilities for further analysis, for processing and/or for conditioning/recovery. Reduction in the volume of low-level radioactive waste requiring disposal in a licensed low-level radioactive waste disposal facility can be accomplished through a variety of methods, including analyses and surveys or decontamination to eliminate the portion of waste that does not require disposal as radioactive waste, compaction, incineration or metal melt. The estimates for the Prairie Island units reflect the savings from waste recovery/volume reduction.

1.3.3 Radiological Criteria for License Termination

In 1997, the NRC published Subpart E, "Radiological Criteria for License Termination,"[15] amending 10 CFR Part 20. This subpart provides radiological criteria for releasing a facility for unrestricted use. The regulation states that the site can be released for unrestricted use if radioactivity levels are such that the average member of a critical group would not receive a Total Effective Dose Equivalent (TEDE) in excess of 25 millirem per year, and provided that residual radioactivity has been reduced to levels that are As Low As Reasonably Achievable (ALARA). The decommissioning estimates for the Prairie Island site assumed that it will be remediated to a residual level consistent with the NRC-prescribed level.

It should be noted that the NRC and the Environmental Protection Agency (EPA) differ on the amount of residual radioactivity considered acceptable in site remediation. The EPA has two limits that apply to radioactive materials. An EPA limit of 15 millirem per year is derived from criteria established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund).[16] An additional and separate limit of 4 millirem per year, as defined in 40 CFR Part 141.16, is applied to drinking water.[17]

On October 9, 2002, the NRC signed an agreement with the EPA on the radiological decommissioning and decontamination of NRC-licensed sites. The Memorandum of Understanding (MOU)[18] provides that EPA will defer exercise of authority under CERCLA for the majority of facilities decommissioned under NRC authority. The MOU also includes provisions for NRC and EPA consultation for certain sites when, at the time of license termination, (1) groundwater contamination exceeds

EPA-permitted levels; (2) NRC contemplates restricted release of the site; and/or (3) residual radioactive soil concentrations exceed levels defined in the MOU.

The MOU does not impose any new requirements on NRC licensees and should reduce the involvement of the EPA with NRC licensees who are decommissioning. Most sites are expected to meet the NRC criteria for unrestricted use, and the NRC believes that only a few sites will have groundwater or soil contamination in excess of the levels specified in the MOU that trigger consultation with the EPA. However, if there are other hazardous materials on the site, the EPA may be involved in the cleanup. As such, the possibility of dual regulation remains for certain licensees. The present study does not include any costs for this occurrence.

2. DECOMMISSIONING ALTERNATIVE DESCRIPTION

Detailed cost estimates were developed to promptly decommission the Prairie Island nuclear units, (i.e., the DECON decommissioning alternative). The DECON alternative, as defined by the NRC, is "the alternative in which the equipment, structures, and portions of a facility and site containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations."

The following sections describe the basic activities associated with the DECON alternative. Although detailed procedures for each activity identified are not provided, and the actual sequence of work may vary, the activity descriptions provide a basis not only for estimating but also for the expected scope of work (i.e., engineering and planning at the time of decommissioning).

The conceptual approach that the NRC has described in its regulations divides decommissioning into three phases. The initial phase commences with the effective date of permanent cessation of operations and involves the transition of both plant and licensee from reactor operations (i.e., power production) to facility de-activation and closure. During the first phase, notification is provided to the NRC certifying the permanent cessation of operations and the removal of fuel from the reactor vessel. The licensee is then prohibited from reactor operation.

The second phase encompasses activities during the storage period or during major decommissioning activities, or a combination of the two. The third phase pertains to the activities involved in license termination. The decommissioning estimates developed for Prairie Island is also divided into phases or periods; however, demarcation of the phases is based upon major milestones within the project or significant changes in the projected rate of expenditure.

2.1 PERIOD 1 - PREPARATIONS

In anticipation of the cessation of plant operations, detailed preparations are undertaken to provide a smooth transition from plant operations to site decommissioning. Through implementation of a staffing transition plan, the organization required to manage the intended decommissioning activities is assembled from available plant staff and outside resources. Preparations include the planning for permanent defueling of the reactor, revision of technical specifications applicable to the operating conditions and requirements, a characterization of the facility and major components, and the development of the PSDAR.

2.1.1 Engineering and Planning

The PSDAR, required within two years of the notice to cease operations, provides a description of the licensee's planned decommissioning activities, a timetable, and the associated financial requirements of the intended decommissioning program. Upon receipt of the PSDAR, the NRC will make the document available to the public for comment in a local hearing to be held in the vicinity of the reactor site. Ninety days following submittal and NRC receipt of the PSDAR, the licensee may begin to perform major decommissioning activities under a modified 10 CFR Part 50.59 procedure (i.e., without specific NRC approval). Major activities are defined as any activity that results in permanent removal of major radioactive components, permanently modifies the structure of the containment, or results in dismantling components (for shipment) containing GTCC, as defined by 10 CFR Part 61. Major components are further defined as comprising the reactor vessel and internals, steam generators, large bore reactor coolant system piping, and other large components that are radioactive. The NRC includes the following additional criteria for use of the Part 50.59 process in decommissioning. The proposed activity must not:

- foreclose release of the site for possible unrestricted use,
- significantly increase decommissioning costs,
- cause any significant environmental impact, or
- violate the terms of the licensee's existing license.

Existing operational technical specifications are reviewed and modified to reflect plant conditions and the safety concerns associated with permanent cessation of operations. The environmental impact associated with the planned decommissioning activities is also considered. Typically, a licensee is not allowed to proceed if the consequences of a particular decommissioning activity are greater than that bounded by previously evaluated environmental assessments or impact statements. In this instance, the licensee must submit a license amendment for the specific activity and update the environmental report.

The decommissioning program outlined in the PSDAR is designed to accomplish the required tasks within the ALARA guidelines (as defined in 10 CFR Part 20) for protection of personnel from exposure to radiation hazards. It also addresses the continued protection of the health and safety of the public and the environment during the

dismantling activity. Consequently, with the development of the PSDAR, activity specifications, cost-benefit and safety analyses, work packages, and procedures are assembled to support the proposed decontamination and dismantling activities.

2.1.2 Site Preparations

Following final plant shutdown, and in preparation for actual decommissioning activities, the following activities are initiated:

- Characterize the site and surrounding environs. This includes radiation surveys and sampling of the work areas, major components (including the reactor vessel and its internals), internal piping, and biological shield.
- Isolate the spent fuel storage pool and fuel handling systems, such that decommissioning operations can commence on the balance of the plant. Decommissioning operations are scheduled around the fuel handling area to optimize the overall project schedule. The fuel is transferred from the pool once it decays to the point that it meets the heat load criteria of the storage/transport containers. Consequently, it is assumed that the fuel pool will remain operational for approximately fifteen years following the cessation of plant operations while the residual inventory is transferred to the ISFSI.
- Specify of transport and disposal requirements for activated materials and/or hazardous materials, including shielding and waste stabilization.
- Develop procedures for occupational exposure control, control and release of liquid and gaseous effluent, processing of radwaste (including dry-active waste, resins, filter media, metallic and non-metallic components generated in decommissioning), site security and emergency programs, and industrial safety.

2.2 PERIOD 2 - DECOMMISSIONING OPERATIONS

This period includes the physical decommissioning activities associated with the removal and disposal of contaminated and activated components and structures, including the successful termination of the 10 CFR Part 50 operating license. Significant decommissioning activities in this phase include:

- Construct temporary facilities and/or modification of existing facilities to support dismantling activities. This may include a centralized processing

area to facilitate equipment removal and component preparations for off-site disposal.

- Reconfigure and modify site structures and facilities as needed to support decommissioning operations. This may include the upgrading of roads (on- and off-site) to facilitate hauling and transport. Modifications may be required to the containment structure to facilitate access of large/heavy equipment. Modifications may also be required to the refueling area of the building to support the segmentation of the reactor vessel internals and component extraction.
- Design and fabricate temporary and permanent shielding to support removal and transportation activities, construction of contamination control envelopes, and the procurement of specialty tooling.
- Procure (lease or purchase) of shipping canisters, cask liners, and industrial packages.
- Decontaminate components and piping systems as required to control (minimize) worker exposure.
- Remove piping and components no longer essential to support decommissioning operations.
- Remove control rod drive housings and the head service structure from reactor vessel head. Segment the vessel closure head.
- Remove and segment the upper internals assemblies. Segmentation will maximize the loading of the shielded transport casks (i.e., by weight and activity). The operations are conducted under water using remotely operated tooling and contamination controls.
- Disassemble and segment the remaining reactor internals, including the core former and lower core support assembly. Some material is expected to exceed Class C disposal requirements. That material will be packaged in a modified spent fuel storage canister for geologic disposal.
- Segment the reactor vessel. A shielded platform is installed for segmentation as cutting operations are performed in air using remotely operated equipment within a contamination control envelope. The water level is maintained just below the cut to minimize the working area dose rates. Segments are transferred in-air to containers that are stored under water, for example, in an isolated area of the refueling canal.
- Remove activated portions of the concrete biological shield and accessible contaminated concrete surfaces. If dictated by the steam generator and pressurizer removal scenarios, those portions of the associated cubicles necessary for access and component extraction are removed.

- Remove the steam generators and pressurizer for controlled disposal. The steam domes are removed for off-site processing. The lower shell is sealed and the nozzles and other openings welded closed. These components can serve as their own burial containers provided that all penetrations are properly sealed and the internal contaminants are stabilized. Steel shielding is added, as necessary, to those external areas of the steam generators to meet transportation limits and regulations.
- Expansion of the ISFSI and transfer of the spent fuel from the storage pool to the ISFSI pad for interim storage. Spent fuel storage operations continue throughout the active decommissioning period. Fuel transfer to DOE is expected to be completed by the end of the year 2065 (Scenario 1).

At least two years prior to the anticipated date of license termination, a LTP is required. Submitted as a supplement to the FSAR, or equivalent, the plan must include: a site characterization, description of the remaining dismantling activities, plans for site remediation, procedures for the final radiation survey, designation of the end use of the site, an updated cost estimate to complete the decommissioning, and any associated environmental concerns. The NRC will notice the receipt of the plan, make the plan available for public comment, and schedule a local hearing. LTP approval will be subject to any conditions and limitations as deemed appropriate by the Commission. The licensee may then commence with the final remediation of site facilities and services, including:

- Remove remaining plant systems and associated components as they become nonessential to the decommissioning program or worker health and safety (e.g., waste collection and treatment systems, electrical power and ventilation systems).
- Remove steel liners from refueling canal, disposing of the activated and contaminated sections as radioactive waste. Remove any remaining activated/ contaminated concrete.
- Survey decontaminated areas of the containment structure.
- Remediate and remove the contaminated equipment and material from the auxiliary building and any other contaminated facility. Radiation and contamination controls are utilized until residual levels indicate that the structures and equipment can be released for unrestricted access and conventional demolition. This activity may necessitate the dismantling and disposition of most of the systems and components (both clean and contaminated) located within these buildings. This activity facilitates surface decontamination and subsequent verification surveys required prior to obtaining release for demolition.

- Remove the remaining components, equipment, and plant services in support of the area release survey(s).
- Route material removed in the decontamination and dismantling to a central processing area. Material certified to be free of contamination is released for unrestricted disposition (e.g., as scrap, recycle, or general disposal). Contaminated material is characterized and segregated for additional off-site processing (disassembly, chemical cleaning, volume reduction, and waste treatment), and/or packaged for controlled disposal at a low-level radioactive waste disposal facility.

Incorporated into the LTP is the Final Survey Plan. This plan identifies the radiological surveys to be performed once the decontamination activities are completed and is developed using the guidance provided in the "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)."[19] This document incorporates the statistical approaches to survey design and data interpretation used by the EPA. It also identifies commercially available instrumentation and procedures for conducting radiological surveys. Use of this guidance ensures that the surveys are conducted in a manner that provides a high degree of confidence that applicable NRC criteria are satisfied. Once the survey is complete, the results are provided to the NRC in a format that can be verified. The NRC then reviews and evaluates the information, performs an independent confirmation of radiological site conditions, and makes a determination on the requested change to the operating license (that would release the property, exclusive of the ISFSI, for unrestricted use).

The NRC will terminate the operating license(s) if it determines that site remediation has been performed in accordance with the LTP, and that the terminal radiation survey and associated documentation demonstrate that the facility is suitable for release.

2.3 PERIOD 3 - SITE RESTORATION

Following completion of decommissioning operations, site restoration activities will begin. Efficient removal of the contaminated materials and verification that residual radionuclide concentrations are below the NRC limits may result in substantial damage to many of the structures. Although performed in a controlled, safe manner, blasting, coring, drilling, scarification (surface removal), and the other decontamination activities will substantially degrade power block structures including the reactor and auxiliary buildings. Verifying that subsurface radionuclide concentrations meet NRC site release requirements may require removal of grade slabs and lower floors, potentially weakening footings and structural supports. This removal activity is necessary

for those facilities and plant areas where historical records, when available, indicate the potential for radionuclides having been present in the soil, where system failures have been recorded, or where it is required to confirm that subsurface process and drain lines were not breached over the operating life of the station.

Prompt dismantling of site structures is clearly the most appropriate option. It is unreasonable to anticipate that these structures would be repaired and preserved after the radiological contamination is removed. The cost to dismantle site structures with a work force already mobilized on site is more efficient than if the process were deferred. Site facilities quickly degrade without maintenance, adding additional expense and creating potential hazards to the public as well as to future workers. Abandonment creates a breeding ground for vermin infestation as well as other biological hazards.

This cost study presumes that non-essential structures and site facilities are dismantled as a continuation of the decommissioning activity. Foundations and exterior walls are removed to a nominal depth of three feet below grade. The three-foot depth allows for the placement of gravel for drainage, as well as topsoil, so that vegetation can be established for erosion control. Site areas affected by the dismantling activities are restored and the plant area graded as required to prevent ponding and inhibit the refloating of subsurface materials.

Concrete rubble produced by demolition activities is processed to remove rebar and miscellaneous embedments. The processed material is then used on site to backfill voids, with any excess assumed to be removed from the site as recycled material at no cost or credit to the decommissioning program.

2.4 ISFSI OPERATIONS AND DECOMMISSIONING

The ISFSI will continue to operate under a site-specific license as authorized by 10 CFR Part 72. Assuming the DOE begins to remove fuel from the Prairie Island site in 2027, the process is not expected to be completed until 2065 (Scenario 1). Any delay in the transfer process, for example, due to a delay in the scheduled opening of the geologic repository, a slower acceptance rate, or a combination of both, can result in a longer on-site residence time for the fuel discharge from the reactor, as well as additional caretaking expenses. Scenarios 2, 3 and 4 address an extended delay, as shown in the table below. The only difference between Scenarios 3 and 4 is in assumption that the Transnuclear casks will have to be replaced (in Scenario 4) after 100 years of operation (starting in 2095).

Scenario	1st Spent Fuel Canister Replacement	1st Spent Fuel Assembly Removed from Prairie Island	Last Spent Fuel Assembly Removed from Prairie Island
1	n/a	2027	2065
2	n/a	2051	2077
3	n/a	2191	2217
4	2095	2191	2217

At the conclusion of the spent fuel transfer process, the ISFSI will be decommissioned. The Commission will terminate the license when it determines that the remediation of the ISFSI has been performed in accordance with an ISFSI license termination plan and that the final radiation survey and associated documentation demonstrate that the facility is suitable for release.

The assumed design for the ISFSI is based upon the use of the TN-40 and TN-40HT casks from Transnuclear. The Prairie Island ISFSI already contains twenty-four TN-40 casks, and Xcel Energy has indicated that the remainder of the Prairie Island spent fuel will be loaded into TN-40HT casks. Therefore the TN-40 and TN-40HT are used as a basis for this cost analysis. For purposes of this cost analysis, it is assumed that the spent fuel is shipped to DOE within the Transnuclear casks. The concrete storage pad will then be removed, and the area graded and landscaped to conform to the surrounding environment. In Scenario 4, once the spent fuel has been removed from the original casks by Xcel Energy in the cask replacement operation, the now-empty Transnuclear casks will be disposed of as low-level waste.

3. COST ESTIMATE

The cost estimates prepared for decommissioning the Prairie Island units consider the unique features of the plant, including the nuclear steam supply system, power generation systems, support services, plant structures, and ancillary facilities. The basis of the estimates, including the sources of information relied upon, the estimating methodology employed, site-specific considerations, and other pertinent assumptions, is described in this section.

3.1 BASIS OF COST ESTIMATE

The analysis relies upon site-specific, technical information from an earlier evaluation prepared in 2008,[1] updated to reflect current assumptions pertaining to the disposition of the nuclear units and relevant industry experience in undertaking such projects. This information was reviewed for the current analysis and updated as deemed appropriate. The site-specific considerations and assumptions used in the previous evaluations were also revisited. Modifications were incorporated where new information was available or experience from ongoing decommissioning programs provided viable alternatives or improved processes.

3.2 METHODOLOGY

The methodology used to develop the estimates follows the basic approach originally presented in the AIF/NESP-036 study report, "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates,"[20] and the DOE "Decommissioning Handbook."[21] These documents present a unit factor method for estimating decommissioning activity costs, which simplifies the estimating calculations. Unit factors for concrete removal ($/cubic yard), steel removal ($/ton), and cutting costs ($/inch) are developed using local labor rates. The activity-dependent costs are estimated with the item quantities (cubic yards and tons), developed from plant drawings and inventory documents. Removal rates and material costs for the conventional disposition of components and structures rely upon information available in the industry publication, "Building Construction Cost Data," published by R.S. Means. [22]

The unit factor method provides a demonstrable basis for establishing a reliable cost estimate. The detail provided in the unit factors, including activity duration, labor costs (by craft), and equipment and consumable costs, ensures that essential elements have not been omitted. Appendix A presents the

detailed development of a typical unit factor. Appendix B provides the values contained within one set of factors developed for this analysis.

This analysis reflects lessons learned from TLG's involvement in the Shippingport Station Decommissioning Project, completed in 1989, as well as the decommissioning of the Cintichem reactor, hot cells, and associated facilities, completed in 1997. In addition, the planning and engineering for the Pathfinder, Shoreham, Rancho Seco, Trojan, Yankee Rowe, Big Rock Point, Maine Yankee, Humboldt Bay-3, Oyster Creek, Connecticut Yankee, and San Onofre-1 nuclear units have provided additional insight into the process, the regulatory aspects, and the technical challenges of decommissioning commercial nuclear units.

Work Difficulty Factors

The estimates follow the principles of ALARA through the use of work duration adjustment factors. These factors address the impact of activities such as radiological protection instruction, mock-up training, and the use of respiratory protection and protective clothing. The factors lengthen a task's duration, increasing costs and lengthening the overall schedule. ALARA planning is considered in the costs for engineering and planning, and in the development of activity specifications and detailed procedures. Changes to worker exposure limits may impact the decommissioning cost and project schedule.

Work difficulty adjustment factors (WDFs) account for the inefficiencies in working in a power plant environment. The factors are assigned to each unique set of unit cost factors, commensurate with the inefficiencies associated with working in confined, hazardous environments. The ranges used for the WDFs are as follows:

- Access Factor 10% to 20%
- Respiratory Protection Factor 10% to 50%
- Radiation/ALARA Factor 10% to 37%
- Protective Clothing Factor 0% to 30%
- Work Break Factor 8.33%

The factors and their associated range of values were developed in conjunction with the AIF/NESP-036 study. The application of the factors is discussed in more detail in that publication.

Scheduling Program Durations

The unit factors, adjusted by the WDFs as described above, are applied against the inventory of materials to be removed in the radiological controlled areas. The resulting man-hours, or crew-hours, are used in the development of the decommissioning program schedule, using resource loading and event sequencing considerations. The scheduling of conventional removal and dismantling activities is based upon productivity information available from the "Building Construction Cost Data" publication.

An activity duration critical path is used to determine the total decommissioning program schedule. The schedule is relied upon in calculating the carrying costs, which include program management, administration, field engineering, equipment rental, and support services such as quality control and security. This systematic approach for assembling decommissioning estimates ensures a high degree of confidence in the reliability of the result.

3.3 IMPACT OF DECOMMISSIONING MULTIPLE REACTOR UNITS

In estimating the near simultaneous decommissioning of two co-located reactor units there can be opportunities to achieve economies of scale, by sharing costs between units, and coordinating the sequence of work activities. There will also be schedule constraints, particularly where there are requirements for specialty equipment and staff, or practical limitations on when final status surveys can take place. For purposes of the estimates, Units 1 and 2 are assumed to be essentially identical. Common facilities have been assigned to Unit 2. A summary of the principal impacts are listed below.

- The sequence of work generally follows the principal that the work is done at Unit 1 first, followed by similar work at Unit 2. This permits the experience gained at Unit 1 to be applied by the workforce at the second unit. It should be noted however, that the estimates do not consider productivity improvements at the second unit, since there is little documented experience with decommissioning two units simultaneously. The work associated with developing activity specifications and procedures can be considered essentially identical between the two units, therefore the second unit costs are assumed to be a fraction of the first unit (~ 43%).
- Segmenting the reactor vessel and internals will require the use of special equipment. The cost of procuring that equipment is assumed to be shared on an equal basis between the two units. In addition, the decommissioning project will be scheduled such that Unit 2's reactor internals and vessel are segmented immediately after the activities at Unit 1 have been completed.

- Some program management and support costs, particularly costs associated with the more senior positions, can be avoided with two reactors undergoing decommissioning simultaneously. As a result, the estimates are based on a "lead" unit that includes these senior positions, and a "second" unit that excludes these positions. The designation as lead is based on the unit undertaking the most complex tasks (for instance vessel segmentation) or performing tasks for the first time.
- The final radiological survey schedule is also affected by a two-unit decommissioning schedule. It would be considered impractical to try to complete the final status survey of Unit 1, while Unit 2 still has ongoing radiological remediation work and waste handling in process. As a result, Unit 1 and Unit 2 delay durations awaiting spent fuel pool availability for decommissioning are synchronized, such that the spent fuel pool area decommissioning and subsequent final status survey can be completed for the station. During the spent fuel storage period, program management costs are reduced accordingly.
- The final demolition of buildings at Units 1 and 2 are considered to take place concurrently. This is considered a reasonable assumption since access to the buildings is considered good at the station.
- Unit 1, as the first unit to enter decommissioning, incurs the majority of site characterization costs.
- Shared systems and structures are generally assigned to Unit 2.
- Station costs such as ISFSI operations, emergency response fees, regulatory agency fees, and insurance are generally allocated on an equal basis between the two units.

3.4 FINANCIAL COMPONENTS OF THE COST MODEL

TLG's proprietary decommissioning cost model, DECCER, produces a number of distinct cost elements. These direct expenditures, however, do not comprise the total cost to accomplish the project goal (license termination and site restoration).

Inherent in any cost estimate that does not rely on historical data is the inability to specify the precise source of costs imposed by factors such as tool breakage, accidents, illnesses, weather delays, and labor stoppages. In the DECCER cost model, contingency fulfills this role. Contingency is added to each line item to account for costs that are difficult or impossible to develop analytically. Such costs are historically inevitable over the duration of a job of

this magnitude; therefore, this cost analysis includes funds to cover these types of expenses.

3.4.1 Contingency

The activity- and period-dependent costs are combined to develop the total decommissioning cost. A contingency is then applied on a line-item basis, using one or more of the contingency types listed in the AIF/NESP-036 study. "Contingencies" are defined in the American Association of Cost Engineers "Project and Cost Engineers' Handbook"[23] as "specific provision for unforeseeable elements of cost within the defined project scope; particularly important where previous experience relating estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur." The cost elements in this analysis are based upon ideal conditions and maximum efficiency; therefore, consistent with industry practice, contingency is included. In the AIF/NESP-036 study, the types of unforeseeable events that are likely to occur in decommissioning are discussed and guidelines are provided for percentage contingency in each category. It should be noted that contingency, as used in this analysis, does not account for price escalation and inflation in the cost of decommissioning over the anticipated operating life of the station.

Contingency funds are an integral part of the total cost to complete the decommissioning process. Exclusion of this component puts at risk a successful completion of the intended tasks and, potentially, subsequent related activities. For this study, TLG examined the major activity-related problems (decontamination, segmentation, equipment handling, packaging, transport, and waste disposal) that necessitate a contingency. Individual activity contingencies ranged from 0% to 75%, depending on the degree of difficulty judged to be appropriate from TLG's actual decommissioning experience. The contingency values used in this study are consistent with those developed in the AIF/NESP-036 study and are as follows:

- Decontamination 50%
- Contaminated Component Removal 25%
- Contaminated Component Packaging 10%
- Contaminated Component Transport 15%

- Low-Level Radioactive Waste Disposal 25%
- Reactor Segmentation 75%

• Nuclear Steam Supply System Component Removal	25%
• Reactor Waste Packaging	25%
• Reactor Waste Transport	25%
• Reactor Vessel Component Disposal	50%
• Greater-than-Class C Disposal	15%
• Non-Radioactive Component Removal	15%
• Heavy Equipment and Tooling	15%
• Supplies	25%
• Engineering	15%
• Energy	15%
• Characterization and Termination Surveys	30%
• Construction	15%
• Property Taxes	10%
• Fees	10%
• Insurance	10%
• Staffing	15%

The contingency values are applied to the appropriate components of the estimate on a line item basis. The composite contingency values for the three scenarios are reported at the end of each detailed estimate as provided in Appendices C, D, E and F.

3.4.2 Financial Risk

In addition to the routine uncertainties addressed by contingency, another cost element that is sometimes necessary to consider when bounding decommissioning costs relates to uncertainty, or risk. Examples can include changes in work scope, pricing, job performance, and other variations that could conceivably, but not necessarily, occur. Consideration is sometimes necessary to generate a level of confidence in the estimates, within a range of probabilities. TLG considers these types of costs under the broad term "financial risk." Included within the category of financial risk are:

- Delays in approval of the decommissioning plan due to intervention, public participation in local community meetings, legal challenges, and national and local hearings.
- Changes in the project work scope from the baseline estimate, involving the discovery of unexpected levels of contaminants,

contamination in places not previously expected, contaminated soil previously undiscovered (either radioactive or hazardous material contamination), variations in plant inventory or configuration not indicated by the plant drawings.

- Regulatory changes, for example, affecting worker health and safety, site release criteria, waste transportation, and disposal.
- Policy decisions altering national commitments (e.g., in the ability to accommodate certain waste forms for disposition), or in the timetable for such, for example, the start and rate of acceptance of spent fuel by the DOE.
- Pricing changes for basic inputs such as labor, energy, materials, and disposal. Items subject to widespread price competition (such as materials) may not show significant variation; however, others such as waste disposal could exhibit large pricing uncertainties, particularly in markets where limited access to services is available.

It has been TLG's experience that the results of a risk analysis, when compared with the base case estimate for decommissioning, indicate that the chances of the base decommissioning estimate's being too high is a low probability, and the chances that the estimate is too low is a higher probability. This is mostly due to the pricing uncertainty for low-level radioactive waste disposal, and to a lesser extent due to schedule increases from changes in plant conditions and to pricing variations in the cost of labor (both craft and staff). This cost study, however, does not add any additional costs to the estimates for financial risk, since there is insufficient historical data from which to project future liabilities. Consequently, the areas of uncertainty or risk should be revisited periodically and addressed through repeated revisions or updates of the base estimates.

3.5 SITE-SPECIFIC CONSIDERATIONS

There are a number of site-specific considerations that affect the method for dismantling and removal of equipment from the site and the degree of restoration required. The cost impact of the considerations identified below is included in this cost study.

3.5.1 Spent Fuel Management

The cost to dispose the spent fuel generated from plant operations is not reflected within the estimates to decommission the Prairie Island units.

Ultimate disposition of the spent fuel is within the province of the DOE's Waste Management System, as defined by the Nuclear Waste Policy Act (the disposal cost is financed by a 1 mill/kWhr surcharge paid into the DOE's waste fund during operations). However, the NRC requires licensees to establish a program to manage and provide funding for the management of all irradiated fuel at the reactor until title of the fuel is transferred to the Secretary of Energy. This funding requirement is fulfilled through inclusion of certain high-level waste cost elements within the estimates, as described below.

Spent Fuel Management Model

Completion of the decommissioning process is dependent upon the DOE's ability to remove spent fuel from the site in a timely manner. DOE's repository program assumes that spent fuel allocations will be accepted for disposal from the nation's commercial nuclear plants, with limited exceptions, in the order (the "queue") in which it was discharged from the reactor. Xcel Energy's current spent fuel management plan for the Prairie Island spent fuel is based in general upon: 1) fuel transferred from the pool to the ISFSI within 15 years of Unit 2 shutdown; 2) exchange of Prairie Island and Monticello spent fuel acceptance rights to best manage the overall cost of spent fuel storage for both plants; 3) fuel will be shipped in the existing Transnuclear casks (Scenarios 1, 2 and 3); and 4) availability of a DOE interim or permanent storage repository by 2025 (Scenario 1), 2049 (Scenario 2), or 2189 (Scenarios 3 and 4).

ISFSI

This analysis assumes that the existing ISFSI is modified at the cessation of plant operations to accommodate the fuel present in the storage pool at shutdown.

Operation and maintenance costs for the ISFSI are included within the estimates and address the costs for staffing the facility, as well as security, insurance, and licensing fees. The estimates also include the costs to purchase, load, and transfer the Transnuclear TN-40HT metal cask storage system spent fuel storage canisters from the pool to the ISFSI. Costs are also provided for the final disposition of the ISFSI once the transfer is complete.

Storage Canister Design

The design and capacity of the ISFSI is based upon the TN-40HT dry cask storage system. A capacity of 40 fuel assemblies is used.

Canister Loading and Transfer

An average cost of $400,000 is used for the labor to load/transport the spent fuel from the pool to the ISFSI pad. A unit cost of $274,000 is used to estimate the cost to transfer the fuel from the ISFSI to the DOE.

Operations and Maintenance

An annual cost (excluding labor) of approximately $746,000 and $90,000 are used for operation and maintenance of the spent fuel pool and the ISFSI, respectively.

At shutdown, the spent fuel pool is expected to contain freshly discharged assemblies (from the most recent refueling cycles). Over the next fifteen years the assemblies are packaged into TN-40HTs for transfer to the ISFSI for transfer to the DOE. It is assumed that the fifteen years provides the necessary cooling period for the final core to meet the decay heat requirements for dry storage. Once the pool is emptied, the spent fuel storage and handling facilities are available for decommissioning.

ISFSI Design Considerations

The TN-40HT is an ultra-high capacity vertical storage system with self-contained steel and borated resin shielding. Borated aluminum plates and stainless steel tubes form the basket assembly. The Prairie Island ISFSI already contains twenty-four TN-40 casks, and Xcel Energy has indicated that the remainder of the Prairie Island spent fuel will be loaded into TN-40HT casks. Therefore the TN-40 and TN-40HT are used as a basis for this cost analysis. Transnuclear casks are self-contained units and are transferred whole to the DOE; therefore for Scenarios 1, 2 and 3 there is no cask material remaining following spent fuel storage operations that require decommissioning, other than the storage pad. For Scenario 4, all of the Transnuclear casks will be replaced once during the ISFSI spent fuel storage period. While it is expected that surface contamination within the Transnuclear casks could be removed to levels that meet the site release criteria, it is also expected that the casks will 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). The cost of the disposal of these Transnuclear casks is reflected within the Scenario 4 estimate.

The demolition of the ISFSI for all four scenarios is reflected within the estimates.

GTCC

The dismantling of the reactor internals generates radioactive waste considered unsuitable for shallow land disposal (i.e., low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the NRC for Class C radioactive waste (GTCC)). The Low-Level Radioactive Waste Policy Amendments Act of 1985 assigned the Federal Government the responsibility for the disposal of this material. The Act also stated that the beneficiaries of the activities resulting in the generation of such radioactive waste bear all reasonable costs of disposing of such waste. To date, the Federal Government has not identified a cost for disposing of GTCC or a schedule for acceptance. As such, the estimates to decommission the Prairie Island units include an allowance for the disposition of GTCC material.

For purposes of this study, GTCC is packaged in the same canisters used to store spent fuel. It is not anticipated that the DOE would accept this waste prior to completing the transfer of spent fuel. Therefore, until such time the DOE is ready to accept GTCC waste, it is reasonable to assume that this material remains in storage with the spent fuel at the ISFSI.

3.5.2 Reactor Vessel and Internal Components

The reactor pressure vessel and internal components are segmented for disposal in shielded, reusable transportation casks. Segmentation is performed underwater when practical where a remote cutter is installed. The vessel is segmented in place, using a mast-mounted cutter supported off the lower head and directed from a shielded work platform installed overhead in the reactor cavity. Transportation cask specifications and transportation regulations will dictate segmentation and packaging methodology. The control elements are disposed of along with the spent fuel and, there is no additional cost provided for their disposal.

As stated previously, the dismantling of reactor internals will generate radioactive waste considered unsuitable for shallow land disposal (i.e., GTCC). Although the material is not classified as high-level waste by the NRC, DOE at one time indicated it would accept title to this waste for disposal at the future high-level waste repository.[24] However, the current DOE position is unclear, and DOE has not been forthcoming with an acceptance criteria or disposition schedule for this material, and numerous questions remain as to the ultimate disposal cost and waste form requirements. As such, for purposes of this study, the GTCC radioactive waste has been packaged and disposed of as high-level waste, at a cost equivalent to that envisioned for the spent fuel.

Intact disposal of reactor vessel shells has been successfully demonstrated at several of the sites recently decommissioned. Access to navigable waterways has allowed these large packages to be transported to the Barnwell disposal site with minimal overland travel. Intact disposal of the reactor vessel and internal components can provide savings in cost and worker exposure by eliminating the complex segmentation requirements, isolation of the GTCC material, and transport/storage of the resulting waste packages. Portland General Electric (PGE) was able to dispose of the Trojan reactor as an intact package (including the internals). However, its location on the Columbia River simplified the transportation analysis since:

- the reactor package could be secured to the transport vehicle for the entire journey, i.e., the package was not lifted during transport,
- there were no man-made or natural terrain features between the plant site and the disposal location that could produce a large drop, and
- transport speeds were very low, limited by the overland transport vehicle and the river barge.

As a member of the Northwest Compact, PGE had a site available for disposal of the package - the US Ecology facility in Washington State. The characteristics of this arid site proved favorable in demonstrating compliance with land disposal regulations.

It is not known whether this option will be available when the Prairie Island units cease operation. Future viability of this option will depend upon the ultimate location of the disposal site, as well as the disposal site licensee's ability to accept highly radioactive packages and

effectively isolate them from the environment. As such, the estimates assume segmentation of the reactor vessel, as a bounding condition. With lower levels of activation, the vessel shell can be packaged more efficiently than the curie-limited internal components. This will allow the use of more conventional waste packages rather than shielded casks for transport.

3.5.3 Primary System Large Components

The reactor coolant system components are assumed to be decontaminated using chemical agents prior to the start of cutting operations. This type of decontamination can be expected to have a significant ALARA impact in the DECON scenario, since in this scenario the removal work is done within the first few years of shutdown. It should be noted that if the decommissioning work is significantly delayed, chemical decontamination might not be necessary. A decontamination factor (average reduction) of 10 is assumed for the process.

The following discussion deals with the removal and disposition of the steam generators, but the techniques involved are also applicable to other large radioactively-contaminated components, such as heat exchangers and the pressurizer. The steam generators' size and weight, their location within the reactor building, as well as the disposal facility waste acceptance criteria, and access to transportation will ultimately determine the removal, transportation, and disposal strategy.

A crane is set up for the removal of the generators. It can also be used to move portions of the steam generator cubicle walls and floor slabs from the reactor building to a location where they can be decontaminated and transported to the material handling area. Interferences within the work area, such as grating, piping, and other components are removed to create sufficient lay-down space for processing these large components.

The generators are rigged for removal, disconnected from the surrounding piping and supports, and maneuvered into the open area where they are lowered onto a down-ending cradle. Each generator is rotated into the horizontal position for extraction from the containment and placed onto a multi-wheeled vehicle for transport to an on-site preparation area.

Disposal costs are based upon the displaced volume and weight of the primary side portions of the steam generators. Each component is then loaded onto a rail car for transport to the disposal facility. The secondary side is assumed to be sent to an off-site waste processor.

Reactor coolant piping is cut from the reactor once the water level (used for personnel shielding during dismantling and cutting operations in and around the reactor) is dropped below the elevation of associated nozzle(s). The piping is boxed and transported by shielded van. The reactor coolant pumps and motors are lifted out intact, packaged, and transported for disposal.

3.5.4 Main Turbine and Condenser

The main turbine and condenser are assumed to have only minor levels of contamination. As such, the components are dismantled using conventional maintenance procedures. The turbine rotors and shafts are removed to a laydown area. The lower turbine casings are removed from their anchors by controlled demolition. The main condensers are also disassembled and moved to a laydown area. Material is then surveyed and designated for either decontamination or volume reduction, conventional disposal, or controlled disposal. Components are packaged and readied for transport in accordance with the intended disposition.

3.5.5 Transportation Methods

Contaminated piping, components, and structural material other than the highly activated reactor vessel and internal components will qualify as LSA-I, II or III or Surface Contaminated Object, SCO-I or II, as described in Title 49.[25] The contaminated material will be packaged in Industrial Packages (IP-1, IP-2, or IP-3, as defined in subpart 173.411) for transport unless demonstrated to qualify as their own shipping containers. The reactor vessel and internal components are expected to be transported in accordance with Part 71, as Type B. It is conceivable that the reactor, due to its limited specific activity, could qualify as LSA II or III. However, the high radiation levels on the outer surface would require that additional shielding be incorporated within the packaging so as to attenuate the dose to levels acceptable for transport.

Any fuel cladding failure that occurred during the lifetime of the plant is assumed to have released fission products at sufficiently low levels that the buildup of quantities of long-lived isotopes (e.g., ^{137}Cs, ^{90}Sr, or transuranics) has been prevented from reaching levels exceeding those

that permit the major reactor components to be shipped under current transportation regulations and disposal requirements.

Transport of the highly activated metal, produced in the segmentation of the reactor vessel and internal components, will be by shielded truck cask. Cask shipments may exceed 95,000 pounds, including vessel segment(s), supplementary shielding, cask tie-downs, and tractor-trailer. The maximum level of activity per shipment assumed permissible was based upon the license limits of the available shielded transport casks. The segmentation scheme for the vessel and internal segments is designed to meet these limits.

The transport of large intact components (e.g., large heat exchangers and other oversized components) will be by a combination of truck, rail, and/or multi-wheeled transporter.

Transportation costs for Classes A, B and C material requiring controlled disposal are based upon the mileage to the Energy*Solutions* facility in Clive, Utah. The existing Barnwell facility rate schedule for non-Atlantic Compact members is used as the cost estimating basis for disposal of the Class B and C material. Transportation costs for off-site waste processing are based upon the mileage to Memphis, Tennessee. Truck transport costs are estimated using published tariffs from Tri-State Motor Transit.[26]

3.5.6 Low-Level Radioactive Waste Disposal

To the greatest extent practical, metallic material generated in the decontamination and dismantling processes is processed to reduce the total cost of controlled disposal. Material meeting the regulatory and/or site release criterion, is released as scrap, requiring no further cost consideration. Conditioning (preparing the material to meet the waste acceptance criteria of the disposal site) and recovery of the waste stream is performed off site at a licensed processing center. Any material leaving the site is subject to a survey and release charge, at a minimum. Based on TLG's experience, rates were assumed for off-site processing as well as survey and release.

The mass of radioactive waste generated during the various decommissioning activities at the site is shown on a line-item basis in the detailed Appendices C, D, E and F, and summarized in Tables 5.1, 5.2 and 5.3. The quantified waste summaries shown in these tables are consistent with 10 CFR Part 61 classifications. Commercially available

steel containers are presumed to be used for the disposal of piping, small components, and concrete. Larger components can serve as their own containers, with proper closure of all openings, access ways, and penetrations. The volumes are calculated based on the exterior package dimensions for containerized material or a specific calculation for components serving as their own waste containers.

The more highly activated reactor components will be shipped in reusable, shielded truck casks with disposable liners. In calculating disposal costs, the burial fees are applied against the liner volume, as well as the special handling requirements of the payload. Packaging efficiencies are lower for the highly activated materials (greater than Type A quantity waste), where high concentrations of gamma-emitting radionuclides limit the capacity of the shipping canisters.

Disposal fees are based upon estimated charges, with surcharges added for the highly activated components, for example, generated in the segmentation of the reactor vessel. The cost to dispose of the majority of the material generated from the decontamination and dismantling activities is based upon Xcel Energy's current cost for disposal at Energy*Solutions* facility in Clive, Utah. Disposal costs for the higher activity waste (Class B and C) were estimated using the last available Barnwell rate structure for non-Atlantic Compact members.

3.5.7 Site Conditions Following Decommissioning

The NRC will terminate (or amend) the site license(s) if it determines that site remediation has been performed in accordance with the license termination plan, and that the terminal radiation survey and associated documentation demonstrate that the facility is suitable for release. The NRC's involvement in the decommissioning process typically ends at this point. Building codes and state environmental regulations dictate the next step in the decommissioning process, as well as the owner's future plans for the site.

There are varying degrees to which the Prairie Island site can be restored following the decommissioning of the two nuclear units. The estimates presented herein include the dismantling of the major structures to just below ground level, backfilling and the collapsing of below grade voids, and general regarding such that the site upon which the power block and supplemental structures are located is transformed into a "grassy plain." Xcel Energy has identified certain structures and site features that are candidates for reuse by a potential follow-on

generating plant at the Prairie Island site. These structures are excluded from the scope of the estimates for decommissioning or site restoration.

The estimates do not assume the remediation of any significant volume of contaminated soil. This assumption may be affected by continued plant operations and/or future regulatory actions, such as the development of site-specific release criteria.

3.6 ASSUMPTIONS

The following are the major assumptions made in the development of the estimates for decommissioning Prairie Island.

3.6.1 Estimating Basis

The study follows the principles of ALARA through the use of work duration adjustment factors. These factors address the impact of activities such as radiological protection instruction, mock-up training, and the use of respiratory protection and protective clothing. The factors lengthen a task's duration, increasing costs and lengthening the overall schedule. ALARA planning is considered in the costs for engineering and planning, and in the development of activity specifications and detailed procedures. Changes to worker exposure limits may impact the decommissioning cost and project schedule.

3.6.2 Labor Costs

The craft labor required to decontaminate and dismantle the Prairie Island units will be acquired through standard site contracting practices. Craft labor costs were based upon information from Xcel Energy. Craft labor costs include applicable overheads and profit.

Xcel Energy, as the operator, will continue to provide site operations support, including decommissioning program management, licensing, radiological protection, and site security. A Decommissioning Operations Contractor (DOC) will provide the supervisory staff needed to oversee the labor subcontractors, consultants, and specialty contractors needed to perform the work required for the decontamination and dismantling effort. The DOC will also provide the engineering services needed to develop activity specifications, detailed procedures, detailed activation analyses, and support field activities such as structural modifications.

Utility labor costs were provided by Xcel Energy. Average costs were provided by department or work group and included payroll overheads. Decommissioning Operations Contractor (DOC) labor costs were based on utility labor costs with modified markups to account for employee benefits, DOC overhead and profit.

Based upon site overhead costs provided by Xcel Energy, an administrative and general cost (A&G) is included. This cost is based on the average annual A&G per person applied to each of the utility staffing positions (number of utility personnel assigned to the project). The A&G cost includes: site overhead costs directly required to support the site decommissioning staff.

Security, while reduced from operating levels, is maintained throughout the decommissioning for access control, material control, and to safeguard the spent fuel.

3.6.3 Design Conditions

Activation levels in the vessel and internal components are modeled using NUREG/CR-3474.[27] Estimates are derived from the curie/gram values contained therein and adjusted for the different mass of the Prairie Island components, projected operating life(s), and different periods of decay. Additional short-lived isotopes were derived from CR-0130 [28] and CR-0672 [29] and benchmarked to the long-lived values from CR-3474.

The control elements are disposed of along with the spent fuel (i.e., there is no additional cost provided for their disposal). Disposition of any control elements stored in the pool from operations is considered an operating expense and therefore not accounted for in the decommissioning estimates.

Activation of the reactor building is confined to the area around the biological shield. More extensive activation (at very low levels) of the interior structures within containment has been detected at several reactors and the owners have elected to dispose of the affected material at a controlled facility rather than reuse the material as fill on site or sending it to a landfill. The ultimate disposition of the material removed from the reactor building will depend upon the site release criteria applied, as well as the designated end use for the site.

3.6.4 General

Transition Activities

Existing warehouses are cleared of non-essential material and remain for use by the plant operator and its subcontractors. The plant's operating staff performs the following activities at no additional cost or credit to the project during the transition period.

- Drain and collect fuel oils, lubricating oils, and transformer oils for recycle and/or sale.
- Drain and collect acids, caustics, and other chemical stores for recycle and/or sale.
- Process operating waste inventories. The estimates do not address the disposition of any legacy wastes and the disposal of operating wastes during this initial period is not considered a decommissioning expense.

Scrap and Salvage

The existing plant equipment is considered obsolete and suitable for scrap as deadweight quantities only. Xcel Energy will make economically reasonable efforts to salvage equipment following final plant shutdown. However, dismantling techniques assumed for equipment in this analysis are not consistent with removal techniques required for salvage (resale) of equipment. Experience has indicated that some buyers wanted equipment stripped down to very specific requirements before they would consider purchase. This required expensive rework after the equipment had been removed from its installed location. Since placing a salvage value on this machinery and equipment would be speculative, and the value would be small in comparison to the overall decommissioning expenses, this analysis does not attempt to quantify the value that an owner may realize based upon those efforts.

It is assumed, for purposes of this analysis, that any value received from the sale of scrap generated in the dismantling process would be more than offset by the on-site processing costs. The dismantling techniques assumed in the decommissioning estimates do not include the additional cost for size reduction and preparation to meet "furnace ready" conditions. With a volatile market, the potential profit margin in scrap recovery is highly speculative, regardless of the ability to free release

this material. An allowance has been included for the survey and release of all metallic material released from the site.

Furniture, tools, mobile equipment such as forklifts, trucks, bulldozers, and other property is removed at no cost or credit to the decommissioning project. Disposition may include relocation to other facilities. Spare parts are also made available for alternative use.

The concrete debris resulting from building demolition activities is crushed on site to reduce the size of the debris. The resulting crushed concrete is used to backfill below grade voids, with the excess assumed to be removed from the site as recycled material at no cost or credit to the decommissioning program. The rebar removed from the concrete crushing process is disposed of as scrap steel in a similar fashion as other scrap metal as discussed previously.

Energy

For estimating purposes, the plant is assumed to be de-energized, with the exception of those facilities associated with spent fuel storage (temporary power is run throughout the plant, as needed). Replacement power costs are used to calculate the cost of energy consumed during decommissioning for tooling, lighting, ventilation, and essential services.

Insurance

Costs for continuing coverage (nuclear liability and property insurance) following cessation of plant operations and during decommissioning are included and based upon current operating premiums. Reductions in premiums, throughout the decommissioning process, are based upon the guidance and the limits for coverage defined in the NRC's proposed rulemaking "Financial Protection Requirements for Permanently Shutdown Nuclear Power Reactors."[30] The NRC's financial protection requirements are based on various reactor (and spent fuel) configurations.

Site Modifications

The perimeter fence and in-plant security barriers will be moved, as appropriate, to conform to the site security plan in force during the various stages of the project.

3.7 COST ESTIMATE SUMMARY

Schedules of expenditures are provided in Tables 3.1 through 3.8. The tables delineate the cost contributors by year of expenditures as well as cost contributor (e.g., labor, materials, and waste disposal).

The cost elements in Tables 3.1 and 3.2 (Scenario 1) are also assigned to one of three subcategories: "License Termination," "Spent Fuel Management," and "Site Restoration." The subcategory "License Termination" is used to accumulate costs that are consistent with "decommissioning" as defined by the NRC in its financial assurance regulations (i.e., 10 CFR §50.75). In situations where the long-term management of spent fuel is not an issue, the cost reported for this subcategory is generally sufficient to terminate the unit's operating license. Table 3.1a and 3.2a lists the License Termination subcategory schedule of expenditures.

The "Spent Fuel Management" subcategory contains costs associated with the containerization and transfer of spent fuel to the ISFSI, and the management of the ISFSI until such time that the transfer of all fuel from this facility to an off-site location (e.g., geologic repository) is complete. Table 3.1b and 3.2b lists the Spent Fuel Management subcategory schedule of expenditures.

"Site Restoration" is used to capture costs associated with the dismantling and demolition of buildings and facilities demonstrated to be free from contamination. This includes structures never exposed to radioactive materials, as well as those facilities that have been decontaminated to appropriate levels. Structures are removed to a depth of three feet and backfilled to conform to local grade. Table 3.1c and 3.2c lists the Site Restoration subcategory schedule of expenditures.

As discussed in Section 3.5.1, it is not anticipated that the DOE will accept the GTCC waste prior to completing the transfer of spent fuel. Therefore, the cost of GTCC disposal is shown in the final year of ISFSI operation. While designated for disposal at the geologic repository along with the spent fuel, GTCC waste is still classified as low-level radioactive waste and, as such, included as a "License Termination" expense.

Tables 3.3 and 3.4 present Scenario 2 (60 years without cask replacement) for Units 1 and 2, respectively. Tables 3.5 and 3.6 present Scenario 3 (200 years without cask replacement) for Units 1 and 2, respectively. Tables 3.7 and 3.8 present Scenario 4 (200 years with cask replacement) for Units 1 and 2, respectively. The tables delineate the cost contributors by year of expenditures as well as cost contributor (e.g., labor, materials, and waste disposal).

Decommissioning costs are reported in 2011 dollars. Costs are not inflated, escalated, or discounted over the period of expenditure (or projected lifetime of the plant). The schedules are based upon the detailed activity costs reported in Appendices C through F, along with the timelines presented in Section 4.

TABLE 3.1
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	17,130	1,230	1,277	22	1,974	21,634
2034	46,893	8,331	4,493	3,217	5,315	68,249
2035	49,919	47,881	3,416	20,766	7,356	129,338
2036	39,164	20,027	2,718	16,011	6,288	84,208
2037	27,966	15,162	1,859	7,219	4,508	56,714
2038	2,295	959	643	35	3,047	6,979
2039	3,899	5,772	643	35	3,047	13,396
2040	2,262	842	645	35	3,055	6,839
2041	5,504	10,584	643	35	3,047	19,813
2042	2,295	959	643	35	3,047	6,979
2043	5,346	10,112	643	35	3,047	19,182
2044	2,262	842	645	35	3,055	6,839
2045	5,346	10,112	643	35	3,047	19,182
2046	2,138	486	643	35	3,047	6,348
2047	5,504	10,584	643	35	3,047	19,813
2048	2,144	488	645	35	3,055	6,366
2049	10,507	16,064	756	653	3,128	31,108
2050	19,746	2,944	1,033	2,173	2,897	28,792
2051	14,023	3,916	435	15	1,322	19,710
2052	12,175	4,856	322	0	977	18,330
2053	6,846	2,282	152	0	952	10,232
2054	2,285	473	0	0	933	3,691
2055	2,128	0	0	0	933	3,060
2056	2,133	0	0	0	935	3,069
2057	2,285	473	0	0	933	3,691
2058	2,128	0	0	0	933	3,060
2059	2,285	473	0	0	933	3,691
2060	2,133	0	0	0	935	3,069
2061	2,285	473	0	0	933	3,691
2062	2,128	0	0	0	933	3,060
2063	2,285	473	0	0	933	3,691
2064	2,133	0	0	0	935	3,069
2065	2,281	1,678	0	0	11,965	15,924

TABLE 3.1 (continued)
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	467	9	0	2	1,068	1,546
Total	310,320	178,484	23,541	50,457	91,557	654,359

Note: Columns may not add due to rounding

TABLE 3.1a
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF LICENSE TERMINATION EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	16,937	1,230	1,277	22	1,354	20,821
2034	46,069	8,331	4,493	3,217	3,754	65,864
2035	43,271	32,079	3,416	20,766	5,942	105,473
2036	37,348	19,645	2,718	16,011	4,962	80,683
2037	23,259	5,048	1,859	7,219	3,250	40,635
2038	2,138	486	643	35	1,789	5,090
2039	2,138	486	643	35	1,789	5,090
2040	2,144	488	645	35	1,794	5,104
2041	2,138	486	643	35	1,789	5,090
2042	2,138	486	643	35	1,789	5,090
2043	2,138	486	643	35	1,789	5,090
2044	2,144	488	645	35	1,794	5,104
2045	2,138	486	643	35	1,789	5,090
2046	2,138	486	643	35	1,789	5,090
2047	2,138	486	643	35	1,789	5,090
2048	2,144	488	645	35	1,794	5,104
2049	5,537	1,153	756	653	1,947	10,045
2050	19,746	2,944	1,033	2,173	2,354	28,250
2051	6,439	312	227	15	688	7,681
2052	659	0	0	0	58	716
2053	309	0	0	0	27	337
2054	0	0	0	0	0	0
2055	0	0	0	0	0	0
2056	0	0	0	0	0	0
2057	0	0	0	0	0	0
2058	0	0	0	0	0	0
2059	0	0	0	0	0	0
2060	0	0	0	0	0	0
2061	0	0	0	0	0	0
2062	0	0	0	0	0	0
2063	0	0	0	0	0	0
2064	0	0	0	0	0	0
2065	0	1,206	0	0	11,027	12,232

TABLE 3.1a (continued)
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF LICENSE TERMINATION EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	0	0	0	0	0	0
Total	223,106	77,301	22,859	50,456	55,051	428,772

Note: Columns may not add due to rounding

TABLE 3.1b
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF SPENT FUEL MANAGEMENT EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	0	0	0	0	620	620
2034	0	0	0	0	1,561	1,561
2035	5,258	15,773	0	0	1,291	22,322
2036	118	354	0	0	1,262	1,734
2037	3,366	10,098	0	0	1,258	14,722
2038	158	473	0	0	1,258	1,888
2039	1,762	5,285	0	0	1,258	8,305
2040	118	354	0	0	1,262	1,734
2041	3,366	10,098	0	0	1,258	14,722
2042	158	473	0	0	1,258	1,888
2043	3,208	9,625	0	0	1,258	14,092
2044	118	354	0	0	1,262	1,734
2045	3,208	9,625	0	0	1,258	14,092
2046	0	0	0	0	1,258	1,258
2047	3,366	10,098	0	0	1,258	14,722
2048	0	0	0	0	1,262	1,262
2049	4,970	14,911	0	0	1,181	21,062
2050	0	0	0	0	542	542
2051	2,031	473	0	0	633	3,137
2052	2,905	0	0	0	918	3,823
2053	2,490	0	0	0	925	3,415
2054	2,285	473	0	0	933	3,691
2055	2,128	0	0	0	933	3,060
2056	2,133	0	0	0	935	3,069
2057	2,285	473	0	0	933	3,691
2058	2,128	0	0	0	933	3,060
2059	2,285	473	0	0	933	3,691
2060	2,133	0	0	0	935	3,069
2061	2,285	473	0	0	933	3,691
2062	2,128	0	0	0	933	3,060
2063	2,285	473	0	0	933	3,691
2064	2,133	0	0	0	935	3,069
2065	2,281	473	0	0	938	3,692

TABLE 3.1b (continued)
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF SPENT FUEL MANAGEMENT EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	467	9	0	2	1,068	1,546
Total	63,558	90,842	0	2	36,316	190,717

Note: Columns may not add due to rounding

TABLE 3.1c
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF SITE RESTORATION EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	193	0	0	0	0	193
2034	824	0	0	0	0	824
2035	1,390	29	0	0	124	1,543
2036	1,698	28	0	0	64	1,790
2037	1,341	16	0	0	0	1,357
2038	0	0	0	0	0	0
2039	0	0	0	0	0	0
2040	0	0	0	0	0	0
2041	0	0	0	0	0	0
2042	0	0	0	0	0	0
2043	0	0	0	0	0	0
2044	0	0	0	0	0	0
2045	0	0	0	0	0	0
2046	0	0	0	0	0	0
2047	0	0	0	0	0	0
2048	0	0	0	0	0	0
2049	0	0	0	0	0	0
2050	0	0	0	0	0	0
2051	5,552	3,131	208	0	1	8,892
2052	8,611	4,856	322	0	1	13,790
2053	4,047	2,282	152	0	1	6,481
2054-66	0	0	0	0	0	0
Total	23,656	10,341	682	0	191	34,870

Note: Columns may not add due to rounding

TABLE 3.2
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	6,873	537	564	9	822	8,805
2035	45,311	20,768	3,779	1,449	4,840	76,148
2036	49,391	25,921	4,173	18,032	6,753	104,271
2037	54,576	32,891	2,815	18,462	6,431	115,175
2038	50,698	9,332	2,412	11,082	4,952	78,476
2039	17,710	6,989	895	1,611	3,266	30,472
2040	10,347	871	645	38	2,995	14,896
2041	13,567	10,613	643	38	2,986	27,848
2042	10,359	987	643	38	2,986	15,014
2043	13,410	10,140	643	38	2,986	27,217
2044	10,347	871	645	38	2,995	14,896
2045	13,410	10,140	643	38	2,986	27,217
2046	10,201	515	643	38	2,986	14,383
2047	13,567	10,613	643	38	2,986	27,848
2048	10,229	516	645	38	2,995	14,423
2049	18,221	16,231	756	768	3,026	39,001
2050	26,563	3,541	1,033	2,561	2,605	36,302
2051	18,685	5,259	435	15	1,223	25,618
2052	15,040	6,799	322	0	979	23,141
2053	8,193	3,195	152	0	953	12,493
2054	2,285	473	0	0	933	3,691
2055	2,128	0	0	0	933	3,060
2056	2,133	0	0	0	935	3,069
2057	2,285	473	0	0	933	3,691
2058	2,128	0	0	0	933	3,060
2059	2,285	473	0	0	933	3,691
2060	2,133	0	0	0	935	3,069
2061	2,285	473	0	0	933	3,691
2062	2,128	0	0	0	933	3,060
2063	2,285	473	0	0	933	3,691
2064	2,133	0	0	0	935	3,069
2065	2,281	1,377	0	0	10,831	14,489

TABLE 3.2 (continued)
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	467	9	0	2	1,068	1,546
Total	443,654	180,479	23,130	54,334	84,921	786,517

Note: Columns may not add due to rounding

TABLE 3.2a
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF LICENSE TERMINATION EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	6,837	537	564	9	548	8,495
2035	39,782	4,995	3,779	1,449	3,279	53,283
2036	47,912	25,540	4,173	18,032	5,303	100,961
2037	49,464	22,760	2,815	18,462	5,090	98,592
2038	48,786	8,838	2,412	11,082	3,694	74,811
2039	15,698	1,701	895	1,611	2,008	21,913
2040	10,229	516	645	38	1,733	13,161
2041	10,201	515	643	38	1,728	13,125
2042	10,201	515	643	38	1,728	13,125
2043	10,201	515	643	38	1,728	13,125
2044	10,229	516	645	38	1,733	13,161
2045	10,201	515	643	38	1,728	13,125
2046	10,201	515	643	38	1,728	13,125
2047	10,201	515	643	38	1,728	13,125
2048	10,229	516	645	38	1,733	13,161
2049	13,250	1,320	756	768	1,845	17,939
2050	26,563	3,541	1,033	2,561	2,063	35,760
2051	9,225	402	227	15	588	10,457
2052	613	0	0	0	58	671
2053	288	0	0	0	27	315
2054	0	0	0	0	0	0
2055	0	0	0	0	0	0
2056	0	0	0	0	0	0
2057	0	0	0	0	0	0
2058	0	0	0	0	0	0
2059	0	0	0	0	0	0
2060	0	0	0	0	0	0
2061	0	0	0	0	0	0
2062	0	0	0	0	0	0
2063	0	0	0	0	0	0
2064	0	0	0	0	0	0
2065	0	904	0	0	9,893	10,797

TABLE 3.2a (continued)
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF LICENSE TERMINATION EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	0	0	0	0	0	0
Total	350,311	75,175	22,448	54,332	49,964	552,230

Note: Columns may not add due to rounding

TABLE 3.2b
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF SPENT FUEL MANAGEMENT EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	0	0	0	0	274	274
2035	5,258	15,773	0	0	1,561	22,592
2036	118	354	0	0	1,361	1,834
2037	3,366	10,098	0	0	1,258	14,722
2038	158	473	0	0	1,258	1,888
2039	1,762	5,285	0	0	1,258	8,305
2040	118	354	0	0	1,262	1,734
2041	3,366	10,098	0	0	1,258	14,722
2042	158	473	0	0	1,258	1,888
2043	3,208	9,625	0	0	1,258	14,092
2044	118	354	0	0	1,262	1,734
2045	3,208	9,625	0	0	1,258	14,092
2046	0	0	0	0	1,258	1,258
2047	3,366	10,098	0	0	1,258	14,722
2048	0	0	0	0	1,262	1,262
2049	4,970	14,911	0	0	1,181	21,062
2050	0	0	0	0	542	542
2051	2,031	473	0	0	633	3,137
2052	2,905	0	0	0	918	3,823
2053	2,490	0	0	0	925	3,415
2054	2,285	473	0	0	933	3,691
2055	2,128	0	0	0	933	3,060
2056	2,133	0	0	0	935	3,069
2057	2,285	473	0	0	933	3,691
2058	2,128	0	0	0	933	3,060
2059	2,285	473	0	0	933	3,691
2060	2,133	0	0	0	935	3,069
2061	2,285	473	0	0	933	3,691
2062	2,128	0	0	0	933	3,060
2063	2,285	473	0	0	933	3,691
2064	2,133	0	0	0	935	3,069
2065	2,281	473	0	0	938	3,692

TABLE 3.2b (continued)
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF SPENT FUEL MANAGEMENT EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	467	9	0	2	1,068	1,546
Total	63,558	90,842	0	2	34,778	189,179

Note: Columns may not add due to rounding

TABLE 3.2c
SCENARIO 1
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF SITE RESTORATION EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	37	0	0	0	0	37
2035	272	0	0	0	0	272
2036	1,360	27	0	0	89	1,476
2037	1,745	33	0	0	83	1,861
2038	1,755	21	0	0	0	1,776
2039	250	3	0	0	0	253
2040	0	0	0	0	0	0
2041	0	0	0	0	0	0
2042	0	0	0	0	0	0
2043	0	0	0	0	0	0
2044	0	0	0	0	0	0
2045	0	0	0	0	0	0
2046	0	0	0	0	0	0
2047	0	0	0	0	0	0
2048	0	0	0	0	0	0
2049	0	0	0	0	0	0
2050	0	0	0	0	0	0
2051	7,429	4,384	208	0	2	12,024
2052	11,522	6,799	322	0	3	18,647
2053	5,415	3,195	152	0	2	8,763
2054-66	0	0	0	0	0	0
Total	29,785	14,462	682	0	178	45,108

Note: Columns may not add due to rounding

TABLE 3.3
SCENARIO 2
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	17,130	1,230	1,277	22	1,974	21,634
2034	46,893	8,331	4,493	3,217	5,315	68,249
2035	49,761	47,408	3,416	20,766	7,356	128,707
2036	39,995	22,519	2,718	16,011	6,288	87,530
2037	27,809	14,690	1,859	7,219	4,508	56,084
2038	2,138	486	643	35	3,047	6,348
2039	3,742	5,299	643	35	3,047	12,765
2040	2,144	488	645	35	3,055	6,366
2041	5,346	10,112	643	35	3,047	19,182
2042	2,138	486	643	35	3,047	6,348
2043	5,346	10,112	643	35	3,047	19,182
2044	2,144	488	645	35	3,055	6,366
2045	5,346	10,112	643	35	3,047	19,182
2046	2,138	486	643	35	3,047	6,348
2047	5,346	10,112	643	35	3,047	19,182
2048	2,144	488	645	35	3,055	6,366
2049	10,350	15,591	756	653	3,128	30,477
2050	19,746	2,944	1,033	2,173	2,897	28,792
2051	13,944	3,679	435	15	1,322	19,395
2052	12,332	5,328	322	0	977	18,960
2053	7,004	2,755	152	0	952	10,862
2054	2,324	591	0	0	933	3,848
2055	2,246	354	0	0	933	3,533
2056	2,370	709	0	0	935	4,014
2057	2,246	354	0	0	933	3,533
2058	2,206	236	0	0	933	3,375
2059	2,285	473	0	0	933	3,691
2060	2,251	354	0	0	935	3,541
2061	2,285	473	0	0	933	3,691
2062	2,285	473	0	0	933	3,691
2063	2,285	473	0	0	933	3,691
2064	2,251	354	0	0	935	3,541
2065	2,285	473	0	0	933	3,691

TABLE 3.3 (continued)
SCENARIO 2
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	2,285	473	0	0	933	3,691
2067	2,246	354	0	0	933	3,533
2068	2,291	473	0	0	935	3,699
2069	2,285	473	0	0	933	3,691
2070	2,246	354	0	0	933	3,533
2071	2,285	473	0	0	933	3,691
2072	2,291	473	0	0	935	3,699
2073	2,246	354	0	0	933	3,533
2074	2,285	473	0	0	933	3,691
2075	2,573	1,335	0	0	933	4,841
2076	2,251	354	0	0	935	3,541
2077	2,242	1,560	0	0	11,964	15,766
2078	560	14	0	2	1,117	1,693
Total	338,339	185,624	23,541	50,458	102,806	700,767

Note: Columns may not add due to rounding

TABLE 3.4
SCENARIO 2
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	6,873	537	564	9	822	8,805
2035	45,154	20,295	3,779	1,449	4,840	75,517
2036	50,222	28,412	4,173	18,032	6,753	107,593
2037	54,418	32,418	2,815	18,462	6,431	114,545
2038	50,541	8,859	2,412	11,082	4,952	77,846
2039	17,552	6,516	895	1,611	3,266	29,842
2040	10,229	516	645	38	2,995	14,423
2041	13,410	10,140	643	38	2,986	27,217
2042	10,201	515	643	38	2,986	14,383
2043	13,410	10,140	643	38	2,986	27,217
2044	10,229	516	645	38	2,995	14,423
2045	13,410	10,140	643	38	2,986	27,217
2046	10,201	515	643	38	2,986	14,383
2047	13,410	10,140	643	38	2,986	27,217
2048	10,229	516	645	38	2,995	14,423
2049	18,063	15,758	756	768	3,026	38,371
2050	26,563	3,541	1,033	2,561	2,605	36,302
2051	18,607	5,023	435	15	1,223	25,303
2052	15,198	7,272	322	0	979	23,771
2053	8,351	3,668	152	0	953	13,123
2054	2,324	591	0	0	933	3,848
2055	2,246	354	0	0	933	3,533
2056	2,370	709	0	0	935	4,014
2057	2,246	354	0	0	933	3,533
2058	2,206	236	0	0	933	3,375
2059	2,285	473	0	0	933	3,691
2060	2,251	354	0	0	935	3,541
2061	2,285	473	0	0	933	3,691
2062	2,285	473	0	0	933	3,691
2063	2,285	473	0	0	933	3,691
2064	2,251	354	0	0	935	3,541
2065	2,285	473	0	0	933	3,691

TABLE 3.4 (continued)
SCENARIO 2
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	2,285	473	0	0	933	3,691
2067	2,246	354	0	0	933	3,533
2068	2,291	473	0	0	935	3,699
2069	2,285	473	0	0	933	3,691
2070	2,246	354	0	0	933	3,533
2071	2,285	473	0	0	933	3,691
2072	2,291	473	0	0	935	3,699
2073	2,246	354	0	0	933	3,533
2074	2,285	473	0	0	933	3,691
2075	2,573	1,335	0	0	933	4,841
2076	2,251	354	0	0	935	3,541
2077	2,242	1,259	0	0	10,830	14,330
2078	560	14	0	2	1,117	1,693
Total	471,673	187,619	23,130	54,335	96,170	832,926

Note: Columns may not add due to rounding

TABLE 3.5
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	17,130	1,230	1,277	22	1,974	21,634
2034	46,893	8,331	4,493	3,217	5,315	68,249
2035	49,761	47,408	3,416	20,766	7,356	128,707
2036	39,995	22,519	2,718	16,011	6,288	87,530
2037	27,809	14,690	1,859	7,219	4,508	56,084
2038	2,138	486	643	35	3,047	6,348
2039	3,742	5,299	643	35	3,047	12,765
2040	2,144	488	645	35	3,055	6,366
2041	5,346	10,112	643	35	3,047	19,182
2042	2,138	486	643	35	3,047	6,348
2043	5,346	10,112	643	35	3,047	19,182
2044	2,144	488	645	35	3,055	6,366
2045	5,346	10,112	643	35	3,047	19,182
2046	2,138	486	643	35	3,047	6,348
2047	5,346	10,112	643	35	3,047	19,182
2048	2,144	488	645	35	3,055	6,366
2049	10,350	15,591	756	653	3,128	30,477
2050	19,746	2,944	1,033	2,173	2,897	28,792
2051	13,865	3,443	435	15	1,299	19,057
2052	12,175	4,856	322	0	943	18,295
2053	6,846	2,282	152	0	888	10,168
2054	2,128	0	0	0	841	2,969
2055	2,128	0	0	0	841	2,969
2056	2,133	0	0	0	843	2,977
2057	2,128	0	0	0	841	2,969
2058	2,128	0	0	0	841	2,969
2059	2,128	0	0	0	841	2,969
2060	2,133	0	0	0	843	2,977
2061	2,128	0	0	0	841	2,969
2062	2,128	0	0	0	841	2,969
2063	2,128	0	0	0	841	2,969
2064	2,133	0	0	0	843	2,977
2065	2,128	0	0	0	841	2,969

TABLE 3.5 (continued)
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	2,128	0	0	0	841	2,969
2067	2,128	0	0	0	841	2,969
2068	2,133	0	0	0	843	2,977
2069	2,128	0	0	0	841	2,969
2070	2,128	0	0	0	841	2,969
2071	2,128	0	0	0	841	2,969
2072	2,133	0	0	0	843	2,977
2073	2,128	0	0	0	841	2,969
2074	2,128	0	0	0	841	2,969
2075	2,415	863	0	0	841	4,119
2076	2,133	0	0	0	843	2,977
2077	2,128	0	0	0	841	2,969
2078	2,128	0	0	0	841	2,969
2079	2,128	0	0	0	841	2,969
2080	2,133	0	0	0	843	2,977
2081	2,128	0	0	0	841	2,969
2082	2,128	0	0	0	841	2,969
2083	2,128	0	0	0	841	2,969
2084	2,133	0	0	0	843	2,977
2085	2,128	0	0	0	841	2,969
2086	2,128	0	0	0	841	2,969
2087	2,128	0	0	0	841	2,969
2088	2,133	0	0	0	843	2,977
2089	2,128	0	0	0	841	2,969
2090	2,128	0	0	0	841	2,969
2091	2,128	0	0	0	841	2,969
2092	2,133	0	0	0	843	2,977
2093	2,128	0	0	0	841	2,969
2094	2,128	0	0	0	841	2,969
2095	2,128	0	0	0	841	2,969
2096	2,133	0	0	0	843	2,977
2097	2,128	0	0	0	841	2,969
2098	2,128	0	0	0	841	2,969

TABLE 3.5 (continued)
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2099	2,128	0	0	0	841	2,969
2100	2,128	0	0	0	841	2,969
2101	2,128	0	0	0	841	2,969
2102	2,128	0	0	0	841	2,969
2103	2,128	0	0	0	841	2,969
2104	2,133	0	0	0	843	2,977
2105	2,128	0	0	0	841	2,969
2106	2,128	0	0	0	841	2,969
2107	2,128	0	0	0	841	2,969
2108	2,133	0	0	0	843	2,977
2109	2,128	0	0	0	841	2,969
2110	2,128	0	0	0	841	2,969
2111	2,128	0	0	0	841	2,969
2112	2,133	0	0	0	843	2,977
2113	2,128	0	0	0	841	2,969
2114	2,128	0	0	0	841	2,969
2115	2,415	863	0	0	841	4,119
2116	2,133	0	0	0	843	2,977
2117	2,128	0	0	0	841	2,969
2118	2,128	0	0	0	841	2,969
2119	2,128	0	0	0	841	2,969
2120	2,133	0	0	0	843	2,977
2121	2,128	0	0	0	841	2,969
2122	2,128	0	0	0	841	2,969
2123	2,128	0	0	0	841	2,969
2124	2,133	0	0	0	843	2,977
2125	2,128	0	0	0	841	2,969
2126	2,128	0	0	0	841	2,969
2127	2,128	0	0	0	841	2,969
2128	2,133	0	0	0	843	2,977
2129	2,128	0	0	0	841	2,969
2130	2,128	0	0	0	841	2,969
2131	2,128	0	0	0	841	2,969

TABLE 3.5 (continued)
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2132	2,133	0	0	0	843	2,977
2133	2,128	0	0	0	841	2,969
2134	2,128	0	0	0	841	2,969
2135	2,128	0	0	0	841	2,969
2136	2,133	0	0	0	843	2,977
2137	2,128	0	0	0	841	2,969
2138	2,128	0	0	0	841	2,969
2139	2,128	0	0	0	841	2,969
2140	2,133	0	0	0	843	2,977
2141	2,128	0	0	0	841	2,969
2142	2,128	0	0	0	841	2,969
2143	2,128	0	0	0	841	2,969
2144	2,133	0	0	0	843	2,977
2145	2,128	0	0	0	841	2,969
2146	2,128	0	0	0	841	2,969
2147	2,128	0	0	0	841	2,969
2148	2,133	0	0	0	843	2,977
2149	2,128	0	0	0	841	2,969
2150	2,128	0	0	0	841	2,969
2151	2,128	0	0	0	841	2,969
2152	2,133	0	0	0	843	2,977
2153	2,128	0	0	0	841	2,969
2154	2,128	0	0	0	841	2,969
2155	2,415	863	0	0	841	4,119
2156	2,133	0	0	0	843	2,977
2157	2,128	0	0	0	841	2,969
2158	2,128	0	0	0	841	2,969
2159	2,128	0	0	0	841	2,969
2160	2,133	0	0	0	843	2,977
2161	2,128	0	0	0	841	2,969
2162	2,128	0	0	0	841	2,969
2163	2,128	0	0	0	841	2,969
2164	2,133	0	0	0	843	2,977

TABLE 3.5 (continued)
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2165	2,128	0	0	0	841	2,969
2166	2,128	0	0	0	841	2,969
2167	2,128	0	0	0	841	2,969
2168	2,133	0	0	0	843	2,977
2169	2,128	0	0	0	841	2,969
2170	2,128	0	0	0	841	2,969
2171	2,128	0	0	0	841	2,969
2172	2,133	0	0	0	843	2,977
2173	2,128	0	0	0	841	2,969
2174	2,128	0	0	0	841	2,969
2175	2,128	0	0	0	841	2,969
2176	2,133	0	0	0	843	2,977
2177	2,128	0	0	0	841	2,969
2178	2,128	0	0	0	841	2,969
2179	2,128	0	0	0	841	2,969
2180	2,133	0	0	0	843	2,977
2181	2,128	0	0	0	841	2,969
2182	2,128	0	0	0	841	2,969
2183	2,128	0	0	0	841	2,969
2184	2,133	0	0	0	843	2,977
2185	2,128	0	0	0	841	2,969
2186	2,128	0	0	0	841	2,969
2187	2,128	0	0	0	841	2,969
2188	2,133	0	0	0	843	2,977
2189	2,128	0	0	0	841	2,969
2190	2,128	0	0	0	841	2,969
2191	2,206	236	0	0	943	3,386
2192	2,291	473	0	0	946	3,710
2193	2,285	473	0	0	943	3,701
2194	2,324	591	0	0	943	3,859
2195	2,533	1,217	0	0	943	4,694
2196	2,370	709	0	0	946	4,025
2197	2,246	354	0	0	943	3,544

TABLE 3.5 (continued)
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2198	2,206	236	0	0	943	3,386
2199	2,285	473	0	0	943	3,701
2200	2,246	354	0	0	943	3,544
2201	2,285	473	0	0	943	3,701
2202	2,285	473	0	0	943	3,701
2203	2,285	473	0	0	943	3,701
2204	2,251	354	0	0	946	3,552
2205	2,285	473	0	0	943	3,701
2206	2,285	473	0	0	943	3,701
2207	2,246	354	0	0	943	3,544
2208	2,291	473	0	0	946	3,710
2209	2,285	473	0	0	943	3,701
2210	2,246	354	0	0	943	3,544
2211	2,285	473	0	0	943	3,701
2212	2,291	473	0	0	946	3,710
2213	2,246	354	0	0	943	3,544
2214	2,285	473	0	0	943	3,701
2215	2,285	473	0	0	943	3,701
2216	2,251	354	0	0	946	3,552
2217	2,246	1,560	0	0	11,970	15,776
2218	562	14	0	2	1,125	1,703
Total	637,251	188,211	23,541	50,458	221,091	1,120,551

Note: Columns may not add due to rounding

TABLE 3.6
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	6,873	537	564	9	822	8,805
2035	45,154	20,295	3,779	1,449	4,840	75,517
2036	50,222	28,412	4,173	18,032	6,753	107,593
2037	54,418	32,418	2,815	18,462	6,431	114,545
2038	50,541	8,859	2,412	11,082	4,952	77,846
2039	17,552	6,516	895	1,611	3,266	29,842
2040	10,229	516	645	38	2,995	14,423
2041	13,410	10,140	643	38	2,986	27,217
2042	10,201	515	643	38	2,986	14,383
2043	13,410	10,140	643	38	2,986	27,217
2044	10,229	516	645	38	2,995	14,423
2045	13,410	10,140	643	38	2,986	27,217
2046	10,201	515	643	38	2,986	14,383
2047	13,410	10,140	643	38	2,986	27,217
2048	10,229	516	645	38	2,995	14,423
2049	18,063	15,758	756	768	3,026	38,371
2050	26,563	3,541	1,033	2,561	2,605	36,302
2051	18,528	4,787	435	15	1,201	24,966
2052	15,040	6,799	322	0	944	23,107
2053	8,193	3,195	152	0	889	12,429
2054	2,128	0	0	0	841	2,969
2055	2,128	0	0	0	841	2,969
2056	2,133	0	0	0	843	2,977
2057	2,128	0	0	0	841	2,969
2058	2,128	0	0	0	841	2,969
2059	2,128	0	0	0	841	2,969
2060	2,133	0	0	0	843	2,977
2061	2,128	0	0	0	841	2,969
2062	2,128	0	0	0	841	2,969
2063	2,128	0	0	0	841	2,969
2064	2,133	0	0	0	843	2,977
2065	2,128	0	0	0	841	2,969

TABLE 3.6 (continued)
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	2,128	0	0	0	841	2,969
2067	2,128	0	0	0	841	2,969
2068	2,133	0	0	0	843	2,977
2069	2,128	0	0	0	841	2,969
2070	2,128	0	0	0	841	2,969
2071	2,128	0	0	0	841	2,969
2072	2,133	0	0	0	843	2,977
2073	2,128	0	0	0	841	2,969
2074	2,128	0	0	0	841	2,969
2075	2,415	863	0	0	841	4,119
2076	2,133	0	0	0	843	2,977
2077	2,128	0	0	0	841	2,969
2078	2,128	0	0	0	841	2,969
2079	2,128	0	0	0	841	2,969
2080	2,133	0	0	0	843	2,977
2081	2,128	0	0	0	841	2,969
2082	2,128	0	0	0	841	2,969
2083	2,128	0	0	0	841	2,969
2084	2,133	0	0	0	843	2,977
2085	2,128	0	0	0	841	2,969
2086	2,128	0	0	0	841	2,969
2087	2,128	0	0	0	841	2,969
2088	2,133	0	0	0	843	2,977
2089	2,128	0	0	0	841	2,969
2090	2,128	0	0	0	841	2,969
2091	2,128	0	0	0	841	2,969
2092	2,133	0	0	0	843	2,977
2093	2,128	0	0	0	841	2,969
2094	2,128	0	0	0	841	2,969
2095	2,128	0	0	0	841	2,969
2096	2,133	0	0	0	843	2,977
2097	2,128	0	0	0	841	2,969
2098	2,128	0	0	0	841	2,969

TABLE 3.6 (continued)
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2099	2,128	0	0	0	841	2,969
2100	2,128	0	0	0	841	2,969
2101	2,128	0	0	0	841	2,969
2102	2,128	0	0	0	841	2,969
2103	2,128	0	0	0	841	2,969
2104	2,133	0	0	0	843	2,977
2105	2,128	0	0	0	841	2,969
2106	2,128	0	0	0	841	2,969
2107	2,128	0	0	0	841	2,969
2108	2,133	0	0	0	843	2,977
2109	2,128	0	0	0	841	2,969
2110	2,128	0	0	0	841	2,969
2111	2,128	0	0	0	841	2,969
2112	2,133	0	0	0	843	2,977
2113	2,128	0	0	0	841	2,969
2114	2,128	0	0	0	841	2,969
2115	2,415	863	0	0	841	4,119
2116	2,133	0	0	0	843	2,977
2117	2,128	0	0	0	841	2,969
2118	2,128	0	0	0	841	2,969
2119	2,128	0	0	0	841	2,969
2120	2,133	0	0	0	843	2,977
2121	2,128	0	0	0	841	2,969
2122	2,128	0	0	0	841	2,969
2123	2,128	0	0	0	841	2,969
2124	2,133	0	0	0	843	2,977
2125	2,128	0	0	0	841	2,969
2126	2,128	0	0	0	841	2,969
2127	2,128	0	0	0	841	2,969
2128	2,133	0	0	0	843	2,977
2129	2,128	0	0	0	841	2,969
2130	2,128	0	0	0	841	2,969
2131	2,128	0	0	0	841	2,969

TABLE 3.6 (continued)
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2132	2,133	0	0	0	843	2,977
2133	2,128	0	0	0	841	2,969
2134	2,128	0	0	0	841	2,969
2135	2,128	0	0	0	841	2,969
2136	2,133	0	0	0	843	2,977
2137	2,128	0	0	0	841	2,969
2138	2,128	0	0	0	841	2,969
2139	2,128	0	0	0	841	2,969
2140	2,133	0	0	0	843	2,977
2141	2,128	0	0	0	841	2,969
2142	2,128	0	0	0	841	2,969
2143	2,128	0	0	0	841	2,969
2144	2,133	0	0	0	843	2,977
2145	2,128	0	0	0	841	2,969
2146	2,128	0	0	0	841	2,969
2147	2,128	0	0	0	841	2,969
2148	2,133	0	0	0	843	2,977
2149	2,128	0	0	0	841	2,969
2150	2,128	0	0	0	841	2,969
2151	2,128	0	0	0	841	2,969
2152	2,133	0	0	0	843	2,977
2153	2,128	0	0	0	841	2,969
2154	2,128	0	0	0	841	2,969
2155	2,415	863	0	0	841	4,119
2156	2,133	0	0	0	843	2,977
2157	2,128	0	0	0	841	2,969
2158	2,128	0	0	0	841	2,969
2159	2,128	0	0	0	841	2,969
2160	2,133	0	0	0	843	2,977
2161	2,128	0	0	0	841	2,969
2162	2,128	0	0	0	841	2,969
2163	2,128	0	0	0	841	2,969
2164	2,133	0	0	0	843	2,977

TABLE 3.6 (continued)
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2165	2,128	0	0	0	841	2,969
2166	2,128	0	0	0	841	2,969
2167	2,128	0	0	0	841	2,969
2168	2,133	0	0	0	843	2,977
2169	2,128	0	0	0	841	2,969
2170	2,128	0	0	0	841	2,969
2171	2,128	0	0	0	841	2,969
2172	2,133	0	0	0	843	2,977
2173	2,128	0	0	0	841	2,969
2174	2,128	0	0	0	841	2,969
2175	2,128	0	0	0	841	2,969
2176	2,133	0	0	0	843	2,977
2177	2,128	0	0	0	841	2,969
2178	2,128	0	0	0	841	2,969
2179	2,128	0	0	0	841	2,969
2180	2,133	0	0	0	843	2,977
2181	2,128	0	0	0	841	2,969
2182	2,128	0	0	0	841	2,969
2183	2,128	0	0	0	841	2,969
2184	2,133	0	0	0	843	2,977
2185	2,128	0	0	0	841	2,969
2186	2,128	0	0	0	841	2,969
2187	2,128	0	0	0	841	2,969
2188	2,133	0	0	0	843	2,977
2189	2,128	0	0	0	841	2,969
2190	2,128	0	0	0	841	2,969
2191	2,206	236	0	0	943	3,386
2192	2,291	473	0	0	946	3,710
2193	2,285	473	0	0	943	3,701
2194	2,324	591	0	0	943	3,859
2195	2,533	1,217	0	0	943	4,694
2196	2,370	709	0	0	946	4,025
2197	2,246	354	0	0	943	3,544

TABLE 3.6 (continued)
SCENARIO 3
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2198	2,206	236	0	0	943	3,386
2199	2,285	473	0	0	943	3,701
2200	2,246	354	0	0	943	3,544
2201	2,285	473	0	0	943	3,701
2202	2,285	473	0	0	943	3,701
2203	2,285	473	0	0	943	3,701
2204	2,251	354	0	0	946	3,552
2205	2,285	473	0	0	943	3,701
2206	2,285	473	0	0	943	3,701
2207	2,246	354	0	0	943	3,544
2208	2,291	473	0	0	946	3,710
2209	2,285	473	0	0	943	3,701
2210	2,246	354	0	0	943	3,544
2211	2,285	473	0	0	943	3,701
2212	2,291	473	0	0	946	3,710
2213	2,246	354	0	0	943	3,544
2214	2,285	473	0	0	943	3,701
2215	2,285	473	0	0	943	3,701
2216	2,251	354	0	0	946	3,552
2217	2,246	1,259	0	0	10,836	14,340
2218	562	14	0	2	361	939
Total	770,585	190,206	23,130	54,335	214,455	1,252,710

Note: Columns may not add due to rounding

TABLE 3.7
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	17,130	1,230	1,277	22	1,974	21,634
2034	46,893	8,331	4,493	3,217	5,315	68,249
2035	49,761	47,408	3,416	20,766	7,356	128,707
2036	39,995	22,519	2,718	16,011	6,288	87,530
2037	27,809	14,690	1,859	7,219	4,508	56,084
2038	2,138	486	643	35	3,047	6,348
2039	3,742	5,299	643	35	3,047	12,765
2040	2,144	488	645	35	3,055	6,366
2041	5,346	10,112	643	35	3,047	19,182
2042	2,138	486	643	35	3,047	6,348
2043	5,346	10,112	643	35	3,047	19,182
2044	2,144	488	645	35	3,055	6,366
2045	5,346	10,112	643	35	3,047	19,182
2046	2,138	486	643	35	3,047	6,348
2047	5,346	10,112	643	35	3,047	19,182
2048	2,144	488	645	35	3,055	6,366
2049	10,350	15,591	756	653	3,128	30,477
2050	19,746	2,944	1,033	2,173	2,897	28,792
2051	13,865	3,443	435	15	1,299	19,057
2052	12,175	4,856	322	0	943	18,295
2053	6,846	2,282	152	0	888	10,168
2054	2,128	0	0	0	841	2,969
2055	2,128	0	0	0	841	2,969
2056	2,133	0	0	0	843	2,977
2057	2,128	0	0	0	841	2,969
2058	2,128	0	0	0	841	2,969
2059	2,128	0	0	0	841	2,969
2060	2,133	0	0	0	843	2,977
2061	2,128	0	0	0	841	2,969
2062	2,128	0	0	0	841	2,969
2063	2,128	0	0	0	841	2,969
2064	2,133	0	0	0	843	2,977
2065	2,128	0	0	0	841	2,969

TABLE 3.7 (continued)
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	2,128	0	0	0	841	2,969
2067	2,128	0	0	0	841	2,969
2068	2,133	0	0	0	843	2,977
2069	2,128	0	0	0	841	2,969
2070	2,128	0	0	0	841	2,969
2071	2,128	0	0	0	841	2,969
2072	2,133	0	0	0	843	2,977
2073	2,128	0	0	0	841	2,969
2074	2,128	0	0	0	841	2,969
2075	2,415	863	0	0	841	4,119
2076	2,133	0	0	0	843	2,977
2077	2,128	0	0	0	841	2,969
2078	2,128	0	0	0	841	2,969
2079	2,128	0	0	0	841	2,969
2080	2,133	0	0	0	843	2,977
2081	2,128	0	0	0	841	2,969
2082	2,128	0	0	0	841	2,969
2083	2,128	0	0	0	841	2,969
2084	2,133	0	0	0	843	2,977
2085	2,128	0	0	0	841	2,969
2086	2,128	0	0	0	841	2,969
2087	2,128	0	0	0	841	2,969
2088	2,133	0	0	0	843	2,977
2089	2,128	0	0	0	841	2,969
2090	2,128	0	0	0	841	2,969
2091	2,128	0	0	0	841	2,969
2092	2,133	0	0	0	843	2,977
2093	3,598	4,412	0	0	841	8,851
2094	2,128	0	0	0	841	2,969
2095	4,652	7,574	0	638	905	13,769
2096	3,816	5,049	0	425	886	10,177
2097	3,811	5,049	0	425	884	10,169
2098	2,128	0	0	0	841	2,969

TABLE 3.7 (continued)
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2099	3,811	5,049	0	425	884	10,169
2100	4,652	7,574	0	638	905	13,769
2101	3,811	5,049	0	425	884	10,169
2102	4,652	7,574	0	638	905	13,769
2103	2,128	0	0	0	841	2,969
2104	2,133	0	0	0	843	2,977
2105	4,652	7,574	0	638	905	13,769
2106	3,811	5,049	0	425	884	10,169
2107	3,811	5,049	0	425	884	10,169
2108	2,133	0	0	0	843	2,977
2109	4,652	7,574	0	638	905	13,769
2110	3,811	5,049	0	425	884	10,169
2111	4,652	7,574	0	638	905	13,769
2112	4,658	7,574	0	638	907	13,777
2113	2,128	0	0	0	841	2,969
2114	3,811	5,049	0	425	884	10,169
2115	2,415	863	0	0	841	4,119
2116	4,658	7,574	0	638	907	13,777
2117	3,811	5,049	0	425	884	10,169
2118	2,128	0	0	0	841	2,969
2119	4,652	7,574	0	638	905	13,769
2120	3,816	5,049	0	425	886	10,177
2121	2,128	0	0	0	841	2,969
2122	3,811	5,049	0	425	884	10,169
2123	4,652	7,574	0	638	905	13,769
2124	2,133	0	0	0	843	2,977
2125	3,811	5,049	0	425	884	10,169
2126	4,652	7,574	0	638	905	13,769
2127	2,128	0	0	0	841	2,969
2128	3,816	5,049	0	425	886	10,177
2129	3,811	5,049	0	425	884	10,169
2130	2,128	0	0	0	841	2,969
2131	2,969	2,525	0	213	862	6,569

TABLE 3.7 (continued)
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2132	2,133	0	0	0	843	2,977
2133	2,128	0	0	0	841	2,969
2134	3,811	5,049	0	425	884	10,169
2135	7,177	15,147	0	1,276	969	24,569
2136	2,133	0	0	0	843	2,977
2137	5,494	10,098	0	851	926	17,369
2138	2,128	0	0	0	841	2,969
2139	3,811	5,049	0	425	884	10,169
2140	2,133	0	0	0	843	2,977
2141	5,494	10,098	0	851	926	17,369
2142	2,128	0	0	0	841	2,969
2143	5,494	10,098	0	851	926	17,369
2144	2,133	0	0	0	843	2,977
2145	5,494	10,098	0	851	926	17,369
2146	2,128	0	0	0	841	2,969
2147	5,494	10,098	0	851	926	17,369
2148	2,133	0	0	0	843	2,977
2149	7,177	15,147	0	1,276	969	24,569
2150	2,128	0	0	0	841	2,969
2151	2,128	0	0	0	841	2,969
2152	2,133	0	0	0	843	2,977
2153	2,128	0	0	0	841	2,969
2154	2,128	0	0	0	841	2,969
2155	2,415	863	0	0	841	4,119
2156	2,133	0	0	0	843	2,977
2157	2,128	0	0	0	841	2,969
2158	2,128	0	0	0	841	2,969
2159	2,128	0	0	0	841	2,969
2160	2,133	0	0	0	843	2,977
2161	2,128	0	0	0	841	2,969
2162	2,128	0	0	0	841	2,969
2163	2,128	0	0	0	841	2,969
2164	2,133	0	0	0	843	2,977

TABLE 3.7 (continued)
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2165	2,128	0	0	0	841	2,969
2166	2,128	0	0	0	841	2,969
2167	2,128	0	0	0	841	2,969
2168	2,133	0	0	0	843	2,977
2169	2,128	0	0	0	841	2,969
2170	2,128	0	0	0	841	2,969
2171	2,128	0	0	0	841	2,969
2172	2,133	0	0	0	843	2,977
2173	2,128	0	0	0	841	2,969
2174	2,128	0	0	0	841	2,969
2175	2,128	0	0	0	841	2,969
2176	2,133	0	0	0	843	2,977
2177	2,128	0	0	0	841	2,969
2178	2,128	0	0	0	841	2,969
2179	2,128	0	0	0	841	2,969
2180	2,133	0	0	0	843	2,977
2181	2,128	0	0	0	841	2,969
2182	2,128	0	0	0	841	2,969
2183	2,128	0	0	0	841	2,969
2184	2,133	0	0	0	843	2,977
2185	2,128	0	0	0	841	2,969
2186	2,128	0	0	0	841	2,969
2187	2,128	0	0	0	841	2,969
2188	2,133	0	0	0	843	2,977
2189	2,128	0	0	0	841	2,969
2190	2,128	0	0	0	841	2,969
2191	2,206	236	0	0	943	3,386
2192	2,291	473	0	0	946	3,710
2193	2,285	473	0	0	943	3,701
2194	2,324	591	0	0	943	3,859
2195	2,533	1,217	0	0	943	4,694
2196	2,370	709	0	0	946	4,025
2197	2,246	354	0	0	943	3,544

TABLE 3.7 (continued)
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2198	2,206	236	0	0	943	3,386
2199	2,285	473	0	0	943	3,701
2200	2,246	354	0	0	943	3,544
2201	2,285	473	0	0	943	3,701
2202	2,285	473	0	0	943	3,701
2203	2,285	473	0	0	943	3,701
2204	2,251	354	0	0	946	3,552
2205	2,285	473	0	0	943	3,701
2206	2,285	473	0	0	943	3,701
2207	2,246	354	0	0	943	3,544
2208	2,291	473	0	0	946	3,710
2209	2,285	473	0	0	943	3,701
2210	2,246	354	0	0	943	3,544
2211	2,285	473	0	0	943	3,701
2212	2,291	473	0	0	946	3,710
2213	2,246	354	0	0	943	3,544
2214	2,285	473	0	0	943	3,701
2215	2,285	473	0	0	943	3,701
2216	2,251	354	0	0	946	3,552
2217	2,246	1,560	0	0	11,970	15,776
2218	519	226	0	2	1,125	1,872
Total	721,146	440,240	23,541	71,304	223,172	1,479,403

Note: Columns may not add due to rounding

TABLE 3.8
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	6,873	537	564	9	822	8,805
2035	45,154	20,295	3,779	1,449	4,840	75,517
2036	50,222	28,412	4,173	18,032	6,753	107,593
2037	54,418	32,418	2,815	18,462	6,431	114,545
2038	50,541	8,859	2,412	11,082	4,952	77,846
2039	17,552	6,516	895	1,611	3,266	29,842
2040	10,229	516	645	38	2,995	14,423
2041	13,410	10,140	643	38	2,986	27,217
2042	10,201	515	643	38	2,986	14,383
2043	13,410	10,140	643	38	2,986	27,217
2044	10,229	516	645	38	2,995	14,423
2045	13,410	10,140	643	38	2,986	27,217
2046	10,201	515	643	38	2,986	14,383
2047	13,410	10,140	643	38	2,986	27,217
2048	10,229	516	645	38	2,995	14,423
2049	18,063	15,758	756	768	3,026	38,371
2050	26,563	3,541	1,033	2,561	2,605	36,302
2051	18,528	4,787	435	15	1,201	24,966
2052	15,040	6,799	322	0	944	23,107
2053	8,193	3,195	152	0	889	12,429
2054	2,128	0	0	0	841	2,969
2055	2,128	0	0	0	841	2,969
2056	2,133	0	0	0	843	2,977
2057	2,128	0	0	0	841	2,969
2058	2,128	0	0	0	841	2,969
2059	2,128	0	0	0	841	2,969
2060	2,133	0	0	0	843	2,977
2061	2,128	0	0	0	841	2,969
2062	2,128	0	0	0	841	2,969
2063	2,128	0	0	0	841	2,969
2064	2,133	0	0	0	843	2,977
2065	2,128	0	0	0	841	2,969

TABLE 3.8 (continued)
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	2,128	0	0	0	841	2,969
2067	2,128	0	0	0	841	2,969
2068	2,133	0	0	0	843	2,977
2069	2,128	0	0	0	841	2,969
2070	2,128	0	0	0	841	2,969
2071	2,128	0	0	0	841	2,969
2072	2,133	0	0	0	843	2,977
2073	2,128	0	0	0	841	2,969
2074	2,128	0	0	0	841	2,969
2075	2,415	863	0	0	841	4,119
2076	2,133	0	0	0	843	2,977
2077	2,128	0	0	0	841	2,969
2078	2,128	0	0	0	841	2,969
2079	2,128	0	0	0	841	2,969
2080	2,133	0	0	0	843	2,977
2081	2,128	0	0	0	841	2,969
2082	2,128	0	0	0	841	2,969
2083	2,128	0	0	0	841	2,969
2084	2,133	0	0	0	843	2,977
2085	2,128	0	0	0	841	2,969
2086	2,128	0	0	0	841	2,969
2087	2,128	0	0	0	841	2,969
2088	2,133	0	0	0	843	2,977
2089	2,128	0	0	0	841	2,969
2090	2,128	0	0	0	841	2,969
2091	2,128	0	0	0	841	2,969
2092	2,133	0	0	0	843	2,977
2093	3,598	4,412	0	0	841	8,851
2094	2,128	0	0	0	841	2,969
2095	4,652	7,574	0	638	905	13,769
2096	3,816	5,049	0	425	886	10,177
2097	3,811	5,049	0	425	884	10,169
2098	2,128	0	0	0	841	2,969

TABLE 3.8 (continued)
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2099	3,811	5,049	0	425	884	10,169
2100	4,652	7,574	0	638	905	13,769
2101	3,811	5,049	0	425	884	10,169
2102	4,652	7,574	0	638	905	13,769
2103	2,128	0	0	0	841	2,969
2104	2,133	0	0	0	843	2,977
2105	4,652	7,574	0	638	905	13,769
2106	3,811	5,049	0	425	884	10,169
2107	3,811	5,049	0	425	884	10,169
2108	2,133	0	0	0	843	2,977
2109	4,652	7,574	0	638	905	13,769
2110	3,811	5,049	0	425	884	10,169
2111	4,652	7,574	0	638	905	13,769
2112	4,658	7,574	0	638	907	13,777
2113	2,128	0	0	0	841	2,969
2114	3,811	5,049	0	425	884	10,169
2115	2,415	863	0	0	841	4,119
2116	4,658	7,574	0	638	907	13,777
2117	3,811	5,049	0	425	884	10,169
2118	2,128	0	0	0	841	2,969
2119	4,652	7,574	0	638	905	13,769
2120	3,816	5,049	0	425	886	10,177
2121	2,128	0	0	0	841	2,969
2122	3,811	5,049	0	425	884	10,169
2123	4,652	7,574	0	638	905	13,769
2124	2,133	0	0	0	843	2,977
2125	3,811	5,049	0	425	884	10,169
2126	4,652	7,574	0	638	905	13,769
2127	2,128	0	0	0	841	2,969
2128	3,816	5,049	0	425	886	10,177
2129	3,811	5,049	0	425	884	10,169
2130	2,128	0	0	0	841	2,969
2131	2,969	2,525	0	213	862	6,569

TABLE 3.8 (continued)
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2132	2,133	0	0	0	843	2,977
2133	2,128	0	0	0	841	2,969
2134	3,811	5,049	0	425	884	10,169
2135	7,177	15,147	0	1,276	969	24,569
2136	2,133	0	0	0	843	2,977
2137	5,494	10,098	0	851	926	17,369
2138	2,128	0	0	0	841	2,969
2139	3,811	5,049	0	425	884	10,169
2140	2,133	0	0	0	843	2,977
2141	5,494	10,098	0	851	926	17,369
2142	2,128	0	0	0	841	2,969
2143	5,494	10,098	0	851	926	17,369
2144	2,133	0	0	0	843	2,977
2145	5,494	10,098	0	851	926	17,369
2146	2,128	0	0	0	841	2,969
2147	5,494	10,098	0	851	926	17,369
2148	2,133	0	0	0	843	2,977
2149	7,177	15,147	0	1,276	969	24,569
2150	2,128	0	0	0	841	2,969
2151	2,128	0	0	0	841	2,969
2152	2,133	0	0	0	843	2,977
2153	2,128	0	0	0	841	2,969
2154	2,128	0	0	0	841	2,969
2155	2,415	863	0	0	841	4,119
2156	2,133	0	0	0	843	2,977
2157	2,128	0	0	0	841	2,969
2158	2,128	0	0	0	841	2,969
2159	2,128	0	0	0	841	2,969
2160	2,133	0	0	0	843	2,977
2161	2,128	0	0	0	841	2,969
2162	2,128	0	0	0	841	2,969
2163	2,128	0	0	0	841	2,969
2164	2,133	0	0	0	843	2,977

TABLE 3.8 (continued)
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2165	2,128	0	0	0	841	2,969
2166	2,128	0	0	0	841	2,969
2167	2,128	0	0	0	841	2,969
2168	2,133	0	0	0	843	2,977
2169	2,128	0	0	0	841	2,969
2170	2,128	0	0	0	841	2,969
2171	2,128	0	0	0	841	2,969
2172	2,133	0	0	0	843	2,977
2173	2,128	0	0	0	841	2,969
2174	2,128	0	0	0	841	2,969
2175	2,128	0	0	0	841	2,969
2176	2,133	0	0	0	843	2,977
2177	2,128	0	0	0	841	2,969
2178	2,128	0	0	0	841	2,969
2179	2,128	0	0	0	841	2,969
2180	2,133	0	0	0	843	2,977
2181	2,128	0	0	0	841	2,969
2182	2,128	0	0	0	841	2,969
2183	2,128	0	0	0	841	2,969
2184	2,133	0	0	0	843	2,977
2185	2,128	0	0	0	841	2,969
2186	2,128	0	0	0	841	2,969
2187	2,128	0	0	0	841	2,969
2188	2,133	0	0	0	843	2,977
2189	2,128	0	0	0	841	2,969
2190	2,128	0	0	0	841	2,969
2191	2,206	236	0	0	943	3,386
2192	2,291	473	0	0	946	3,710
2193	2,285	473	0	0	943	3,701
2194	2,324	591	0	0	943	3,859
2195	2,533	1,217	0	0	943	4,694
2196	2,370	709	0	0	946	4,025
2197	2,246	354	0	0	943	3,544

TABLE 3.8 (continued)
SCENARIO 4
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2
SCHEDULE OF TOTAL ANNUAL EXPENDITURES
(thousands, 2011 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2198	2,206	236	0	0	943	3,386
2199	2,285	473	0	0	943	3,701
2200	2,246	354	0	0	943	3,544
2201	2,285	473	0	0	943	3,701
2202	2,285	473	0	0	943	3,701
2203	2,285	473	0	0	943	3,701
2204	2,251	354	0	0	946	3,552
2205	2,285	473	0	0	943	3,701
2206	2,285	473	0	0	943	3,701
2207	2,246	354	0	0	943	3,544
2208	2,291	473	0	0	946	3,710
2209	2,285	473	0	0	943	3,701
2210	2,246	354	0	0	943	3,544
2211	2,285	473	0	0	943	3,701
2212	2,291	473	0	0	946	3,710
2213	2,246	354	0	0	943	3,544
2214	2,285	473	0	0	943	3,701
2215	2,285	473	0	0	943	3,701
2216	2,251	354	0	0	946	3,552
2217	2,246	1,259	0	0	10,836	14,340
2218	519	226	0	2	1,125	1,872
Total	854,480	442,235	23,130	75,181	216,536	1,611,562

Note: Columns may not add due to rounding

4. SCHEDULE ESTIMATE

The schedule for the decommissioning scenario considered in this study follows the sequence presented in the AIF/NESP-036 study, with minor changes to reflect recent experience and site-specific constraints. In addition, the scheduling has been revised to reflect the spent fuel management plan described in Section 3.5.1.

A schedule or sequence of activities for the DECON alternative (without the post-decommissioning ISFSI operating period) is presented in Figure 4.1. The scheduling sequence assumes that fuel is removed from the spent fuel pool approximately twelve years following the permanent cessation of plant operations. The key activities listed in the schedule do not reflect a one-to-one correspondence with those activities in the cost table, but reflect dividing some activities for clarity and combining others for convenience. The schedule was prepared using the "Microsoft Project Professional 2010" computer software.[31]

4.1 SCHEDULE ESTIMATE ASSUMPTIONS

The schedule reflects the results of a precedence network developed for the site decommissioning activities, i.e., a PERT (Program Evaluation and Review Technique) Software Package. The work activity durations used in the precedence network reflect the actual man-hour estimates from the cost table, adjusted by stretching certain activities over their slack range and shifting the start and end dates of others. The following assumptions were made in the development of the decommissioning schedule:

- The fuel handling area of the auxiliary building is isolated until such time that all spent fuel has been discharged from the spent fuel pool to the ISFSI. Decontamination and dismantling of the storage pool is initiated once the transfer of spent fuel is complete.
- All work (except vessel and internals removal) is performed during an 8-hour workday, 5 days per week, with no overtime. There are eleven paid holidays per year.
- Reactor and internals removal activities are performed by using separate crews for different activities working on different shifts, with a corresponding backshift charge for the second shift.
- Multiple crews work parallel activities to the maximum extent possible, consistent with optimum efficiency, adequate access for cutting, removal and laydown space, and with the stringent safety measures necessary during demolition of heavy components and structures.

- For plant systems removal, the systems with the longest removal durations in areas on the critical path are considered to determine the duration of the activity.

4.2 PROJECT SCHEDULE

The period-dependent costs presented in Appendices C through F are based upon the durations developed in the schedules for decommissioning. Durations are established between several milestones in each project period; these durations are used to establish a critical path for the entire project. In turn, the critical path duration for each period is used as the basis for determining the period-dependent costs. A second critical path is shown for the spent fuel storage period, which determines the release of the auxiliary building for final decontamination. Project timelines are provided in Figures 4.2 through 4.4.

FIGURE 4.1
ACTIVITY SCHEDULE

FIGURE 4.1
ACTIVITY SCHEDULE
(continued)

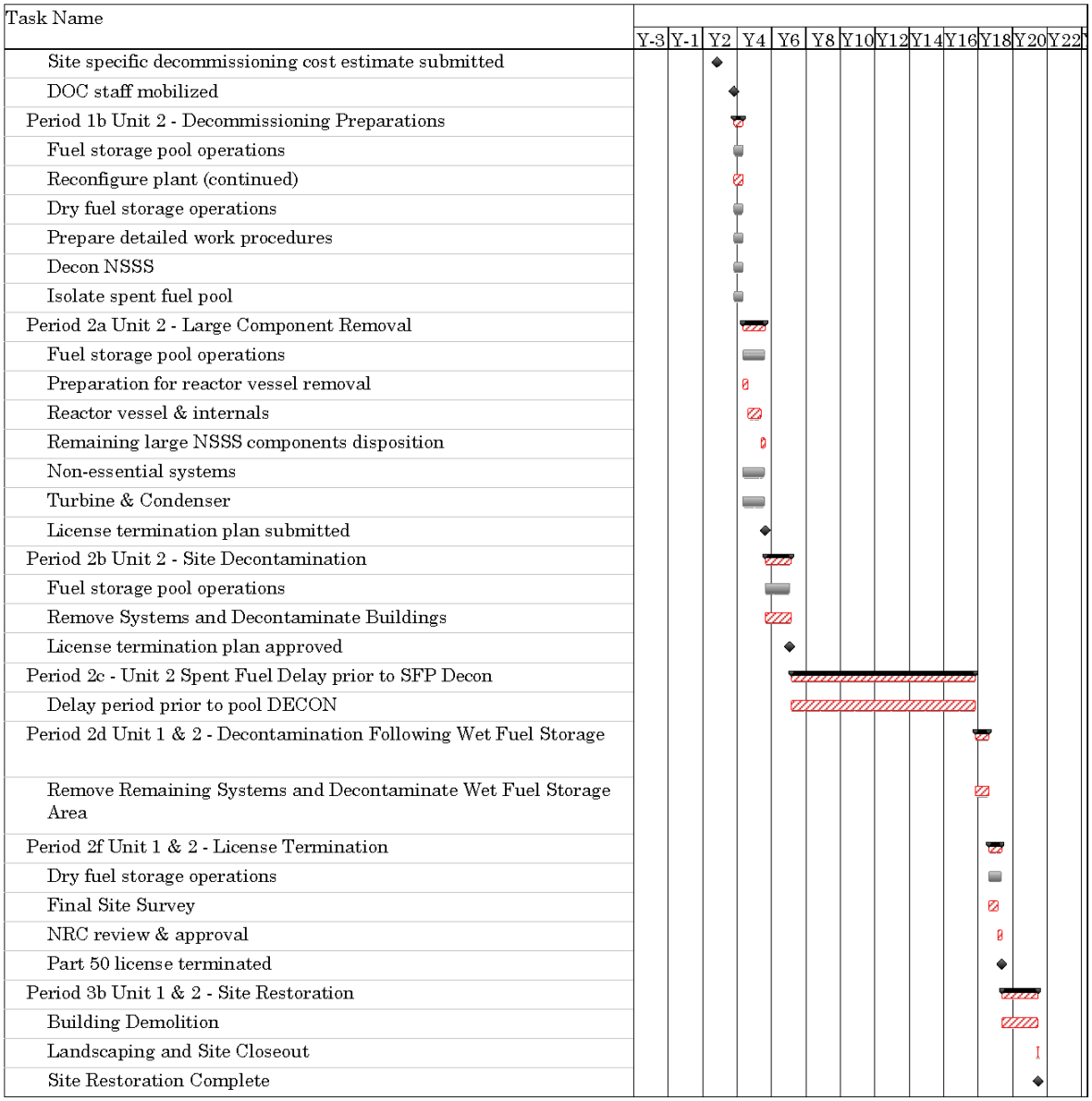


FIGURE 4.2
SCENARIO 1 DECOMMISSIONING TIMELINES
(not to scale)

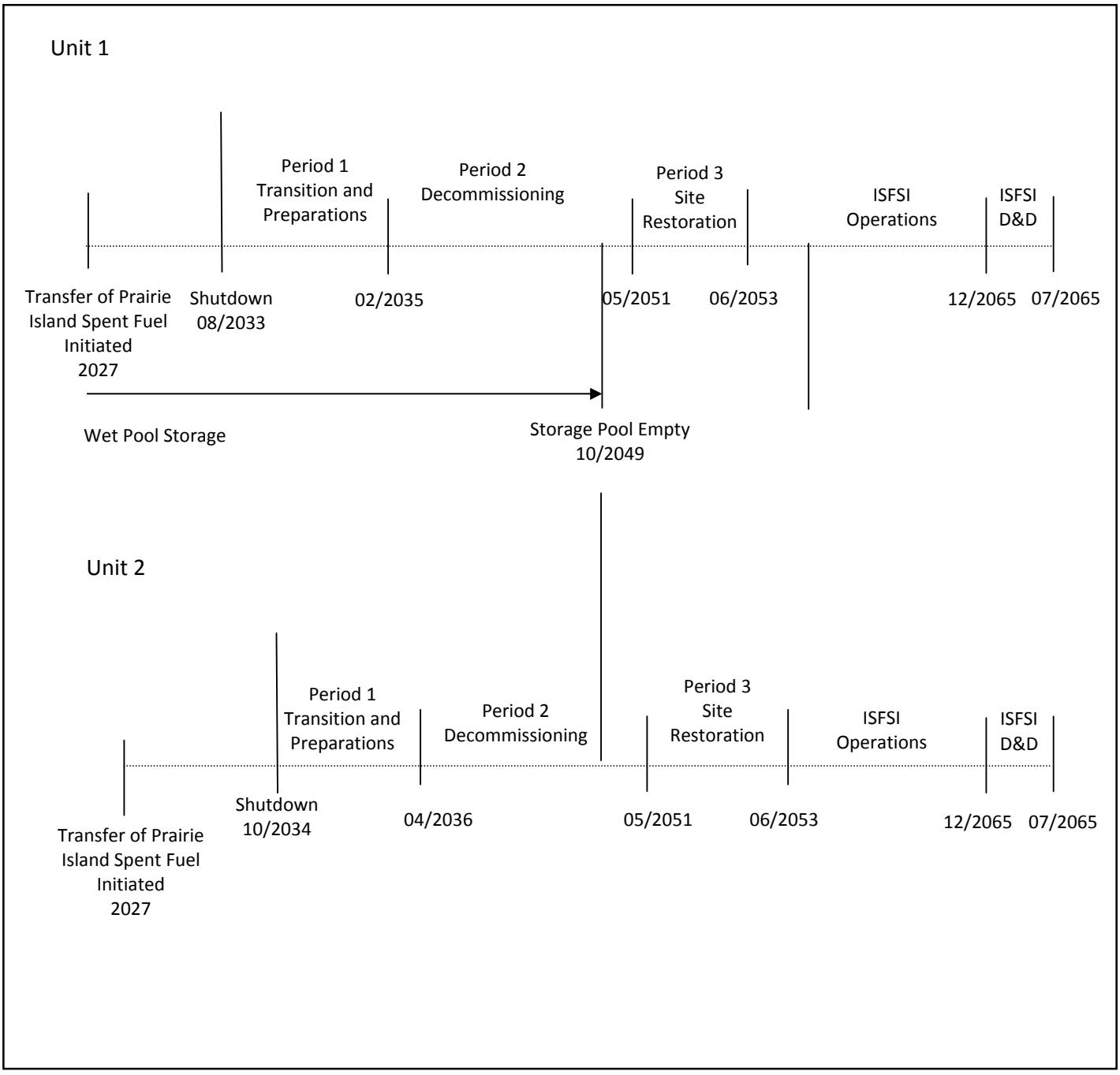


FIGURE 4.3
SCENARIO 2 DECOMMISSIONING TIMELINES
(not to scale)

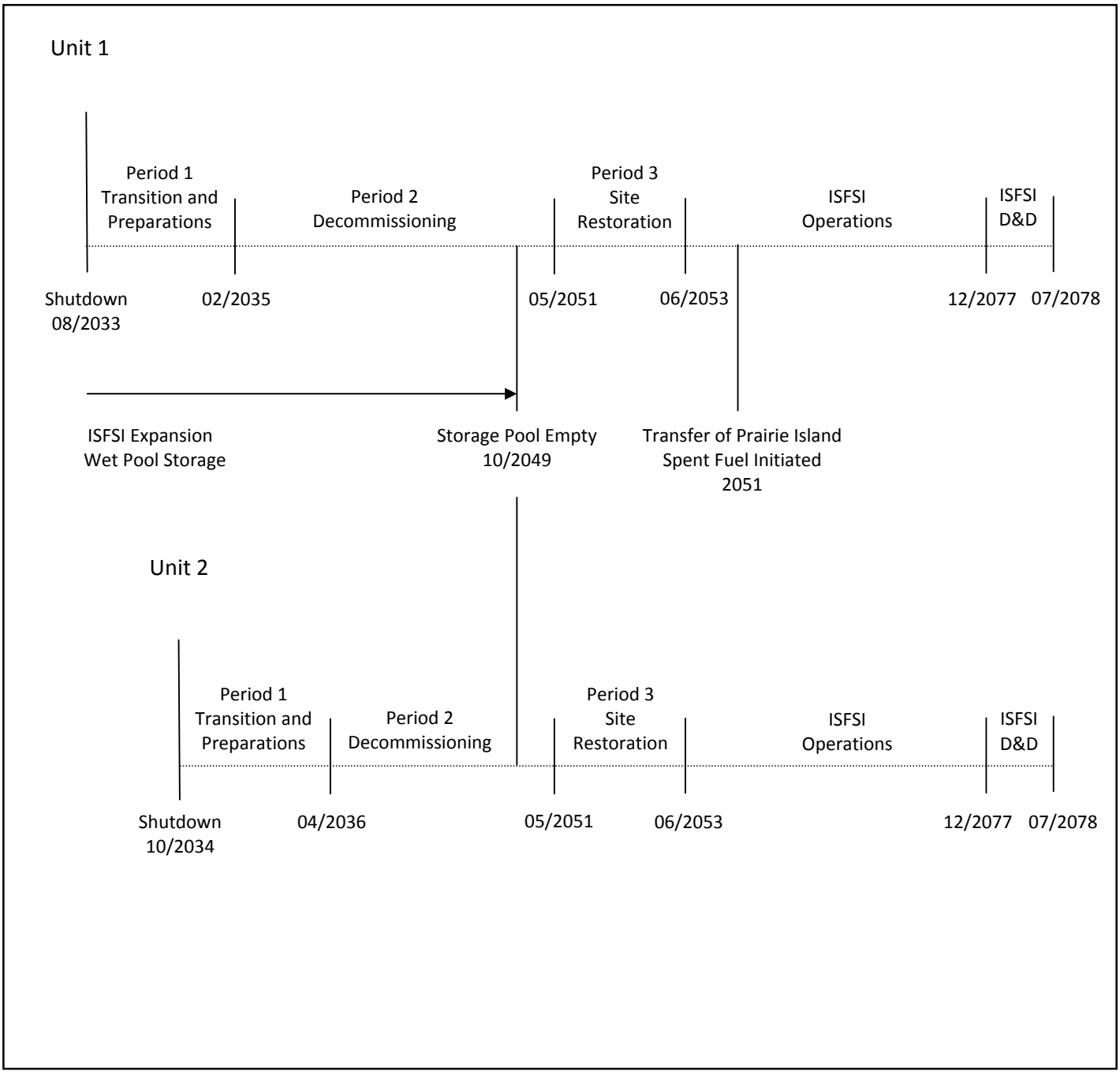
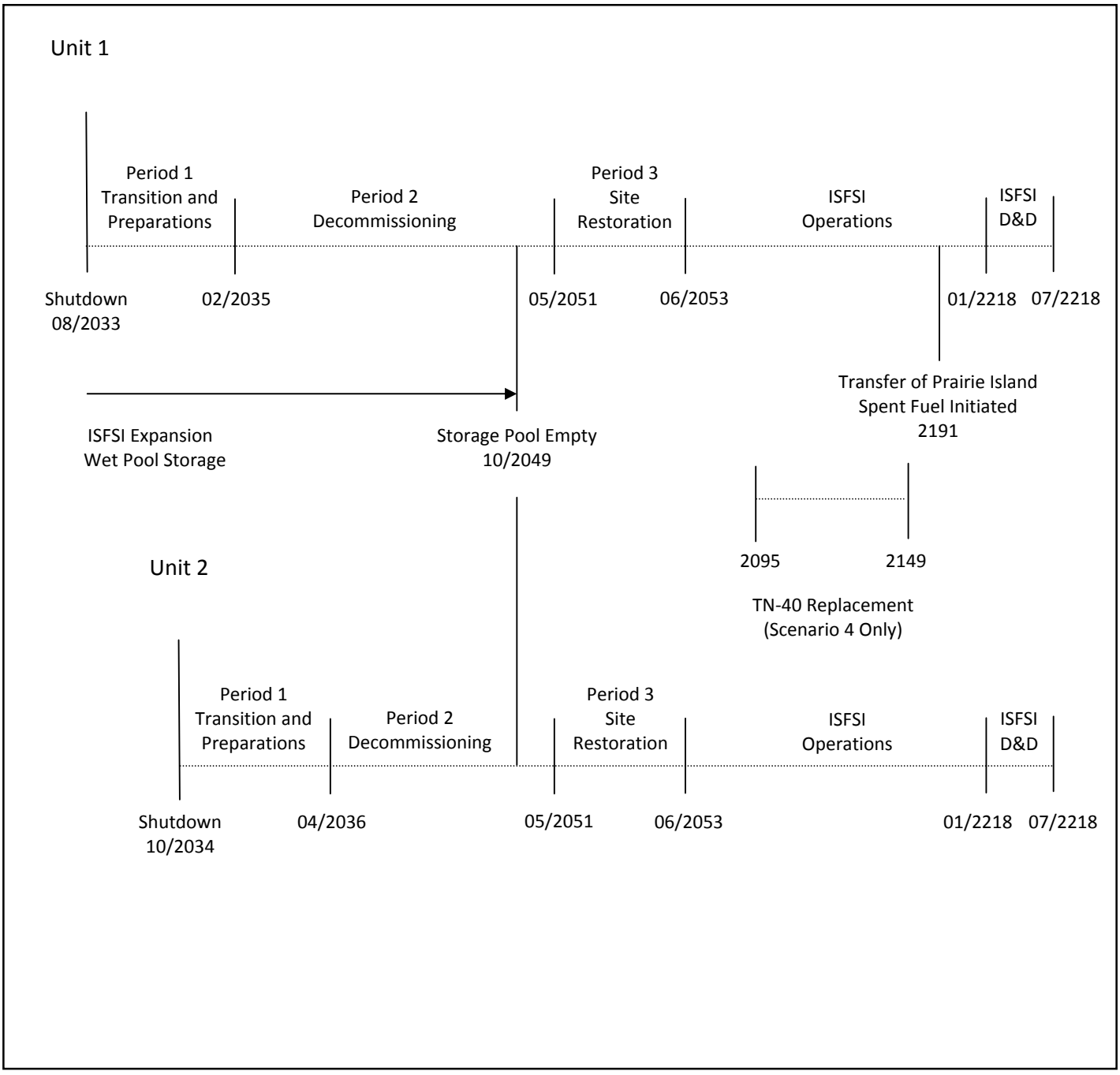


FIGURE 4.4
SCENARIOS 3 AND 4 DECOMMISSIONING TIMELINES
(not to scale)



5. RADIOACTIVE WASTES

The objectives of the decommissioning process are the removal of all radioactive material from the site that would restrict its future use and the termination of the NRC license. This currently requires the remediation of all radioactive material at the site in excess of applicable legal limits. Under the Atomic Energy Act,[32] the NRC is responsible for protecting the public from sources of ionizing radiation. Title 10 of the Code of Federal Regulations delineates the production, utilization, and disposal of radioactive materials and processes. In particular, Part 71 defines radioactive material as it pertains to transportation and Part 61 specifies its disposition.

Most of the materials being transported for controlled burial are categorized as Low Specific Activity (LSA) or Surface Contaminated Object (SCO) materials containing Type A quantities, as defined in 49 CFR Parts 173-178. Shipping containers are required to be Industrial Packages (IP-1, IP-2 or IP-3, as defined in 10 CFR §173.411). For this study, commercially available steel containers are presumed to be used for the disposal of piping, small components, and concrete. Larger components can serve as their own containers, with proper closure of all openings, access ways, and penetrations.

The volumes of radioactive waste generated during the various decommissioning activities at the site are shown on a line-item basis in Appendices C through F, and summarized in Tables 5.1, 5.2 and 5.3. The quantified waste volume summaries shown in these tables are consistent with Part 61 classifications. The volumes are calculated based on the exterior dimensions for containerized material and on the displaced volume of components serving as their own waste containers.

The reactor vessel and internals are categorized as large quantity shipments and, accordingly, will be shipped in reusable, shielded truck casks with disposable liners. In calculating disposal costs, the burial fees are applied against the liner volume, as well as the special handling requirements of the payload. Packaging efficiencies are lower for the highly activated materials (greater than Type A quantity waste), where high concentrations of gamma-emitting radionuclides limit the capacity of the shipping canisters.

No process system containing/handling radioactive substances at shutdown is presumed to meet material release criteria by decay alone (i.e., systems radioactive at shutdown will still be radioactive over the time period during which the decommissioning is accomplished, due to the presence of long-lived radionuclides).

While the dose rates decrease with time, radionuclides such as ^{137}Cs will still control the disposition requirements.

The waste material produced in the decontamination and dismantling of the nuclear units is primarily generated during Period 2. Material that is considered potentially contaminated when removed from the radiological controlled area is sent to processing facilities in Tennessee for conditioning and disposal. Heavily contaminated components and activated materials are routed for controlled disposal. The disposal volumes reported in the tables reflect the savings resulting from reprocessing and recycling.

For purposes of constructing the estimates, the cost for disposal at the Energy*Solutions* facility was used as a proxy for future disposal facilities. Separate rates were used for containerized waste and large components, including the steam generators and reactor coolant pump motors. Demolition debris including miscellaneous steel, scaffolding, and concrete was disposed of at a bulk rate. The decommissioning waste stream also included resins and dry active waste.

Since Energy*Solutions* is not currently able to receive the more highly radioactive components generated in the decontamination and dismantling of the reactor, disposal costs for the Class B and C material were based upon the last available published disposal rates for Barnwell for non-Atlantic Compact members. Additional surcharges were included for activity, dose rate, and/or handling added as appropriate for the particular package.

A small quantity of material will be generated during the Prairie Island decommissioning that is not considered suitable for near-surface disposal, and is assumed to be disposed of in a geologic repository, in a manner similar to that envisioned for spent fuel disposal. Such material, known as Greater-Than-Class-C or GTCC material, is estimated to require seven spent fuel storage canisters (or the equivalent) to dispose of the most radioactive portions of the two reactor vessel internals. The volume and weight reported in Tables 5.1, 5.2 and 5.3 represent the packaged weight and volume of the spent fuel storage canisters.

TABLE 5.1
SCENARIO 1
DECOMMISSIONING WASTE SUMMARY

Waste	Cost Basis	Class [1]	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	Energy*Solutions*	A	167,329	10,392,451
	Barnwell	B	2,288	252,268
	Barnwell	C	1,837	226,842
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	6,517	1,516,119
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	302,683	12,378,449
Total [2]			480,654	24,766,129

[1] Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55
[2] Columns may not add due to rounding.

TABLE 5.2
SCENARIOS 2 and 3
DECOMMISSIONING WASTE SUMMARY

Waste	Cost Basis	Class [1]	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	Energy*Solutions*	A	167,343	10,392,726
	Barnwell	B	2,288	252,268
	Barnwell	C	1,837	226,842
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	6,517	1,516,119
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	302,683	12,378,449
Total [2]			480,668	24,766,404

[1] Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55
[2] Columns may not add due to rounding.

TABLE 5.3
SCENARIO 4
DECOMMISSIONING WASTE SUMMARY

Waste	Cost Basis	Class [1]	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	Energy*Solutions*	A	284,205	28,914,735
	Barnwell	B	2,288	252,268
	Barnwell	C	1,837	226,842
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	6,517	1,516,119
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	302,683	12,378,449
Total [2]			597,530	43,288,413

[1] Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55
[2] Columns may not add due to rounding.

6. RESULTS

The cost projected to promptly decommission the two Prairie Island nuclear units is estimated to be $1,441 million (Scenario 1). The estimates are based on numerous fundamental assumptions, including regulatory requirements, low-level radioactive waste disposal practices, high-level waste management considerations, and project contingencies.

The primary cost contributors, identified in Tables 6.1 through 6.4, are either labor-related or associated with the management and disposition of the radioactive waste. Program management is the largest single contributor to the overall cost. The magnitude of the expense is a function of both the size of the organization required to manage the decommissioning, as well as the duration of the program. It is assumed, for purposes of this analysis, that Xcel Energy will oversee the decommissioning program, using a DOC to manage the decommissioning labor force and the associated subcontractors. The size and composition of the management organization varies with the decommissioning phase and associated site activities.

As described in this report, the spent fuel pool will remain operational for fifteen years following the cessation of operations of Unit 2. The pool will be isolated to allow decommissioning operations to proceed in and around the pool area. Over the fifteen year period, the spent fuel will be packaged for transfer to the ISFSI.

The cost for waste disposal includes only those costs associated with the controlled disposition of the low-level radioactive waste generated from decontamination and dismantling activities, including plant equipment and components, structural material, filters, resins and dry-active waste. As described in Section 5, disposition of the low-level radioactive material requiring controlled disposal is at the Energy*Solutions* facility in Clive, Utah. Highly activated components, requiring additional isolation from the environment, are packaged for geologic disposal. The cost of geologic disposal is based upon a cost equivalent for spent fuel.

A significant portion of the metallic waste is designated for additional processing and treatment at an off-site facility. Processing reduces the volume of material requiring controlled disposal through such techniques and processes as survey and sorting, decontamination, and volume reduction. The material that cannot be unconditionally released is packaged for controlled disposal at one of the currently operating facilities. The cost identified in the summary table for processing is all-inclusive, incorporating the ultimate disposition of the material.

Removal costs reflect the labor-intensive nature of the decommissioning process, as well as the management controls required to ensure a safe and successful program. Decontamination and packaging costs also have a large labor component that is based upon prevailing wages. Non-radiological demolition is a natural extension of the decommissioning process. The methods employed in decontamination and dismantling are generally destructive and indiscriminate in inflicting collateral damage. With a work force mobilized to support decommissioning operations, non-radiological demolition can be an integrated activity and a logical expansion of the work being performed in the process of terminating the operating license. Prompt demolition reduces future liabilities and can be more cost effective than deferral, due to the deterioration of the facilities (and therefore the working conditions) with time.

The reported cost for transport includes the tariffs and surcharges associated with moving large components and/or overweight shielded casks overland, as well as the general expense (labor and fuel) of transporting material to the destinations identified in this report. For purposes of this analysis, material is primarily moved overland by truck.

Decontamination is used to reduce the plant's radiation fields and minimize worker exposure. Slightly contaminated material or material located within a contaminated area is sent to an off-site processing center (i.e., this analysis does not assume that contaminated plant components and equipment can be decontaminated for uncontrolled release in-situ). Centralized processing centers have proven to be a more economical means of handling the large volumes of material produced in the dismantling of a nuclear unit.

License termination survey costs are associated with the labor intensive and complex activity of verifying that contamination has been removed from the site to the levels specified by the regulating agency. This process involves a systematic survey of all remaining plant surface areas and surrounding environs, sampling, isotopic analysis, and documentation of the findings.

The remaining costs include allocations for heavy equipment and temporary services, as well as for other expenses such as regulatory fees and the premiums for nuclear insurance. While site operating costs are greatly reduced following the final cessation of plant operations, certain administrative functions do need to be maintained either at a basic functional or regulatory level.

TABLE 6.1
SCENARIO 1
COST SUMMARY
DECOMMISSIONING COST ELEMENTS
(thousands of 2011 dollars)

Cost Element	Unit 1	Unit 2	Total	Percentage
Decontamination	9,733	15,350	25,083	1.7
Removal	82,684	105,582	188,266	13.1
Packaging	37,990	30,704	68,694	4.8
Transportation	7,009	7,347	14,356	1.0
Waste Disposal	49,446	49,952	99,398	6.9
Off-site Waste Processing	12,038	14,274	26,313	1.8
Program Management [1]	218,068	330,117	548,184	38.0
Spent Fuel Pool Isolation	5,911	5,911	11,822	0.8
Spent Fuel Management (direct costs) [2]	147,441	145,903	293,344	20.4
Insurance and Regulatory Fees	20,327	17,792	38,119	2.6
Energy	23,541	23,130	46,670	3.2
Characterization and Licensing Surveys	7,559	9,609	17,168	1.2
Property Taxes	23,810	22,113	45,923	3.2
Miscellaneous Equipment	6,912	6,912	13,824	1.0
Railroad Track Maintenance	1,891	1,821	3,712	0.3
Total [3]	654,359	786,517	1,440,876	100.0

Cost Element	Unit 1	Unit 2	Total	Percentage
License Termination	428,772	552,230	981,002	68.1
Spent Fuel Management	190,717	189,180	379,896	26.4
Site Restoration	34,870	45,108	79,978	5.6
Total [3]	654,359	786,517	1,440,876	100.0

[1] Includes engineering and security costs
[2] Excludes program management costs (staffing) but includes capital expenditures for ISFSI construction, costs for spent fuel loading/packaging costs/spent fuel pool O&M and EP fees
[3] Columns may not add due to rounding

TABLE 6.2
SCENARIO 2
COST SUMMARY
DECOMMISSIONING COST ELEMENTS
(thousands of 2011 dollars)

Cost Element	Unit 1	Unit 2	Total	Percentage
Decontamination	9,733	15,350	25,083	1.6
Removal	82,781	105,679	188,460	12.3
Packaging	37,990	30,704	68,694	4.5
Transportation	7,009	7,347	14,356	0.9
Waste Disposal	49,446	49,953	99,399	6.5
Off-site Waste Processing	12,038	14,274	26,313	1.7
Program Management [1]	243,615	355,664	599,280	39.1
Spent Fuel Pool Isolation	5,911	5,911	11,822	0.8
Spent Fuel Management (direct costs) [2]	160,235	158,697	318,932	20.8
Insurance and Regulatory Fees	22,861	20,326	43,187	2.8
Energy	23,541	23,130	46,670	3.0
Characterization and Licensing Surveys	7,559	9,609	17,168	1.1
Property Taxes	28,556	26,859	55,414	3.6
Miscellaneous Equipment	6,912	6,912	13,824	0.9
Railroad Track Maintenance	2,581	2,511	5,092	0.3
Total [3]	700,767	832,926	1,533,693	100.0

Cost Element	Unit 1	Unit 2	Total	Percentage
License Termination	428,772	552,230	981,002	64.0
Spent Fuel Management	237,125	235,588	472,713	30.8
Site Restoration	34,870	45,108	79,978	5.2
Total [3]	700,767	832,926	1,533,693	100.0

[1] Includes engineering and security costs
[2] Excludes program management costs (staffing) but includes capital expenditures for ISFSI construction, costs for spent fuel loading/packaging costs/spent fuel pool O&M and EP fees
[3] Columns may not add due to rounding

TABLE 6.3
SCENARIO 3
COST SUMMARY
DECOMMISSIONING COST ELEMENTS
(thousands of 2011 dollars)

Cost Element	Unit 1	Unit 2	Total	Percentage
Decontamination	9,733	15,350	25,083	1.1
Removal	82,781	105,679	188,460	7.9
Packaging	37,990	30,704	68,694	2.9
Transportation	7,009	7,347	14,356	0.6
Waste Disposal	49,446	49,953	99,399	4.2
Off-site Waste Processing	12,038	14,274	26,313	1.1
Program Management [1]	541,665	653,713	1,195,378	50.4
Spent Fuel Pool Isolation	5,911	5,911	11,822	0.5
Spent Fuel Management (direct costs) [2]	196,901	195,364	392,265	16.5
Insurance and Regulatory Fees	52,421	49,885	102,306	4.3
Energy	23,541	23,130	46,670	2.0
Characterization and Licensing Surveys	7,559	9,609	17,168	0.7
Property Taxes	83,922	82,225	166,146	7.0
Miscellaneous Equipment	6,912	6,912	13,824	0.6
Railroad Track Maintenance	2,723	2,653	5,377	0.2
Total [3]	1,120,551	1,252,710	2,373,261	100.0

Cost Element	Unit 1	Unit 2	Total	Percentage
License Termination	428,772	552,230	981,002	41.3
Spent Fuel Management	656,909	655,372	1,312,281	55.3
Site Restoration	34,870	45,108	79,978	3.4
Total [3]	1,120,551	1,252,710	2,373,261	100.0

[1] Includes engineering and security costs
[2] Excludes program management costs (staffing) but includes capital expenditures for ISFSI construction, costs for spent fuel loading/packaging costs/spent fuel pool O&M and EP fees
[3] Columns may not add due to rounding

TABLE 6.4
SCENARIO 4
COST SUMMARY
DECOMMISSIONING COST ELEMENTS
(thousands of 2011 dollars)

Cost Element	Unit 1	Unit 2	Total	Percentage
Decontamination	9,750	15,367	25,117	0.8
Removal	82,933	105,831	188,764	6.1
Packaging	37,990	30,704	68,694	2.2
Transportation	9,090	9,428	18,518	0.6
Waste Disposal	70,292	70,799	141,091	4.6
Off-site Waste Processing	12,038	14,274	26,313	0.9
Program Management [1]	541,665	653,713	1,195,378	38.7
Spent Fuel Pool Isolation	5,911	5,911	11,822	0.4
Spent Fuel Management (direct costs) [2]	532,657	531,120	1,063,777	34.4
Insurance and Regulatory Fees	52,421	49,885	102,306	3.3
Energy	23,541	23,130	46,670	1.5
Characterization and Licensing Surveys	7,559	9,609	17,168	0.6
Property Taxes	83,922	82,225	166,146	5.4
Miscellaneous Equipment	6,912	6,912	13,824	0.4
Railroad Track Maintenance	2,723	2,653	5,377	0.2
Total [3]	1,479,403	1,611,562	3,090,965	100.0

Cost Element	Unit 1	Unit 2	Total	Percentage
License Termination	428,772	552,230	981,002	31.7
Spent Fuel Management	1,015,761	1,014,224	2,029,985	65.7
Site Restoration	34,870	45,108	79,978	2.6
Total [3]	1,479,403	1,611,562	3,090,965	100.0

[1] Includes engineering and security costs
[2] Excludes program management costs (staffing) but includes capital expenditures for ISFSI construction, costs for spent fuel loading/packaging costs/spent fuel pool O&M and EP fees
[3] Columns may not add due to rounding

7. REFERENCES

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4. U.S. Code of Federal Regulations, Title 10, Part 20, Subpart E, "Radiological Criteria for License Termination"

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(continued)

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14. U.S. Code of Federal Regulations, Title 10, Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste"

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30. "Financial Protection Requirements for Permanently Shutdown Nuclear Power Reactors," 10 CFR Parts 50 and 140, Federal Register Notice, Vol. 62, No. 210, October 30, 1997

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APPENDIX A

UNIT COST FACTOR DEVELOPMENT

APPENDIX A
UNIT COST FACTOR DEVELOPMENT

Example: Unit Factor for Removal of Contaminated Heat Exchanger < 3,000 lbs.

1. SCOPE

Heat exchangers weighing < 3,000 lbs. will be removed in one piece using a crane or small hoist. They will be disconnected from the inlet and outlet piping. The heat exchanger will be sent to the waste processing area.

2. CALCULATIONS

Act ID	Activity Description	Activity Duration (minutes)	Critical Duration (minutes)
a	Remove insulation	60	(b)
b	Mount pipe cutters	60	60
c	Install contamination controls	20	(b)
d	Disconnect inlet and outlet lines	60	60
e	Cap openings	20	(d)
f	Rig for removal	30	30
g	Unbolt from mounts	30	30
h	Remove contamination controls	15	15
i	Remove, wrap in plastic, send to waste processing area	60	60
	Totals (Activity/Critical)	355	255
Duration adjustment(s):			
+ Respiratory protection adjustment (50% of critical duration)			128
+ Radiation/ALARA adjustment (37.08% of critical duration)			95
Adjusted work duration			478
+ Protective clothing adjustment (30% of adjusted duration)			143
Productive work duration			621
+ Work break adjustment (8.33 % of productive duration)			52
Total work duration (minutes)			673

Total duration = 11.217 hours

APPENDIX A
(continued)

3. LABOR REQUIRED

Crew	Number	Duration (hr)	Rate ($/hr)	Cost
Laborers	3.00	11.217	$47.90	$1,611.88
Craftsmen	2.00	11.217	$61.56	$1,381.04
Foreman	1.00	11.217	$63.33	$710.37
General Foreman	0.25	11.217	$64.33	$180.40
Fire Watch	0.05	11.217	$47.90	$26.86
Health Physics Technician	1.00	11.217	$44.00	$493.55
Total labor cost				$4,404.10

4. EQUIPMENT & CONSUMABLES COSTS

Equipment Costs	none
Consumables/Materials Costs	
Gas torch consumables 1 @ $10.23/hour x 1 hour [1]	$10.23
Tarpaulin, oil resistant, fire retardant 50 @ $0.40 square foot [2]	$20.00
Polypropylene sorbent rolls 50 @ $0.53/square foot [3]	$26.50
Subtotal cost of equipment and materials	$56.73
Overhead & sales tax on equipment and materials @ 16.88 %	$9.58
Total costs, equipment & material	$66.31

TOTAL COST: Removal of contaminated heat exchanger <3000 pounds:	$4,470.41
Total labor cost:	$4,404.10
Total equipment/material costs:	$66.31
Total craft labor man-hours required per unit:	81.88

APPENDIX A
(continued)

5. NOTES AND REFERENCES

Work difficulty factors were developed in conjunction with the Atomic Industrial Forum (AIF) (now Nuclear Energy Institute) program to standardize nuclear decommissioning cost estimates and are delineated in Volume 1, Chapter 5 of the "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates," AIF/NESP-036, May 1986.

References for equipment & consumables costs:

1. R.S. Means (2011) Division 01 54 33, Section 40-6360, page 664
2. R.S. Means (2011) Division 01 56, Section 13.60-0600, page 20
3. www.mcmaster.com online catalog, McMaster Carr Spill Control (7193T88)

Material and consumable costs were adjusted using the regional indices for Minneapolis, Minnesota.

APPENDIX B

UNIT COST FACTOR LISTING

APPENDIX B

UNIT COST FACTOR LISTING
(Power Block Structures Only)

Unit Cost Factor	Cost/Unit($)
Removal of clean instrument and sampling tubing, $/linear foot	0.52
Removal of clean pipe 0.25 to 2 inches diameter, $/linear foot	5.55
Removal of clean pipe >2 to 4 inches diameter, $/linear foot	7.88
Removal of clean pipe >4 to 8 inches diameter, $/linear foot	15.38
Removal of clean pipe >8 to 14 inches diameter, $/linear foot	29.78
Removal of clean pipe >14 to 20 inches diameter, $/linear foot	38.64
Removal of clean pipe >20 to 36 inches diameter, $/linear foot	56.87
Removal of clean pipe >36 inches diameter, $/linear foot	67.61
Removal of clean valve >2 to 4 inches	101.31
Removal of clean valve >4 to 8 inches	153.81
Removal of clean valve >8 to 14 inches	297.82
Removal of clean valve >14 to 20 inches	386.40
Removal of clean valve >20 to 36 inches	568.72
Removal of clean valve >36 inches	676.07
Removal of clean pipe hanger for small bore piping	33.37
Removal of clean pipe hanger for large bore piping	122.00
Removal of clean pump, <300 pound	257.71
Removal of clean pump, 300-1000 pound	717.17
Removal of clean pump, 1000-10,000 pound	2,844.32
Removal of clean pump, >10,000 pound	5,494.90
Removal of clean pump motor, 300-1000 pound	301.81
Removal of clean pump motor, 1000-10,000 pound	1,184.80
Removal of clean pump motor, >10,000 pound	2,665.80
Removal of clean heat exchanger <3000 pound	1,522.57
Removal of clean heat exchanger >3000 pound	3,824.51
Removal of clean feedwater heater/deaerator	10,814.89
Removal of clean moisture separator/reheater	22,277.84
Removal of clean tank, <300 gallons	331.69
Removal of clean tank, 300-3000 gallon	1,049.15
Removal of clean tank, >3000 gallons, $/square foot surface area	8.77

APPENDIX B

UNIT COST FACTOR LISTING
(Power Block Structures Only)

Unit Cost Factor	Cost/Unit($)
Removal of clean electrical equipment, <300 pound	141.30
Removal of clean electrical equipment, 300-1000 pound	491.39
Removal of clean electrical equipment, 1000-10,000 pound	982.79
Removal of clean electrical equipment, >10,000 pound	2,326.99
Removal of clean electrical transformer < 30 tons	1,616.07
Removal of clean electrical transformer > 30 tons	4,653.99
Removal of clean standby diesel generator, <100 kW	1,650.66
Removal of clean standby diesel generator, 100 kW to 1 MW	3,684.41
Removal of clean standby diesel generator, >1 MW	7,627.47
Removal of clean electrical cable tray, $/linear foot	13.16
Removal of clean electrical conduit, $/linear foot	5.74
Removal of clean mechanical equipment, <300 pound	141.30
Removal of clean mechanical equipment, 300-1000 pound	491.39
Removal of clean mechanical equipment, 1000-10,000 pound	982.79
Removal of clean mechanical equipment, >10,000 pound	2,326.99
Removal of clean HVAC equipment, <300 pound	170.85
Removal of clean HVAC equipment, 300-1000 pound	590.44
Removal of clean HVAC equipment, 1000-10,000 pound	1,176.76
Removal of clean HVAC equipment, >10,000 pound	2,326.99
Removal of clean HVAC ductwork, $/pound	0.55
Removal of contaminated instrument and sampling tubing, $/linear foot	1.54
Removal of contaminated pipe 0.25 to 2 inches diameter, $/linear foot	22.28
Removal of contaminated pipe >2 to 4 inches diameter, $/linear foot	38.00
Removal of contaminated pipe >4 to 8 inches diameter, $/linear foot	59.83
Removal of contaminated pipe >8 to 14 inches diameter, $/linear foot	117.81
Removal of contaminated pipe >14 to 20 inches diameter, $/linear foot	141.32
Removal of contaminated pipe >20 to 36 inches diameter, $/linear foot	195.32
Removal of contaminated pipe >36 inches diameter, $/linear foot	230.75
Removal of contaminated valve >2 to 4 inches	448.83
Removal of contaminated valve >4 to 8 inches	543.38

APPENDIX B

UNIT COST FACTOR LISTING
(Power Block Structures Only)

Unit Cost Factor	Cost/Unit($)
Removal of contaminated valve >8 to 14 inches	1,123.77
Removal of contaminated valve >14 to 20 inches	1,426.74
Removal of contaminated valve >20 to 36 inches	1,898.86
Removal of contaminated valve >36 inches	2,253.14
Removal of contaminated pipe hanger for small bore piping	145.65
Removal of contaminated pipe hanger for large bore piping	493.86
Removal of contaminated pump, <300 pound	968.18
Removal of contaminated pump, 300-1000 pound	2,257.01
Removal of contaminated pump, 1000-10,000 pound	7,434.57
Removal of contaminated pump, >10,000 pound	18,104.55
Removal of contaminated pump motor, 300-1000 pound	966.04
Removal of contaminated pump motor, 1000-10,000 pound	3,031.90
Removal of contaminated pump motor, >10,000 pound	6,807.02
Removal of contaminated heat exchanger <3000 pound	4,470.41
Removal of contaminated heat exchanger >3000 pound	12,964.31
Removal of contaminated tank, <300 gallons	1,611.95
Removal of contaminated tank, >300 gallons, $/square foot	31.56
Removal of contaminated electrical equipment, <300 pound	751.04
Removal of contaminated electrical equipment, 300-1000 pound	1,842.23
Removal of contaminated electrical equipment, 1000-10,000 pound	3,548.59
Removal of contaminated electrical equipment, >10,000 pound	6,966.41
Removal of contaminated electrical cable tray, $/linear foot	36.21
Removal of contaminated electrical conduit, $/linear foot	17.85
Removal of contaminated mechanical equipment, <300 pound	835.42
Removal of contaminated mechanical equipment, 300-1000 pound	2,034.10
Removal of contaminated mechanical equipment, 1000-10,000 pound	3,911.75
Removal of contaminated mechanical equipment, >10,000 pound	6,966.41
Removal of contaminated HVAC equipment, <300 pound	835.42
Removal of contaminated HVAC equipment, 300-1000 pound	2,034.10
Removal of contaminated HVAC equipment, 1000-10,000 pound	3,911.75

APPENDIX B

UNIT COST FACTOR LISTING
(Power Block Structures Only)

Unit Cost Factor	Cost/Unit($)
Removal of contaminated HVAC equipment, >10,000 pound	6,966.41
Removal of contaminated HVAC ductwork, $/pound	2.14
Removal/plasma arc cut of contaminated thin metal components, $/linear in.	4.06
Additional decontamination of surface by washing, $/square foot	8.40
Additional decontamination of surfaces by hydrolasing, $/square foot	36.02
Decontamination rig hook up and flush, $/ 250 foot length	7,035.04
Chemical flush of components/systems, $/gallon	17.00
Removal of clean standard reinforced concrete, $/cubic yard	143.53
Removal of grade slab concrete, $/cubic yard	191.12
Removal of clean concrete floors, $/cubic yard	365.61
Removal of sections of clean concrete floors, $/cubic yard	1,107.40
Removal of clean heavily rein concrete w/#9 rebar, $/cubic yard	239.73
Removal of contaminated heavily rein concrete w/#9 rebar, $/cubic yard	2,153.56
Removal of clean heavily rein concrete w/#18 rebar, $/cubic yard	303.01
Removal of contaminated heavily rein concrete w/#18 rebar, $/cubic yard	2,847.83
Removal heavily rein concrete w/#18 rebar & steel embedments, $/cubic yard	470.38
Removal of below-grade suspended floors, $/cubic yard	365.61
Removal of clean monolithic concrete structures, $/cubic yard	921.08
Removal of contaminated monolithic concrete structures, $/cubic yard	2,143.31
Removal of clean foundation concrete, $/cubic yard	722.40
Removal of contaminated foundation concrete, $/cubic yard	1,996.58
Explosive demolition of bulk concrete, $/cubic yard	31.36
Removal of clean hollow masonry block wall, $/cubic yard	101.21
Removal of contaminated hollow masonry block wall, $/cubic yard	323.03
Removal of clean solid masonry block wall, $/cubic yard	101.21
Removal of contaminated solid masonry block wall, $/cubic yard	323.03
Backfill of below-grade voids, $/cubic yard	30.90
Removal of subterranean tunnels/voids, $/linear foot	118.59
Placement of concrete for below-grade voids, $/cubic yard	126.50
Excavation of clean material, $/cubic yard	3.27

APPENDIX B

UNIT COST FACTOR LISTING
(Power Block Structures Only)

Unit Cost Factor	Cost/Unit($)
Excavation of contaminated material, $/cubic yard	41.61
Removal of clean concrete rubble (tipping fee included), $/cubic yard	23.36
Removal of contaminated concrete rubble, $/cubic yard	25.35
Removal of building by volume, $/cubic foot	0.30
Removal of clean building metal siding, $/square foot	1.25
Removal of contaminated building metal siding, $/square foot	4.10
Removal of standard asphalt roofing, $/square foot	2.44
Removal of transite panels, $/square foot	2.23
Scarifying contaminated concrete surfaces (drill & spall), $/square foot	12.81
Scabbling contaminated concrete floors, $/square foot	7.91
Scabbling contaminated concrete walls, $/square foot	20.93
Scabbling contaminated ceilings, $/square foot	71.88
Scabbling structural steel, $/square foot	6.44
Removal of clean overhead crane/monorail < 10 ton capacity	684.86
Removal of contaminated overhead crane/monorail < 10 ton capacity	1,859.50
Removal of clean overhead crane/monorail >10-50 ton capacity	1,643.67
Removal of contaminated overhead crane/monorail >10-50 ton capacity	4,462.04
Removal of polar crane > 50 ton capacity	6,836.81
Removal of gantry crane > 50 ton capacity	29,087.42
Removal of structural steel, $/pound	0.22
Removal of clean steel floor grating, $/square foot	4.80
Removal of contaminated steel floor grating, $/square foot	13.53
Removal of clean free standing steel liner, $/square foot	13.15
Removal of contaminated free standing steel liner, $/square foot	36.93
Removal of clean concrete-anchored steel liner, $/square foot	6.58
Removal of contaminated concrete-anchored steel liner, $/square foot	43.02
Placement of scaffolding in clean areas, $/square foot	17.24
Placement of scaffolding in contaminated areas, $/square foot	27.46
Landscaping with topsoil, $/acre	28,014.37
Cost of CPC B-88 LSA box & preparation for use	2,089.88

APPENDIX B

UNIT COST FACTOR LISTING
(Power Block Structures Only)

Unit Cost Factor	Cost/Unit($)
Cost of CPC B-25 LSA box & preparation for use	1,914.36
Cost of CPC B-12V 12 gauge LSA box & preparation for use	1,558.40
Cost of CPC B-144 LSA box & preparation for use	10,561.27
Cost of LSA drum & preparation for use	201.17
Cost of cask liner for CNSI 8 120A cask (resins)	7,758.36
Cost of cask liner for CNSI 8 120A cask (filters)	8,109.22
Decontamination of surfaces with vacuuming, $/square foot	0.82

APPENDIX C

DETAILED COST TABLES

SCENARIO 1

DECON DECOMMISSIONING COST ESTIMATE

WITH DOE PICKUP OF INDUSTRY SPENT FUEL STARTING IN 2025

Table — Page

Table C-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	122	18	140	140	-	-	-	-	-	-	-	-	-	1,300
1a.1.2	Notification of Cessation of Operations									a											
1a.1.3	Remove fuel & source material									n/a											
1a.1.4	Notification of Permanent Defueling									a											
1a.1.5	Deactivate plant systems & process waste									a											
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	187	28	215	215	-	-	-	-	-	-	-	-	-	2,000
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1a.1.10	End product description	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	122	18	140	140	-	-	-	-	-	-	-	-	-	1,300
1a.1.12	Define major work sequence	-	-	-	-	-	-	702	105	808	808	-	-	-	-	-	-	-	-	-	7,500
1a.1.13	Perform SER and EA	-	-	-	-	-	-	290	44	334	334	-	-	-	-	-	-	-	-	-	3,100
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	468	70	538	538	-	-	-	-	-	-	-	-	-	5,000
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	384	58	441	441	-	-	-	-	-	-	-	-	-	4,096
1a.1.16	Receive NRC approval of termination plan									a											
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	461	69	530	477	-	53	-	-	-	-	-	-	-	4,920
1a.1.17.2	Plant systems	-	-	-	-	-	-	390	59	449	404	-	45	-	-	-	-	-	-	-	4,167
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	47	7	54	54	-	-	-	-	-	-	-	-	-	500
1a.1.17.4	Reactor internals	-	-	-	-	-	-	665	100	765	765	-	-	-	-	-	-	-	-	-	7,100
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	609	91	700	700	-	-	-	-	-	-	-	-	-	6,500
1a.1.17.6	Biological shield	-	-	-	-	-	-	47	7	54	54	-	-	-	-	-	-	-	-	-	500
1a.1.17.7	Steam generators	-	-	-	-	-	-	292	44	336	336	-	-	-	-	-	-	-	-	-	3,120
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	150	22	172	86	-	86	-	-	-	-	-	-	-	1,600
1a.1.17.9	Main Turbine	-	-	-	-	-	-	37	6	43	-	-	43	-	-	-	-	-	-	-	400
1a.1.17.10	Main Condensers	-	-	-	-	-	-	37	6	43	-	-	43	-	-	-	-	-	-	-	400
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	292	44	336	168	-	168	-	-	-	-	-	-	-	3,120
1a.1.17.12	Waste management	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	84	13	97	48	-	48	-	-	-	-	-	-	-	900
1a.1.17	Total	-	-	-	-	-	-	3,542	531	4,073	3,587	-	487	-	-	-	-	-	-	-	37,827
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	225	34	258	258	-	-	-	-	-	-	-	-	-	2,400
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	2,800	420	3,220	3,220	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	131	20	151	151	-	-	-	-	-	-	-	-	-	1,400
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,200	330	2,530	2,530	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,230
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	11,906	1,786	13,692	13,206	-	487	-	-	-	-	-	-	-	73,753
Period 1a Additional Costs																					
1a.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
1a.2	Subtotal Period 1a Additional Costs	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	970	97	1,067	1,067	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	1,303	130	1,433	1,433	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	433	-	-	-	-	-	108	541	541	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	426	-	-	-	-	-	64	490	490	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	13	4	-	45	-	13	75	75	-	-	-	610	-	-	-	12,190	20	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	2,796	419	3,216	3,216	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	769	77	846	846	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	973	97	1,071	-	1,071	-	-	-	-	-	-	-	-	-
1a.4.9	Fixed Overhead	-	-	-	-	-	-	1,437	216	1,652	1,652	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	382	57	439	-	439	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	45	7	51	-	51	-	-	-	-	-	-	-	-	-

Table C-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1a Period-Dependent Costs (continued)																					
1a.4.12	Railroad Track Maintenance	-	-	-	-	-	-	50	7	57	57	-	-	-	-	-	-	-	-	-	-
1a.4.13	Security Staff Cost	-	-	-	-	-	-	365	55	420	420	-	-	-	-	-	-	-	-	-	12,264
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	20,432	3,065	23,497	23,497	-	-	-	-	-	-	-	-	-	423,400
1a.4	Subtotal Period 1a Period-Dependent Costs	-	859	13	4	-	45	29,522	4,413	34,855	33,294	1,561	-	-	610	-	-	-	12,190	20	435,664
1a.0	TOTAL PERIOD 1a COST	-	859	13	4	-	45	46,568	6,970	54,458	52,410	1,561	487	-	610	-	-	-	12,190	20	509,417
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	443	66	510	459	-	51	-	-	-	-	-	-	-	4,733
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.3	Reactor internals	-	-	-	-	-	-	234	35	269	269	-	-	-	-	-	-	-	-	-	2,500
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	126	19	145	36	-	109	-	-	-	-	-	-	-	1,350
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	340	51	391	391	-	-	-	-	-	-	-	-	-	3,630
1b.1.1.9	Facility closeout	-	-	-	-	-	-	112	17	129	65	-	65	-	-	-	-	-	-	-	1,200
1b.1.1.10	Missile shields	-	-	-	-	-	-	42	6	48	48	-	-	-	-	-	-	-	-	-	450
1b.1.1.11	Biological shield	-	-	-	-	-	-	112	17	129	129	-	-	-	-	-	-	-	-	-	1,200
1b.1.1.12	Steam generators	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	94	14	108	54	-	54	-	-	-	-	-	-	-	1,000
1b.1.1.14	Main Turbine	-	-	-	-	-	-	146	22	168	-	-	168	-	-	-	-	-	-	-	1,560
1b.1.1.15	Main Condensers	-	-	-	-	-	-	146	22	168	-	-	168	-	-	-	-	-	-	-	1,560
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	256	38	294	265	-	29	-	-	-	-	-	-	-	2,730
1b.1.1.17	Reactor building	-	-	-	-	-	-	256	38	294	265	-	29	-	-	-	-	-	-	-	2,730
1b.1.1	Total	-	-	-	-	-	-	3,113	467	3,580	2,907	-	673	-	-	-	-	-	-	-	33,243
1b.1.2	Decon primary loop	447	-	-	-	-	-	-	224	671	671	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	447	-	-	-	-	-	3,113	691	4,251	3,578	-	673	-	-	-	-	-	-	1,067	33,243
Period 1b Additional Costs																					
1b.2.1	Site Characterization	-	-	-	-	-	-	2,772	831	3,603	3,603	-	-	-	-	-	-	-	-	21,020	8,332
1b.2.2	Mixed/Hazardous Waste	-	-	274	69	142	-	-	59	544	544	-	-	6,133	-	-	-	-	351,986	2,361	-
1b.2.3	Asbestos Abatement	-	2,056	1	102	-	835	-	738	3,732	3,732	-	-	-	12,843	-	-	-	166,959	20,000	-
1b.2	Subtotal Period 1b Additional Costs	-	2,056	275	171	142	835	2,772	1,629	7,879	7,879	-	-	6,133	12,843	-	-	-	518,945	43,381	8,332
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	833	-	-	-	-	-	-	125	958	958	-	-	-	-	-	-	-	-	-	-
1b.3.2	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process decommissioning water waste	24	-	10	36	-	58	-	33	160	160	-	-	-	152	-	-	-	9,121	30	-
1b.3.4	Process decommissioning chemical flush waste	1	-	37	175	-	2,182	-	576	2,971	2,971	-	-	-	-	588	-	-	62,689	110	-
1b.3.5	Small tool allowance	-	26	-	-	-	-	-	4	30	30	-	-	-	-	-	-	-	-	-	-
1b.3.6	Pipe cutting equipment	-	1,100	-	-	-	-	-	165	1,265	1,265	-	-	-	-	-	-	-	-	-	-
1b.3.7	Decon rig	1,500	-	-	-	-	-	-	225	1,725	1,725	-	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	1,954	293	2,247	-	2,247	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	2,358	1,126	46	211	-	2,239	2,984	1,575	10,539	8,292	2,247	-	-	152	588	-	-	71,810	140	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	26	-	-	-	-	-	-	6	32	32	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	489	49	538	538	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	657	66	722	722	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	334	-	-	-	-	-	84	418	418	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	215	-	-	-	-	-	32	247	247	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	8	2	-	27	-	8	44	44	-	-	-	360	-	-	-	7,197	12	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	2,819	423	3,242	3,242	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	388	39	426	426	-	-	-	-	-	-	-	-	-	-

Table C-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1b Period-Dependent Costs (continued)																					
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	491	49	540	-	540	-	-	-	-	-	-	-	-	-
1b.4.10	Fixed Overhead	-	-	-	-	-	-	724	109	833	833	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	192	29	221	-	221	-	-	-	-	-	-	-	-	-
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	23	3	26	-	26	-	-	-	-	-	-	-	-	-
1b.4.13	Railroad Track Maintenance	-	-	-	-	-	-	25	4	29	29	-	-	-	-	-	-	-	-	-	-
1b.4.14	Security Staff Cost	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	6,182
1b.4.15	DOC Staff Cost	-	-	-	-	-	-	4,429	664	5,094	5,094	-	-	-	-	-	-	-	-	-	64,137
1b.4.16	Utility Staff Cost	-	-	-	-	-	-	10,353	1,553	11,906	11,906	-	-	-	-	-	-	-	-	-	214,491
1b.4	Subtotal Period 1b Period-Dependent Costs	26	549	8	2	-	27	20,774	3,145	24,530	23,743	787	-	-	360	-	-	-	7,197	12	284,811
1b.0	TOTAL PERIOD 1b COST	2,831	3,731	329	384	142	3,101	29,642	7,039	47,200	43,492	3,034	673	6,133	13,355	588	-	-	597,952	44,599	326,386
PERIOD 1 TOTALS		2,831	4,590	342	387	142	3,146	76,210	14,009	101,658	95,903	4,595	1,160	6,133	13,964	588	-	-	610,142	44,619	835,803
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	43	37	6	7	-	103	-	59	256	256	-	-	-	305	-	-	-	34,809	1,414	-
2a.1.1.2	Pressurizer Relief Tank	19	16	4	5	-	63	-	30	138	138	-	-	-	192	-	-	-	21,288	625	-
2a.1.1.3	Reactor Coolant Pumps & Motors	46	55	83	73	-	666	-	222	1,144	1,144	-	-	-	2,332	-	-	-	295,800	2,049	100
2a.1.1.4	Pressurizer	32	62	350	69	-	535	-	211	1,258	1,258	-	-	-	1,874	-	-	-	158,199	2,213	938
2a.1.1.5	Steam Generators	190	2,703	1,863	1,556	1,129	3,230	-	2,167	12,837	12,837	-	-	18,672	11,316	-	-	-	1,668,341	11,617	2,875
2a.1.1.6	CRDMs/ICIs/Service Structure Removal	241	98	213	44	-	403	-	274	1,274	1,274	-	-	-	4,797	-	-	-	135,744	5,671	-
2a.1.1.7	Reactor Vessel Internals	111	2,477	24,110	1,524	-	11,473	222	14,091	54,008	54,008	-	-	-	626	584	918	-	242,739	24,200	1,100
2a.1.1.8	Reactor Vessel	60	4,311	1,606	534	-	1,509	222	4,586	12,828	12,828	-	-	-	5,315	-	-	-	566,474	24,200	1,100
2a.1.1	Totals	742	9,759	28,235	3,811	1,129	17,982	443	21,640	83,742	83,742	-	-	18,672	26,757	584	918	-	3,123,395	71,988	6,113
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	262	184	50	329	282	-	211	1,319	1,319	-	-	2,131	1,187	-	-	-	271,373	4,667	-
2a.1.3	Main Condensers	-	2,222	108	44	330	300	-	698	3,702	3,702	-	-	3,800	1,190	-	-	-	272,178	39,151	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Reactor	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,415	-
2a.1.4	Totals	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,415	-
Disposal of Plant Systems																					
2a.1.5.1	Air Removal	-	24	-	-	-	-	-	4	28	-	-	28	-	-	-	-	-	-	452	-
2a.1.5.2	Auxiliary Feedwater	-	35	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	670	-
2a.1.5.3	Auxiliary Feedwater - RCA	-	37	0	1	17	-	-	12	67	67	-	-	215	-	-	-	-	8,722	601	-
2a.1.5.4	Bleed Steam	-	70	-	-	-	-	-	11	81	-	-	81	-	-	-	-	-	-	1,335	-
2a.1.5.5	Caustic Addition - RCA	-	30	0	1	18	-	-	11	61	61	-	-	233	-	-	-	-	9,453	444	-
2a.1.5.6	Chemical Feed	-	16	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	304	-
2a.1.5.7	Chemical Feed - RCA	-	1	0	0	0	-	-	0	2	2	-	-	6	-	-	-	-	243	12	-
2a.1.5.8	Circulating Water	-	33	-	-	-	-	-	5	38	-	-	38	-	-	-	-	-	-	619	-
2a.1.5.9	Condensate	-	371	-	-	-	-	-	56	426	-	-	426	-	-	-	-	-	-	6,837	-
2a.1.5.10	Condensate Polishing	-	183	-	-	-	-	-	28	211	-	-	211	-	-	-	-	-	-	3,420	-
2a.1.5.11	Condensate Polishing - RCA	-	146	3	11	163	-	-	63	386	386	-	-	2,078	-	-	-	-	84,395	2,329	-
2a.1.5.12	Electro-hydraulic	-	7	-	-	-	-	-	1	8	-	-	8	-	-	-	-	-	-	127	-
2a.1.5.13	Feedwater	-	119	-	-	-	-	-	18	137	-	-	137	-	-	-	-	-	-	2,215	-
2a.1.5.14	Feedwater - RCA	-	155	5	17	251	-	-	79	508	508	-	-	3,208	-	-	-	-	130,294	2,651	-
2a.1.5.15	Gland Seal	-	26	-	-	-	-	-	4	30	-	-	30	-	-	-	-	-	-	505	-
2a.1.5.16	Heater Drain	-	313	-	-	-	-	-	47	360	-	-	360	-	-	-	-	-	-	5,881	-
2a.1.5.17	Internal Circ Water & CDSR	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	389	-
2a.1.5.18	Main Gen/Exciter/Transformer	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2a.1.5.19	Main Steam	-	90	-	-	-	-	-	13	103	-	-	103	-	-	-	-	-	-	1,690	-
2a.1.5.20	Main Steam - RCA	-	291	8	27	395	-	-	137	858	858	-	-	5,044	-	-	-	-	204,825	4,956	-
2a.1.5.21	Steam Generator Blowdown	-	379	16	20	159	130	-	156	860	860	-	-	2,031	524	-	-	-	126,150	6,659	-
2a.1.5.22	Steam Generators	-	4	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	75	-

Table C-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Disposal of Plant Systems (continued)																					
2a.1.5.23	Turbine & Moisture Separators	-	303	-	-	-	-	-	45	348	-	-	348	-	-	-	-	-	-	5,609	-
2a.1.5.24	Turbine Oil Purification	-	55	-	-	-	-	-	8	63	-	-	63	-	-	-	-	-	-	1,003	-
2a.1.5	Totals	-	2,710	32	78	1,004	130	-	708	4,663	2,742	-	1,921	12,815	524	-	-	-	564,082	48,787	-
2a.1.6	Scaffolding in support of decommissioning	-	831	3	1	12	2	-	210	1,059	1,059	-	-	138	9	-	-	-	6,987	6,368	-
2a.1	Subtotal Period 2a Activity Costs	742	16,729	28,563	3,984	2,804	18,697	443	23,610	95,571	93,651	-	1,921	37,556	29,667	584	918	-	4,238,014	182,376	6,113
Period 2a Collateral Costs																					
2a.3.1	Process decommissioning water waste	47	-	20	71	-	115	-	65	319	319	-	-	-	304	-	-	-	18,262	59	-
2a.3.2	Process decommissioning chemical flush waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.3.3	Small tool allowance	-	187	-	-	-	-	-	28	215	193	-	21	-	-	-	-	-	-	-	-
2a.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	16,525	2,479	19,004	-	19,004	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	47	187	20	71	-	115	16,525	2,572	19,537	512	19,004	21	-	304	-	-	-	18,262	59	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	69	-	-	-	-	-	-	17	86	86	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	553	55	609	609	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	1,711	171	1,882	1,693	-	188	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,320	-	-	-	-	-	330	1,650	1,650	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	2,519	-	-	-	-	-	378	2,897	2,897	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	71	20	-	246	-	71	408	408	-	-	-	3,327	-	-	-	66,530	108	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	3,610	541	4,151	4,151	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	975	97	1,072	1,072	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	949	95	1,044	-	1,044	-	-	-	-	-	-	-	-	-
2a.4.10	Fixed Overhead	-	-	-	-	-	-	1,574	236	1,811	1,811	-	-	-	-	-	-	-	-	-	-
2a.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	519	78	596	-	596	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	61	9	70	-	70	-	-	-	-	-	-	-	-	-
2a.4.13	Railroad Track Maintenance	-	-	-	-	-	-	68	10	78	78	-	-	-	-	-	-	-	-	-	-
2a.4.14	Security Staff Cost	-	-	-	-	-	-	465	70	534	534	-	-	-	-	-	-	-	-	-	15,589
2a.4.15	DOC Staff Cost	-	-	-	-	-	-	13,583	2,037	15,620	15,620	-	-	-	-	-	-	-	-	-	201,461
2a.4.16	Utility Staff Cost	-	-	-	-	-	-	18,849	2,827	21,676	21,676	-	-	-	-	-	-	-	-	-	374,041
2a.4	Subtotal Period 2a Period-Dependent Costs	69	3,839	71	20	-	246	42,915	7,024	54,183	52,286	1,710	188	-	3,327	-	-	-	66,530	108	591,090
2a.0	TOTAL PERIOD 2a COST	858	20,755	28,653	4,075	2,804	19,058	59,883	33,206	169,292	146,448	20,713	2,130	37,556	33,298	584	918	-	4,322,806	182,543	597,203
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	Aux Bldg Normal Ventilation	-	2	0	0	0	-	-	0	2	2	-	-	3	-	-	-	-	140	29	-
2b.1.1.2	Battery Rm Special Ventilation	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	6	-
2b.1.1.3	Buildings Maintenance	-	4	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	-	65	-
2b.1.1.4	Chemical & Volume Control	891	1,103	67	63	353	538	-	924	3,937	3,937	-	-	4,498	2,304	-	-	-	363,693	34,506	-
2b.1.1.5	Component Cooling - RCA	-	682	19	67	974	-	-	329	2,070	2,070	-	-	12,427	-	-	-	-	504,675	11,242	-
2b.1.1.6	Containment Cooling	-	58	-	-	-	-	-	9	67	-	-	67	-	-	-	-	-	-	1,086	-
2b.1.1.7	Containment Cooling - RCA	-	242	5	18	267	-	-	104	636	636	-	-	3,400	-	-	-	-	138,090	3,971	-
2b.1.1.8	Containment Hydrogen Control - RCA	-	24	0	1	8	-	-	7	40	40	-	-	105	-	-	-	-	4,278	401	-
2b.1.1.9	Containment Spray - RCA	-	74	1	5	68	-	-	30	178	178	-	-	868	-	-	-	-	35,249	1,217	-
2b.1.1.10	Containment Ventilation	-	203	19	37	388	140	-	151	937	937	-	-	4,951	553	-	-	-	248,044	3,662	-
2b.1.1.11	Cooling Water	-	126	-	-	-	-	-	19	145	-	-	145	-	-	-	-	-	-	2,396	-
2b.1.1.12	Cooling Water - RCA	-	524	12	42	606	-	-	229	1,412	1,412	-	-	7,728	-	-	-	-	313,832	8,594	-
2b.1.1.13	D1 Emergency Diesel	-	39	-	-	-	-	-	6	45	-	-	45	-	-	-	-	-	-	730	-
2b.1.1.14	D2 Emergency Diesel	-	28	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	-	522	-
2b.1.1.15	Diesel Rooms Ventilation	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	135	-
2b.1.1.16	Electrical - Clean	-	1,491	-	-	-	-	-	224	1,715	-	-	1,715	-	-	-	-	-	-	26,981	-
2b.1.1.17	Electrical - Contaminated	-	486	5	15	198	18	-	159	881	881	-	-	2,527	71	-	-	-	108,711	8,376	-
2b.1.1.18	Electrical - Decontaminated	-	3,021	35	127	1,846	-	-	1,055	6,083	6,083	-	-	23,551	-	-	-	-	956,401	49,378	-
2b.1.1.19	Fuel Handling	-	96	5	8	71	41	-	47	267	267	-	-	908	164	-	-	-	50,768	1,782	-

Table C-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Disposal of Plant Systems (continued)																					
2b.1.1.20	Fuel Oil	-	95	-	-	-	-	-	14	109	-	-	109	-	-	-	-	-	-	1,697	-
2b.1.1.21	HVAC - Clean	-	95	-	-	-	-	-	14	109	-	-	109	-	-	-	-	-	-	1,891	-
2b.1.1.22	HVAC - Contaminated	-	298	7	19	256	23	-	122	725	725	-	-	3,261	92	-	-	-	140,285	5,031	-
2b.1.1.23	Incore Instrumentation	0	22	1	1	5	11	-	9	49	49	-	-	60	42	-	-	-	6,039	424	-
2b.1.1.24	Misc Drains & Vents	-	186	11	9	31	97	-	78	411	411	-	-	390	385	-	-	-	48,594	3,085	-
2b.1.1.25	Reactor Coolant	121	246	16	12	27	147	-	166	736	736	-	-	344	582	-	-	-	63,452	6,461	-
2b.1.1.26	Reactor Hot Sampling	118	109	8	5	5	65	-	105	415	415	-	-	66	256	-	-	-	24,422	3,941	-
2b.1.1.27	Reactor Makeup	-	57	-	-	-	-	-	9	66	-	-	66	-	-	-	-	-	-	1,042	-
2b.1.1.28	Reactor Vessel	7	16	0	0	2	3	-	9	38	38	-	-	26	11	-	-	-	1,971	425	-
2b.1.1.29	Residual Heat Removal	283	332	63	59	227	615	-	428	2,008	2,008	-	-	2,895	2,439	-	-	-	324,815	7,588	-
2b.1.1.30	Safeguards Chilled Water	-	14	-	-	-	-	-	2	16	-	-	16	-	-	-	-	-	-	259	-
2b.1.1.31	Safety Injection	-	709	32	52	532	219	-	323	1,866	1,866	-	-	6,788	899	-	-	-	349,249	12,550	-
2b.1.1.32	Sampling	-	48	3	2	5	20	-	18	95	95	-	-	59	80	-	-	-	9,214	809	-
2b.1.1.33	Shield Bldg Ventilation	-	111	11	18	169	93	-	80	481	481	-	-	2,152	368	-	-	-	118,685	2,026	-
2b.1.1.34	Station & Instrument Air	-	15	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	300	-
2b.1.1.35	Station & Instrument Air - RCA	-	65	0	2	26	-	-	21	114	114	-	-	332	-	-	-	-	13,496	1,053	-
2b.1.1.36	Turbine Bldg Traps & Drains	-	39	-	-	-	-	-	6	45	-	-	45	-	-	-	-	-	-	767	-
2b.1.1.37	Unit Coolers	-	32	-	-	-	-	-	5	37	-	-	37	-	-	-	-	-	-	611	-
2b.1.1.38	Unit Coolers - RCA	-	43	0	1	18	-	-	14	77	77	-	-	230	-	-	-	-	9,348	683	-
2b.1.1	Totals	1,421	10,743	319	562	6,080	2,029	-	4,722	25,876	23,459	-	2,417	77,571	8,248	-	-	-	3,833,452	205,722	-
2b.1.2	Scaffolding in support of decommissioning	-	1,038	4	1	15	3	-	263	1,324	1,324	-	-	173	11	-	-	-	8,734	7,960	-
Decontamination of Site Buildings																					
2b.1.3.1	Reactor	975	828	31	140	175	1,301	-	1,070	4,521	4,521	-	-	2,230	7,728	-	-	-	660,682	30,703	-
2b.1.3.2	Backwash Waste Receiving Tank	-	23	1	10	-	79	-	27	141	141	-	-	-	507	-	-	-	43,896	299	-
2b.1.3	Totals	975	852	32	150	175	1,380	-	1,098	4,662	4,662	-	-	2,230	8,235	-	-	-	704,578	31,001	-
2b.1	Subtotal Period 2b Activity Costs	2,397	12,633	355	714	6,270	3,412	-	6,082	31,862	29,445	-	2,417	79,974	16,494	-	-	-	4,546,764	244,683	-
Period 2b Collateral Costs																					
2b.3.1	Process decommissioning water waste	104	-	43	158	-	255	-	143	703	703	-	-	-	672	-	-	-	40,348	131	-
2b.3.2	Process decommissioning chemical flush waste	2	-	54	261	-	588	-	193	1,098	1,098	-	-	-	875	-	-	-	93,252	164	-
2b.3.3	Small tool allowance	-	221	-	-	-	-	-	33	254	254	-	-	-	-	-	-	-	-	-	-
2b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	8,271	1,241	9,512	-	9,512	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	105	221	98	419	-	843	8,271	1,610	11,567	2,055	9,512	-	-	1,548	-	-	-	133,600	295	-
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	353	-	-	-	-	-	-	88	441	441	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	499	50	548	548	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	1,463	146	1,610	1,610	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	1,472	-	-	-	-	-	368	1,840	1,840	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	2,252	-	-	-	-	-	338	2,590	2,590	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	71	20	-	245	-	71	407	407	-	-	-	3,322	-	-	-	66,436	108	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	2,568	385	2,954	2,954	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	878	88	966	966	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	855	85	940	-	940	-	-	-	-	-	-	-	-	-
2b.4.10	Fixed Overhead	-	-	-	-	-	-	1,419	213	1,632	1,632	-	-	-	-	-	-	-	-	-	-
2b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	467	70	537	-	537	-	-	-	-	-	-	-	-	-
2b.4.12	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	237	36	273	273	-	-	-	-	-	-	-	-	-	-
2b.4.13	ISFSI Operating Costs	-	-	-	-	-	-	55	8	63	-	63	-	-	-	-	-	-	-	-	-
2b.4.14	Railroad Track Maintenance	-	-	-	-	-	-	61	9	70	70	-	-	-	-	-	-	-	-	-	-
2b.4.15	Security Staff Cost	-	-	-	-	-	-	419	63	482	482	-	-	-	-	-	-	-	-	-	14,049
2b.4.16	DOC Staff Cost	-	-	-	-	-	-	8,816	1,322	10,139	10,139	-	-	-	-	-	-	-	-	-	137,931
2b.4.17	Utility Staff Cost	-	-	-	-	-	-	12,247	1,837	14,084	14,084	-	-	-	-	-	-	-	-	-	256,706
2b.4	Subtotal Period 2b Period-Dependent Costs	353	3,724	71	20	-	245	29,985	5,178	39,575	38,034	1,541	-	-	3,322	-	-	-	66,436	108	408,686
2b.0	TOTAL PERIOD 2b COST	2,855	16,577	523	1,152	6,270	4,501	38,256	12,870	83,004	69,534	11,053	2,417	79,974	21,363	-	-	-	4,746,800	245,087	408,686

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Prairie Island DECON Unit 1
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(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Burial Volumes Class B Cu. Feet	Burial Volumes Class C Cu. Feet	Burial Volumes GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 2c - Spent fuel delay prior to SFP decon																					
Period 2c Direct Decommissioning Activities																					
Period 2c Collateral Costs																					
2c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	71,695	10,754	82,450	-	82,450	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	-	-	-	-	-	-	71,695	10,754	82,450	-	82,450	-	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																					
2c.4.1	Insurance	-	-	-	-	-	-	4,945	494	5,439	5,439	-	-	-	-	-	-	-	-	-	-
2c.4.2	Property taxes	-	-	-	-	-	-	10,250	1,025	11,275	11,275	-	-	-	-	-	-	-	-	-	-
2c.4.3	Health physics supplies	-	3,619	-	-	-	-	-	905	4,524	4,524	-	-	-	-	-	-	-	-	-	-
2c.4.4	Heavy equipment rental	-	1,117	-	-	-	-	-	167	1,284	1,284	-	-	-	-	-	-	-	-	-	-
2c.4.5	Disposal of DAW generated	-	-	97	27	-	336	-	98	557	557	-	-	-	4,543	-	-	-	90,854	148	-
2c.4.6	Plant energy budget	-	-	-	-	-	-	6,792	1,019	7,811	7,811	-	-	-	-	-	-	-	-	-	-
2c.4.7	NRC Fees	-	-	-	-	-	-	3,399	340	3,739	3,739	-	-	-	-	-	-	-	-	-	-
2c.4.8	Emergency Planning Fees	-	-	-	-	-	-	8,479	848	9,327	-	9,327	-	-	-	-	-	-	-	-	-
2c.4.9	Fixed Overhead	-	-	-	-	-	-	14,071	2,111	16,181	16,181	-	-	-	-	-	-	-	-	-	-
2c.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	4,634	695	5,329	-	5,329	-	-	-	-	-	-	-	-	-
2c.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	471	71	541	541	-	-	-	-	-	-	-	-	-	-
2c.4.12	ISFSI Operating Costs	-	-	-	-	-	-	543	81	625	-	625	-	-	-	-	-	-	-	-	-
2c.4.13	Railroad Track Maintenance	-	-	-	-	-	-	607	91	698	698	-	-	-	-	-	-	-	-	-	-
2c.4.14	Utility Staff Cost	-	-	-	-	-	-	8,498	1,275	9,773	9,773	-	-	-	-	-	-	-	-	-	189,986
2c.4	Subtotal Period 2c Period-Dependent Costs	-	4,736	97	27	-	336	62,689	9,220	77,104	61,823	15,281	-	-	4,543	-	-	-	90,854	148	189,986
2c.0	TOTAL PERIOD 2c COST	-	4,736	97	27	-	336	134,385	19,974	159,553	61,823	97,731	-	-	4,543	-	-	-	90,854	148	189,986
PERIOD 2d - Decontamination Following Wet Fuel Storage																					
Period 2d Direct Decommissioning Activities																					
2d.1.1	Remove spent fuel racks	279	28	92	28	-	396	-	259	1,082	1,082	-	-	-	1,569	-	-	-	133,386	576	-
Disposal of Plant Systems																					
2d.1.2.1	Electrical - Contaminated - Fuel Pool	-	121	1	4	48	4	-	39	217	217	-	-	615	17	-	-	-	26,454	2,077	-
2d.1.2.2	Electrical - Decontaminated - Fuel Pool	-	755	9	32	462	-	-	264	1,521	1,521	-	-	5,893	-	-	-	-	239,327	12,340	-
2d.1.2.3	HVAC - Contaminated - Fuel Pool	-	128	3	8	110	10	-	52	311	311	-	-	1,398	40	-	-	-	60,122	2,156	-
2d.1.2.4	Safeguards Chilled Water - RCA	-	68	1	3	39	-	-	23	134	134	-	-	495	-	-	-	-	20,100	1,019	-
2d.1.2.5	Spent Fuel Pool Cooling	240	284	25	22	63	251	-	269	1,155	1,155	-	-	806	994	-	-	-	117,167	7,600	-
2d.1.2.6	Station & Instrument Air - RCA Fuel Pool	-	16	0	0	7	-	-	5	29	29	-	-	83	-	-	-	-	3,374	263	-
2d.1.2	Totals	240	1,372	39	69	728	265	-	653	3,367	3,367	-	-	9,290	1,050	-	-	-	466,544	25,454	-
2d.1.4	Scaffolding in support of decommissioning	-	208	1	0	3	1	-	53	265	265	-	-	35	2	-	-	-	1,747	1,592	-
2d.1	Subtotal Period 2d Activity Costs	519	1,608	132	97	731	662	-	964	4,713	4,713	-	-	9,325	2,622	-	-	-	601,676	27,623	-
Period 2d Additional Costs																					
2d.2.1	License Termination Survey Planning	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
Period 2d Collateral Costs																					
2d.3.1	Process decommissioning water waste	10	-	5	20	-	32	-	16	83	83	-	-	-	83	-	-	-	4,994	16	-
2d.3.2	Process decommissioning chemical flush waste	1	-	20	97	-	218	-	71	407	407	-	-	-	324	-	-	-	34,576	61	-
2d.3.3	Small tool allowance	-	29	-	-	-	-	-	4	33	33	-	-	-	-	-	-	-	-	-	-
2d.3.4	Decommissioning Equipment Disposition	-	-	136	51	521	100	-	124	933	933	-	-	6,000	397	-	-	-	303,726	88	-
2d.3.5	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,031	455	3,486	-	3,486	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	11	29	162	167	521	350	3,031	671	4,943	1,457	3,486	-	6,000	804	-	-	-	343,296	165	-

Table C-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 2d Period-Dependent Costs																					
2d.4.1	Decon supplies	40	-	-	-	-	-	-	10	50	50	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	318	32	350	350	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	392	39	431	431	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	405	-	-	-	-	-	101	507	507	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,436	-	-	-	-	-	215	1,651	1,651	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	18	5	-	61	-	18	102	102	-	-	-	830	-	-	-	16,609	27	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	873	131	1,004	1,004	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	560	56	616	616	-	-	-	-	-	-	-	-	-	-
2d.4.9	Emergency Planning Fees	-	-	-	-	-	-	545	55	600	-	600	-	-	-	-	-	-	-	-	-
2d.4.10	Fixed Overhead	-	-	-	-	-	-	905	136	1,040	1,040	-	-	-	-	-	-	-	-	-	-
2d.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	303	45	348	348	-	-	-	-	-	-	-	-	-	-
2d.4.12	ISFSI Operating Costs	-	-	-	-	-	-	35	5	40	-	40	-	-	-	-	-	-	-	-	-
2d.4.13	Railroad Track Maintenance	-	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-	-	-	-
2d.4.14	Security Staff Cost	-	-	-	-	-	-	146	22	167	167	-	-	-	-	-	-	-	-	-	4,886
2d.4.15	DOC Staff Cost	-	-	-	-	-	-	4,717	708	5,424	5,424	-	-	-	-	-	-	-	-	-	70,436
2d.4.16	Utility Staff Cost	-	-	-	-	-	-	6,477	972	7,449	7,449	-	-	-	-	-	-	-	-	-	127,029
2d.4	Subtotal Period 2d Period-Dependent Costs	40	1,841	18	5	-	61	15,310	2,550	19,824	19,185	640	-	-	830	-	-	-	16,609	27	202,350
2d.0	TOTAL PERIOD 2d COST	570	3,478	311	269	1,252	1,073	18,867	4,344	30,165	26,039	4,126	-	15,325	4,257	-	-	-	961,582	27,815	208,590
PERIOD 2f - License Termination																					
Period 2f Direct Decommissioning Activities																					
2f.1.1	ORISE confirmatory survey	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
2f.1.2	Terminate license									a											
2f.1	Subtotal Period 2f Activity Costs	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
Period 2f Additional Costs																					
2f.2.1	License Termination Survey	-	-	-	-	-	-	2,363	709	3,071	3,071	-	-	-	-	-	-	-	-	40,172	3,120
2f.2	Subtotal Period 2f Additional Costs	-	-	-	-	-	-	2,363	709	3,071	3,071	-	-	-	-	-	-	-	-	40,172	3,120
Period 2f Collateral Costs																					
2f.3.1	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
2f.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	194	29	223	-	223	-	-	-	-	-	-	-	-	-
2f.3	Subtotal Period 2f Collateral Costs	-	-	-	-	-	-	1,223	183	1,407	1,184	223	-	-	-	-	-	-	-	-	-
Period 2f Period-Dependent Costs																					
2f.4.1	Insurance	-	-	-	-	-	-	287	29	316	316	-	-	-	-	-	-	-	-	-	-
2f.4.2	Property taxes	-	-	-	-	-	-	348	35	383	383	-	-	-	-	-	-	-	-	-	-
2f.4.3	Health physics supplies	-	352	-	-	-	-	-	88	441	441	-	-	-	-	-	-	-	-	-	-
2f.4.4	Disposal of DAW generated	-	-	7	2	-	25	-	7	41	41	-	-	-	334	-	-	-	6,685	11	-
2f.4.5	Plant energy budget	-	-	-	-	-	-	418	63	481	481	-	-	-	-	-	-	-	-	-	-
2f.4.6	NRC Fees	-	-	-	-	-	-	575	58	633	633	-	-	-	-	-	-	-	-	-	-
2f.4.7	Emergency Planning Fees	-	-	-	-	-	-	44	4	49	-	49	-	-	-	-	-	-	-	-	-
2f.4.8	Fixed Overhead	-	-	-	-	-	-	867	130	997	997	-	-	-	-	-	-	-	-	-	-
2f.4.9	ISFSI Operating Costs	-	-	-	-	-	-	33	5	38	-	38	-	-	-	-	-	-	-	-	-
2f.4.10	Railroad Track Maintenance	-	-	-	-	-	-	37	6	43	43	-	-	-	-	-	-	-	-	-	-
2f.4.11	Security Staff Cost	-	-	-	-	-	-	139	21	160	160	-	-	-	-	-	-	-	-	-	4,680
2f.4.12	DOC Staff Cost	-	-	-	-	-	-	3,198	480	3,677	3,677	-	-	-	-	-	-	-	-	-	46,410
2f.4.13	Utility Staff Cost	-	-	-	-	-	-	3,175	476	3,652	3,652	-	-	-	-	-	-	-	-	-	59,670
2f.4	Subtotal Period 2f Period-Dependent Costs	-	352	7	2	-	25	9,123	1,401	10,910	10,823	87	-	-	334	-	-	-	6,685	11	110,760
2f.0	TOTAL PERIOD 2f COST	-	352	7	2	-	25	12,862	2,339	15,588	15,278	310	-	-	334	-	-	-	6,685	40,183	113,880
PERIOD 2 TOTALS		4,283	45,898	29,591	5,526	10,326	24,992	264,253	72,734	457,602	319,122	133,933	4,547	132,854	63,795	584	918	-	10,128,730	495,776	1,518,345

Table C-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Reactor	-	5,471	-	-	-	-	-	821	6,292	-	-	6,292	-	-	-	-	-	-	66,349	-
3b.1.1.2	Condensate Storage Tank Foundation	-	7	-	-	-	-	-	1	8	-	-	8	-	-	-	-	-	-	95	-
3b.1.1.3	Turbine	-	2,505	-	-	-	-	-	376	2,881	-	-	2,881	-	-	-	-	-	-	34,340	-
3b.1.1.4	Turbine Pedestal	-	754	-	-	-	-	-	113	867	-	-	867	-	-	-	-	-	-	7,580	-
3b.1.1	Totals	-	8,737	-	-	-	-	-	1,311	10,048	-	-	10,048	-	-	-	-	-	-	108,365	-
Site Closeout Activities																					
3b.1.2	Grade & landscape site	-	490	-	-	-	-	-	74	564	-	-	564	-	-	-	-	-	-	921	-
3b.1.3	Final report to NRC	-	-	-	-	-	-	146	22	168	168	-	-	-	-	-	-	-	-	-	1,560
3b.1	Subtotal Period 3b Activity Costs	-	9,228	-	-	-	-	146	1,406	10,780	168	-	10,612	-	-	-	-	-	-	109,285	1,560
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	239	-	-	-	-	2	36	278	-	-	278	-	-	-	-	-	-	1,126	-
3b.2	Subtotal Period 3b Additional Costs	-	239	-	-	-	-	2	36	278	-	-	278	-	-	-	-	-	-	1,126	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	108	-	-	-	-	-	16	124	-	-	124	-	-	-	-	-	-	-	-
3b.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	354	53	407	-	407	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	108	-	-	-	-	354	69	532	-	407	124	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	407	41	447	-	447	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	839	84	923	-	923	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	5,588	-	-	-	-	-	838	6,426	-	-	6,426	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	593	89	682	-	-	682	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	294	29	323	-	323	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	126	13	138	-	138	-	-	-	-	-	-	-	-	-
3b.4.7	Fixed Overhead	-	-	-	-	-	-	1,065	160	1,225	1,225	-	-	-	-	-	-	-	-	-	-
3b.4.8	ISFSI Operating Costs	-	-	-	-	-	-	95	14	109	-	109	-	-	-	-	-	-	-	-	-
3b.4.9	Railroad Track Maintenance	-	-	-	-	-	-	106	16	122	122	-	-	-	-	-	-	-	-	-	-
3b.4.10	Security Staff Cost	-	-	-	-	-	-	2,554	383	2,937	(0)	1,997	940	-	-	-	-	-	-	-	74,658
3b.4.11	DOC Staff Cost	-	-	-	-	-	-	8,197	1,229	9,426	-	-	9,426	-	-	-	-	-	-	-	117,206
3b.4.12	Utility Staff Cost	-	-	-	-	-	-	4,194	629	4,823	-	4,147	675	-	-	-	-	-	-	-	74,658
3b.4	Subtotal Period 3b Period-Dependent Costs	-	5,588	-	-	-	-	18,468	3,525	27,581	1,347	8,085	18,149	-	-	-	-	-	-	-	266,521
3b.0	TOTAL PERIOD 3b COST	-	15,163	-	-	-	-	18,971	5,037	39,170	1,515	8,493	29,163	-	-	-	-	-	-	110,411	268,081
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,288	493	3,781	-	3,781	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	3,288	493	3,781	-	3,781	-	-	-	-	-	-	-	-	-

Table C-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	2,397	240	2,637	-	2,637	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	4,490	449	4,938	-	4,938	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	1,733	173	1,906	-	1,906	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	740	74	814	-	814	-	-	-	-	-	-	-	-	-
3c.4.6	Fixed Overhead	-	-	-	-	-	-	6,276	941	7,217	-	7,217	-	-	-	-	-	-	-	-	-
3c.4.7	ISFSI Operating Costs	-	-	-	-	-	-	559	84	643	-	643	-	-	-	-	-	-	-	-	-
3c.4.8	Railroad Track Maintenance	-	-	-	-	-	-	624	94	718	-	718	-	-	-	-	-	-	-	-	-
3c.4.9	Security Staff Cost	-	-	-	-	-	-	12,427	1,864	14,291	-	14,291	-	-	-	-	-	-	-	-	351,849
3c.4.10	Utility Staff Cost	-	-	-	-	-	-	4,415	662	5,077	-	5,077	-	-	-	-	-	-	-	-	88,092
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	33,660	4,581	38,241	-	38,241	-	-	-	-	-	-	-	-	439,941
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	36,948	5,074	42,022	-	42,022	-	-	-	-	-	-	-	-	439,941
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
3d.1.1	Totals	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	7	1	8	-	8	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	14	1	15	-	15	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	5	1	6	-	6	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.6	Fixed Overhead	-	-	-	-	-	-	19	3	22	-	22	-	-	-	-	-	-	-	-	-
3d.4.7	ISFSI Operating Costs	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.8	Railroad Track Maintenance	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.9	Security Staff Cost	-	-	-	-	-	-	38	6	44	-	44	-	-	-	-	-	-	-	-	1,080
3d.4.10	Utility Staff Cost	-	-	-	-	-	-	14	2	16	-	16	-	-	-	-	-	-	-	-	270
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	103	14	117	-	117	-	-	-	-	-	-	-	-	1,350
3d.0	TOTAL PERIOD 3d COST	-	-	1,096	-	-	9,588	103	1,562	12,350	12,232	117	-	-	-	-	-	3,724	857,261	-	1,350
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI License Termination (TN-40)	-	5	0	0	-	1	622	95	724	-	724	-	-	17	-	-	-	349	1,437	1,280
3e.2	Subtotal Period 3e Additional Costs	-	5	0	0	-	1	622	95	724	-	724	-	-	17	-	-	-	349	1,437	1,280
Period 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	64	6	70	-	70	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	119	12	131	-	131	-	-	-	-	-	-	-	-	-
3e.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3e.4.4	NRC ISFSI Fees	-	-	-	-	-	-	36	4	39	-	39	-	-	-	-	-	-	-	-	-
3e.4.5	Railroad Track Maintenance	-	-	-	-	-	-	17	2	19	-	19	-	-	-	-	-	-	-	-	-
3e.4.6	Security Staff Cost	-	-	-	-	-	-	89	13	103	-	103	-	-	-	-	-	-	-	-	2,510
3e.4.7	Utility Staff Cost	-	-	-	-	-	-	98	15	113	-	113	-	-	-	-	-	-	-	-	1,901
3e.4	Subtotal Period 3e Period-Dependent Costs	-	-	-	-	-	-	422	52	475	-	475	-	-	-	-	-	-	-	-	4,411
3e.0	TOTAL PERIOD 3e COST	-	5	0	0	-	1	1,044	147	1,198	-	1,198	-	-	17	-	-	-	349	1,437	5,691

Table C-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Site Restoration (TN-40)	-	137	-	-	-	-	22	24	183	-	183	-	-	-	-	-	-	-	137	80
3f.2	Subtotal Period 3f Additional Costs	-	137	-	-	-	-	22	24	183	-	183	-	-	-	-	-	-	-	137	80
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	2	-	-	-	-	-	0	3	-	3	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	2	-	-	-	-	-	0	3	-	3	-	-	-	-	-	-	-	-	-
Period 3f Period-Dependent Costs																					
3f.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.2	Property taxes	-	-	-	-	-	-	60	6	66	-	66	-	-	-	-	-	-	-	-	-
3f.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.4	Railroad Track Maintenance	-	-	-	-	-	-	8	1	10	-	10	-	-	-	-	-	-	-	-	-
3f.4.5	Security Staff Cost	-	-	-	-	-	-	45	7	52	-	52	-	-	-	-	-	-	-	-	1,265
3f.4.6	Utility Staff Cost	-	-	-	-	-	-	39	6	44	-	44	-	-	-	-	-	-	-	-	784
3f.4	Subtotal Period 3f Period-Dependent Costs	-	-	-	-	-	-	152	20	172	-	172	-	-	-	-	-	-	-	-	2,050
3f.0	TOTAL PERIOD 3f COST	-	139	-	-	-	-	174	44	358	-	358	-	-	-	-	-	-	-	137	2,130
PERIOD 3 TOTALS		-	15,307	1,096	0	-	9,590	57,241	11,864	95,099	13,747	52,189	29,163	-	17	-	-	3,724	857,610	111,986	717,194
TOTAL COST TO DECOMMISSION		**7,114**	**65,795**	**31,030**	**5,913**	**10,468**	**37,727**	**397,704**	**98,607**	**654,359**	**428,772**	**190,717**	**34,870**	**138,987**	**77,777**	**1,173**	**918**	**3,724**	**11,596,480**	**652,380**	**3,071,341**

TOTAL COST TO DECOMMISSION WITH 17.74% CONTINGENCY:	**$654,359**	**thousands of 2011 dollars**
TOTAL NRC LICENSE TERMINATION COST IS 65.53% OR:	**$428,772**	**thousands of 2011 dollars**
SPENT FUEL MANAGEMENT COST IS 29.15% OR:	**$190,717**	**thousands of 2011 dollars**
NON-NUCLEAR DEMOLITION COST IS 5.33% OR:	**$34,870**	**thousands of 2011 dollars**
TOTAL LOW-LEVEL RADWASTE VOLUME BURIED (EXCLUDING GTCC):	**79,868**	**Cubic Feet**
TOTAL TERTIARY SITE RADWASTE VOLUME BURIED:		**Cubic Feet**
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	**3,724**	**Cubic Feet**
TOTAL SCRAP METAL REMOVED:	**28,060**	**Tons**
TOTAL CRAFT LABOR REQUIREMENTS:	**652,380**	**Man-hours**

End Notes:
n/a - indicates that this activity not charged as decommissioning expense.
a - indicates that this activity performed by decommissioning staff.
0 - indicates that this value is less than 0.5 but is non-zero.
a cell containing " - " indicates a zero value

Table C-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	52	8	60	60	-	-	-	-	-	-	-	-	-	556
1a.1.2	Notification of Cessation of Operations									a											
1a.1.3	Remove fuel & source material									n/a											
1a.1.4	Notification of Permanent Defueling									a											
1a.1.5	Deactivate plant systems & process waste									a											
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	80	12	92	92	-	-	-	-	-	-	-	-	-	856
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1a.1.10	End product description	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	52	8	60	60	-	-	-	-	-	-	-	-	-	556
1a.1.12	Define major work sequence	-	-	-	-	-	-	301	45	346	346	-	-	-	-	-	-	-	-	-	3,210
1a.1.13	Perform SER and EA	-	-	-	-	-	-	124	19	143	143	-	-	-	-	-	-	-	-	-	1,327
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	200	30	230	230	-	-	-	-	-	-	-	-	-	2,140
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	164	25	189	189	-	-	-	-	-	-	-	-	-	1,753
1a.1.16	Receive NRC approval of termination plan									a											
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	197	30	227	204	-	23	-	-	-	-	-	-	-	2,106
1a.1.17.2	Plant systems	-	-	-	-	-	-	167	25	192	173	-	19	-	-	-	-	-	-	-	1,783
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	20	3	23	23	-	-	-	-	-	-	-	-	-	214
1a.1.17.4	Reactor internals	-	-	-	-	-	-	285	43	327	327	-	-	-	-	-	-	-	-	-	3,039
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	261	39	300	300	-	-	-	-	-	-	-	-	-	2,782
1a.1.17.6	Biological shield	-	-	-	-	-	-	20	3	23	23	-	-	-	-	-	-	-	-	-	214
1a.1.17.7	Steam generators	-	-	-	-	-	-	125	19	144	144	-	-	-	-	-	-	-	-	-	1,335
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	64	10	74	37	-	37	-	-	-	-	-	-	-	685
1a.1.17.9	Main Turbine	-	-	-	-	-	-	16	2	18	-	-	18	-	-	-	-	-	-	-	171
1a.1.17.10	Main Condensers	-	-	-	-	-	-	16	2	18	-	-	18	-	-	-	-	-	-	-	171
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	125	19	144	72	-	72	-	-	-	-	-	-	-	1,335
1a.1.17.12	Waste management	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	36	5	41	21	-	21	-	-	-	-	-	-	-	385
1a.1.17	Total	-	-	-	-	-	-	1,516	227	1,743	1,535	-	208	-	-	-	-	-	-	-	16,190
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	96	14	111	111	-	-	-	-	-	-	-	-	-	1,027
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	2,800	420	3,220	3,220	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	56	8	65	65	-	-	-	-	-	-	-	-	-	599
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,200	330	2,530	2,530	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	49	7	57	57	-	-	-	-	-	-	-	-	-	526
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	7,956	1,193	9,149	8,941	-	208	-	-	-	-	-	-	-	31,566
Period 1a Additional Costs																					
1a.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
1a.2	Subtotal Period 1a Additional Costs	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
Period 1a Collateral Costs																					
1a.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	15,081	2,262	17,344	-	17,344	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	-	-	-	-	-	15,081	2,262	17,344	-	17,344	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	970	97	1,067	1,067	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	1,303	130	1,433	1,433	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	407	-	-	-	-	-	102	509	509	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	426	-	-	-	-	-	64	490	490	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	12	3	-	42	-	12	69	69	-	-	-	565	-	-	-	11,299	18	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	2,796	419	3,216	3,216	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	514	51	565	565	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	973	97	1,071	-	1,071	-	-	-	-	-	-	-	-	-
1a.4.9	Fixed Overhead	-	-	-	-	-	-	1,437	216	1,652	1,652	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	382	57	439	-	439	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	45	7	51	-	51	-	-	-	-	-	-	-	-	-
1a.4.12	Railroad Track Maintenance	-	-	-	-	-	-	50	7	57	57	-	-	-	-	-	-	-	-	-	-

Table C-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1a Period-Dependent Costs (continued)																					
1a.4.13	Security Staff Cost	-	-	-	-	-	-	5,004	751	5,754	5,754	-	-	-	-	-	-	-	-	-	157,471
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	16,333	2,450	18,783	18,783	-	-	-	-	-	-	-	-	-	346,229
1a.4	Subtotal Period 1a Period-Dependent Costs	-	833	12	3	-	42	29,806	4,461	35,157	33,596	1,561	-	-	565	-	-	-	11,299	18	503,700
1a.0	TOTAL PERIOD 1a COST	-	833	12	3	-	42	57,983	8,687	67,561	48,448	18,905	208	-	565	-	-	-	11,299	18	535,266
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	190	28	218	196	-	22	-	-	-	-	-	-	-	2,026
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.3	Reactor internals	-	-	-	-	-	-	100	15	115	115	-	-	-	-	-	-	-	-	-	1,070
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	54	8	62	16	-	47	-	-	-	-	-	-	-	578
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	145	22	167	167	-	-	-	-	-	-	-	-	-	1,554
1b.1.1.9	Facility closeout	-	-	-	-	-	-	48	7	55	28	-	28	-	-	-	-	-	-	-	514
1b.1.1.10	Missile shields	-	-	-	-	-	-	18	3	21	21	-	-	-	-	-	-	-	-	-	193
1b.1.1.11	Biological shield	-	-	-	-	-	-	48	7	55	55	-	-	-	-	-	-	-	-	-	514
1b.1.1.12	Steam generators	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	40	6	46	23	-	23	-	-	-	-	-	-	-	428
1b.1.1.14	Main Turbine	-	-	-	-	-	-	63	9	72	-	-	72	-	-	-	-	-	-	-	668
1b.1.1.15	Main Condensers	-	-	-	-	-	-	63	9	72	-	-	72	-	-	-	-	-	-	-	668
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	109	16	126	113	-	13	-	-	-	-	-	-	-	1,168
1b.1.1.17	Reactor building	-	-	-	-	-	-	109	16	126	113	-	13	-	-	-	-	-	-	-	1,168
1b.1.1	Total	-	-	-	-	-	-	1,332	200	1,532	1,244	-	288	-	-	-	-	-	-	-	14,228
1b.1.2	Decon primary loop	447	-	-	-	-	-	-	224	671	671	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	447	-	-	-	-	-	1,332	424	2,203	1,915	-	288	-	-	-	-	-	-	1,067	14,228
Period 1b Additional Costs																					
1b.2.1	Site Characterization	-	-	-	-	-	-	1,185	356	1,541	1,541	-	-	-	-	-	-	-	-	8,988	3,563
1b.2.2	Mixed/Hazardous Waste	-	-	281	69	146	-	-	60	557	557	-	-	6,324	-	-	-	-	362,914	2,410	-
1b.2.3	Asbestos Abatement	-	2,056	1	102	-	835	-	738	3,732	3,732	-	-	-	12,843	-	-	-	166,959	20,000	-
1b.2	Subtotal Period 1b Additional Costs	-	2,056	283	171	146	835	1,185	1,154	5,830	5,830	-	-	6,324	12,843	-	-	-	529,873	31,398	3,563
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	833	-	-	-	-	-	-	125	958	958	-	-	-	-	-	-	-	-	-	-
1b.3.2	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process decommissioning water waste	24	-	10	36	-	58	-	33	160	160	-	-	-	152	-	-	-	9,121	30	-
1b.3.4	Process decommissioning chemical flush waste	1	-	37	175	-	2,182	-	576	2,971	2,971	-	-	-	-	588	-	-	62,689	110	-
1b.3.5	Small tool allowance	-	26	-	-	-	-	-	4	30	30	-	-	-	-	-	-	-	-	-	-
1b.3.6	Pipe cutting equipment	-	1,100	-	-	-	-	-	165	1,265	1,265	-	-	-	-	-	-	-	-	-	-
1b.3.7	Decon rig	1,500	-	-	-	-	-	-	225	1,725	1,725	-	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,341	501	3,843	-	3,843	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	2,358	1,126	46	211	-	2,239	4,371	1,783	12,135	8,292	3,843	-	-	152	588	-	-	71,810	140	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	26	-	-	-	-	-	-	6	32	32	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	489	49	538	538	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	657	66	722	722	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	316	-	-	-	-	-	79	395	395	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	215	-	-	-	-	-	32	247	247	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	7	2	-	24	-	7	40	40	-	-	-	327	-	-	-	6,541	11	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	2,819	423	3,242	3,242	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	259	26	285	285	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	491	49	540	-	540	-	-	-	-	-	-	-	-	-
1b.4.10	Fixed Overhead	-	-	-	-	-	-	724	109	833	833	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	192	29	221	-	221	-	-	-	-	-	-	-	-	-
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	23	3	26	-	26	-	-	-	-	-	-	-	-	-
1b.4.13	Railroad Track Maintenance	-	-	-	-	-	-	25	4	29	29	-	-	-	-	-	-	-	-	-	-
1b.4.14	Security Staff Cost	-	-	-	-	-	-	2,522	378	2,901	2,901	-	-	-	-	-	-	-	-	-	79,383

Table C-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1b Period-Dependent Costs (continued)																					
1b.4.15	DOC Staff Cost	-	-	-	-	-	-	3,092	464	3,556	3,556	-	-	-	-	-	-	-	-	-	47,314
1b.4.16	Utility Staff Cost	-	-	-	-	-	-	8,234	1,235	9,469	9,469	-	-	-	-	-	-	-	-	-	174,537
1b.4	Subtotal Period 1b Period-Dependent Costs	26	531	7	2	-	24	19,527	2,959	23,075	22,288	787	-	-	327	-	-	-	6,541	11	301,234
1b.0	TOTAL PERIOD 1b COST	2,831	3,712	336	384	146	3,098	26,415	6,320	43,243	38,325	4,630	288	6,324	13,322	588	-	-	608,224	32,615	319,025
PERIOD 1 TOTALS		2,831	4,546	348	387	146	3,140	84,398	15,007	110,804	86,773	23,534	496	6,324	13,887	588	-	-	619,523	32,633	854,291
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	43	37	6	7	-	103	-	59	256	256	-	-	-	305	-	-	-	34,809	1,414	-
2a.1.1.2	Pressurizer Relief Tank	19	16	4	5	-	63	-	30	138	138	-	-	-	192	-	-	-	21,288	625	-
2a.1.1.3	Reactor Coolant Pumps & Motors	46	55	83	73	-	666	-	222	1,144	1,144	-	-	-	2,332	-	-	-	295,800	2,049	100
2a.1.1.4	Pressurizer	32	62	350	69	-	535	-	211	1,258	1,258	-	-	-	1,874	-	-	-	158,199	2,213	938
2a.1.1.5	Steam Generators	190	2,703	1,863	1,556	1,129	3,230	-	2,167	12,837	12,837	-	-	18,672	11,316	-	-	-	1,668,341	11,617	2,875
2a.1.1.6	CRDMs/ICIs/Service Structure Removal	241	98	213	44	-	403	-	274	1,274	1,274	-	-	-	4,797	-	-	-	135,744	5,671	-
2a.1.1.7	Reactor Vessel Internals	103	2,373	18,389	1,435	-	10,984	208	12,310	45,802	45,802	-	-	-	501	527	918	-	225,717	22,533	1,033
2a.1.1.8	Reactor Vessel	60	4,206	1,491	534	-	1,509	208	4,477	12,485	12,485	-	-	-	5,315	-	-	-	566,474	22,533	1,033
2a.1.1	Totals	733	9,550	22,399	3,723	1,129	17,493	416	19,749	75,193	75,193	-	-	18,672	26,632	527	918	-	3,106,373	68,655	5,980
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	262	184	50	329	282	-	211	1,319	1,319	-	-	2,131	1,187	-	-	-	271,373	4,667	-
2a.1.3	Main Condensers	-	2,222	108	44	330	300	-	698	3,702	3,702	-	-	3,800	1,190	-	-	-	272,178	39,151	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Reactor	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,414	-
2a.1.4.2	Auxiliary	-	398	-	-	-	-	-	60	457	457	-	-	-	-	-	-	-	-	4,945	-
2a.1.4.3	Radwaste	-	14	-	-	-	-	-	2	16	16	-	-	-	-	-	-	-	-	179	-
2a.1.4	Totals	-	1,357	-	-	-	-	-	204	1,560	1,560	-	-	-	-	-	-	-	-	16,538	-
Disposal of Plant Systems																					
2a.1.5.1	Admin Bldg Ventilation	-	5	-	-	-	-	-	1	6	-	-	6	-	-	-	-	-	-	90	-
2a.1.5.2	Air Removal	-	23	-	-	-	-	-	3	26	-	-	26	-	-	-	-	-	-	422	-
2a.1.5.3	Auxiliary Feedwater	-	36	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	676	-
2a.1.5.4	Auxiliary Feedwater - RCA	-	30	0	1	14	-	-	10	55	55	-	-	178	-	-	-	-	7,214	486	-
2a.1.5.5	Bleed Steam	-	70	-	-	-	-	-	11	81	-	-	81	-	-	-	-	-	-	1,331	-
2a.1.5.6	Caustic Addition - RCA	-	32	0	1	19	-	-	11	63	63	-	-	240	-	-	-	-	9,761	468	-
2a.1.5.7	Chemical Feed	-	13	-	-	-	-	-	2	15	-	-	15	-	-	-	-	-	-	261	-
2a.1.5.8	Chemical Feed - RCA	-	2	0	0	1	-	-	1	4	4	-	-	16	-	-	-	-	634	31	-
2a.1.5.9	Circulating Water	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	401	-
2a.1.5.10	Condensate	-	411	-	-	-	-	-	62	472	-	-	472	-	-	-	-	-	-	7,537	-
2a.1.5.11	Condensate Polishing	-	162	-	-	-	-	-	24	186	-	-	186	-	-	-	-	-	-	2,987	-
2a.1.5.12	Condensate Polishing - RCA	-	30	1	3	38	-	-	14	85	85	-	-	483	-	-	-	-	19,616	493	-
2a.1.5.13	Electro-Hydraulic	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	143	-
2a.1.5.14	External Circulating Water	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	385	-
2a.1.5.15	External Circulating Water - RCA	-	58	1	4	57	-	-	24	143	143	-	-	721	-	-	-	-	29,284	938	-
2a.1.5.16	Feedwater	-	99	-	-	-	-	-	15	114	-	-	114	-	-	-	-	-	-	1,840	-
2a.1.5.17	Feedwater - RCA	-	197	6	22	325	-	-	102	652	652	-	-	4,147	-	-	-	-	168,414	3,377	-
2a.1.5.18	Gland Seal	-	26	-	-	-	-	-	4	30	-	-	30	-	-	-	-	-	-	504	-
2a.1.5.19	Heater Drain	-	300	-	-	-	-	-	45	345	-	-	345	-	-	-	-	-	-	5,638	-
2a.1.5.20	Hypobromous Acid Feed	-	5	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	86	-
2a.1.5.21	Hypobromous Acid Feed - RCA	-	1	0	0	0	-	-	0	1	1	-	-	2	-	-	-	-	100	12	-
2a.1.5.22	Internal Circ Water & CDSR	-	20	-	-	-	-	-	3	22	-	-	22	-	-	-	-	-	-	366	-
2a.1.5.23	Main Gen/Exciter/Transformer	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2a.1.5.24	Main Steam	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	1,482	-
2a.1.5.25	Main Steam - RCA	-	302	8	28	405	-	-	141	884	884	-	-	5,166	-	-	-	-	209,799	5,146	-
2a.1.5.26	Repairable Spare Snubbers	-	5	0	0	1	-	-	1	7	7	-	-	12	-	-	-	-	490	82	-
2a.1.5.27	Steam Exclusion	-	2	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	32	-
2a.1.5.28	Steam Exclusion - RCA	-	3	0	0	2	-	-	1	7	7	-	-	24	-	-	-	-	966	47	-
2a.1.5.29	Steam Generator Blowdown	-	331	15	19	149	119	-	139	773	773	-	-	1,906	483	-	-	-	117,630	5,771	-
2a.1.5.30	Steam Generators	-	4	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	75	-
2a.1.5.31	Turbine & Moisture Separators	-	296	-	-	-	-	-	44	340	-	-	340	-	-	-	-	-	-	5,472	-

Table C-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Disposal of Plant Systems (continued)																					
2a.1.5.32	Turbine Oil Purification	-	41	-	-	-	-	-	6	47	-	-	47	-	-	-	-	-	-	757	-
2a.1.5.33	Water Treatment	-	353	-	-	-	-	-	53	406	-	-	406	-	-	-	-	-	-	6,677	-
2a.1.5.34	Water Treatment - RCA	-	16	0	1	9	-	-	6	32	32	-	-	115	-	-	-	-	4,652	252	-
2a.1.5	Totals	-	2,999	32	79	1,020	119	-	748	4,997	2,706	-	2,291	13,010	483	-	-	-	568,561	54,274	-
2a.1.6	Scaffolding in support of decommissioning	-	2,637	23	7	88	17	-	680	3,453	3,453	-	-	1,012	67	-	-	-	51,236	26,270	-
2a.1	Subtotal Period 2a Activity Costs	733	19,028	22,745	3,903	2,895	18,212	416	22,290	90,224	87,933	-	2,291	38,625	29,559	527	918	-	4,269,720	209,554	5,980
Period 2a Collateral Costs																					
2a.3.1	Process decommissioning water waste	49	-	20	74	-	119	-	67	330	330	-	-	-	314	-	-	-	18,857	61	-
2a.3.2	Process decommissioning chemical flush waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.3.3	Small tool allowance	-	210	-	-	-	-	-	31	241	217	-	24	-	-	-	-	-	-	-	-
2a.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	7,622	1,143	8,765	-	8,765	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	49	210	20	74	-	119	7,622	1,242	9,336	547	8,765	24	-	314	-	-	-	18,857	61	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	66	-	-	-	-	-	-	17	83	83	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	530	53	583	583	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	1,560	156	1,716	1,545	-	172	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,417	-	-	-	-	-	354	1,772	1,772	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	2,412	-	-	-	-	-	362	2,774	2,774	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	84	23	-	290	-	84	482	482	-	-	-	3,930	-	-	-	78,601	128	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	3,457	519	3,975	3,975	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	640	64	704	704	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	909	91	999	-	999	-	-	-	-	-	-	-	-	-
2a.4.10	Fixed Overhead	-	-	-	-	-	-	1,508	226	1,734	1,734	-	-	-	-	-	-	-	-	-	-
2a.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	497	74	571	-	571	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	58	9	67	-	67	-	-	-	-	-	-	-	-	-
2a.4.13	Railroad Track Maintenance	-	-	-	-	-	-	65	10	75	75	-	-	-	-	-	-	-	-	-	-
2a.4.14	Security Staff Cost	-	-	-	-	-	-	5,521	828	6,349	6,349	-	-	-	-	-	-	-	-	-	171,679
2a.4.15	DOC Staff Cost	-	-	-	-	-	-	13,873	2,081	15,954	15,954	-	-	-	-	-	-	-	-	-	206,286
2a.4.16	Utility Staff Cost	-	-	-	-	-	-	19,283	2,892	22,176	22,176	-	-	-	-	-	-	-	-	-	384,071
2a.4	Subtotal Period 2a Period-Dependent Costs	66	3,830	84	23	-	290	47,900	7,820	60,013	58,204	1,637	172	-	3,930	-	-	-	78,601	128	762,036
2a.0	TOTAL PERIOD 2a COST	849	23,068	22,849	4,000	2,895	18,622	55,938	31,353	159,573	146,683	10,402	2,487	38,625	33,803	527	918	-	4,367,179	209,743	768,015
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	ADT & Misc Ventilation	-	20	0	1	12	2	-	7	42	42	-	-	153	7	-	-	-	6,796	363	-
2b.1.1.2	Aux Bldg Normal Ventilation	-	55	2	4	54	7	-	25	147	147	-	-	692	29	-	-	-	30,575	1,012	-
2b.1.1.3	Aux Bldg Special Ventilation	-	11	0	0	6	1	-	4	22	22	-	-	70	4	-	-	-	3,228	197	-
2b.1.1.4	Battery Rm Special Ventilation	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	24	-
2b.1.1.5	Boron Recycle	0	3	0	0	0	2	-	1	7	7	-	-	3	7	-	-	-	684	50	-
2b.1.1.6	Chemical & Volume Control	595	748	46	39	185	374	-	616	2,603	2,603	-	-	2,356	1,557	-	-	-	221,508	23,175	-
2b.1.1.7	Cold Chemical Lab Ventilation	-	1	-	-	-	-	-	0	1	-	-	1	-	-	-	-	-	-	9	-
2b.1.1.8	Component Cooling - RCA	-	515	18	65	940	-	-	281	1,819	1,819	-	-	11,996	-	-	-	-	487,169	8,583	-
2b.1.1.9	Containment Cooling	-	27	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	-	502	-
2b.1.1.10	Containment Cooling - RCA	-	240	4	15	215	-	-	95	569	569	-	-	2,743	-	-	-	-	111,390	3,949	-
2b.1.1.11	Containment Hydrogen Control - RCA	-	29	0	1	11	-	-	9	50	50	-	-	141	-	-	-	-	5,742	494	-
2b.1.1.12	Containment Spray - RCA	-	154	2	8	114	-	-	57	335	335	-	-	1,453	-	-	-	-	59,019	2,617	-
2b.1.1.13	Containment Ventilation	-	186	18	35	370	137	-	143	890	890	-	-	4,721	541	-	-	-	237,746	3,370	-
2b.1.1.14	Control/Relay/Cmptr Rm Vent	-	25	1	2	20	4	-	11	62	62	-	-	260	15	-	-	-	11,864	454	-
2b.1.1.15	Cooling Water	-	124	-	-	-	-	-	19	143	-	-	143	-	-	-	-	-	-	2,344	-
2b.1.1.16	Cooling Water - RCA	-	380	13	45	662	-	-	202	1,302	1,302	-	-	8,442	-	-	-	-	342,822	6,311	-
2b.1.1.17	Cranes/Hoists/Elevators - RCA	-	3	0	1	8	-	-	2	13	13	-	-	103	-	-	-	-	4,184	48	-
2b.1.1.18	D3 Emergency Diesel	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	141	-
2b.1.1.19	D4 Emergency Diesel	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	141	-
2b.1.1.20	D5 Emergency Diesel	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2b.1.1.21	Electrical - Clean	-	1,341	-	-	-	-	-	201	1,542	-	-	1,542	-	-	-	-	-	-	24,276	-
2b.1.1.22	Electrical - Contaminated	-	378	4	12	157	14	-	124	689	689	-	-	1,997	56	-	-	-	85,904	6,502	-
2b.1.1.23	Electrical - Decontaminated	-	2,357	28	101	1,470	-	-	828	4,784	4,784	-	-	18,753	-	-	-	-	761,569	38,423	-

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Prairie Island DECON Unit 2
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(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Disposal of Plant Systems (continued)																					
2b.1.1.24	Filter Rm Ventilation	-	4	0	0	2	0	-	1	7	7	-	-	24	1	-	-	-	1,018	69	-
2b.1.1.25	Fire Protection & Detection	-	159	-	-	-	-	-	24	183	-	-	183	-	-	-	-	-	-	3,009	-
2b.1.1.26	Fire Protection & Detection - RCA	-	196	3	10	143	-	-	72	424	424	-	-	1,828	-	-	-	-	74,245	3,134	-
2b.1.1.27	Fuel Handling	-	59	1	2	16	9	-	20	106	106	-	-	200	37	-	-	-	11,280	1,101	-
2b.1.1.28	Fuel Oil	-	1	-	-	-	-	-	0	1	-	-	1	-	-	-	-	-	-	9	-
2b.1.1.29	HVAC - Clean	-	119	-	-	-	-	-	18	136	-	-	136	-	-	-	-	-	-	2,373	-
2b.1.1.30	HVAC - Contaminated	-	983	22	63	842	77	-	403	2,390	2,390	-	-	10,745	304	-	-	-	462,193	16,575	-
2b.1.1.31	Heating	-	250	-	-	-	-	-	38	288	-	-	288	-	-	-	-	-	-	4,804	-
2b.1.1.32	Heating - RCA	-	270	3	10	149	-	-	92	524	524	-	-	1,907	-	-	-	-	77,458	4,086	-
2b.1.1.33	Hot Lab & Sample Rm Ventilation	-	16	0	1	8	1	-	5	31	31	-	-	107	3	-	-	-	4,623	285	-
2b.1.1.34	Incore Instrumentation	0	24	1	1	5	11	-	10	51	51	-	-	60	43	-	-	-	6,122	457	-
2b.1.1.35	Misc Drains & Vents	-	186	9	8	36	81	-	74	394	394	-	-	458	320	-	-	-	45,786	3,175	-
2b.1.1.36	Misc Lab & Service Areas Vent	-	103	6	5	29	46	-	43	232	232	-	-	370	183	-	-	-	30,543	1,709	-
2b.1.1.37	Miscellaneous Gas	-	56	-	-	-	-	-	8	64	-	-	64	-	-	-	-	-	-	1,073	-
2b.1.1.38	Miscellaneous Gas - RCA	-	107	1	3	47	-	-	34	192	192	-	-	600	-	-	-	-	24,378	1,636	-
2b.1.1.39	Radiation Monitoring	-	6	-	-	-	-	-	1	7	-	-	7	-	-	-	-	-	-	111	-
2b.1.1.40	Radiation Monitoring - RCA	-	52	0	2	25	-	-	17	96	96	-	-	316	-	-	-	-	12,826	782	-
2b.1.1.41	Reactor Coolant	129	188	15	11	18	138	-	152	651	651	-	-	229	548	-	-	-	55,824	5,508	-
2b.1.1.42	Reactor Hot Sampling	111	101	8	4	4	59	-	97	385	385	-	-	54	234	-	-	-	22,070	3,681	-
2b.1.1.43	Reactor Makeup	-	32	-	-	-	-	-	5	37	-	-	37	-	-	-	-	-	-	583	-
2b.1.1.44	Reactor Makeup - RCA	-	3	0	0	2	-	-	1	7	7	-	-	28	-	-	-	-	1,148	47	-
2b.1.1.45	Reactor Vessel	7	14	0	0	2	3	-	8	34	34	-	-	22	11	-	-	-	1,788	385	-
2b.1.1.46	Residual Heat Removal	276	312	63	59	224	614	-	418	1,966	1,966	-	-	2,853	2,433	-	-	-	322,636	7,079	-
2b.1.1.47	Safeguards Chilled Water	-	4	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	-	75	-
2b.1.1.48	Safety Injection	-	694	32	52	523	220	-	318	1,838	1,838	-	-	6,676	902	-	-	-	345,035	12,273	-
2b.1.1.49	Sampling	-	42	2	1	3	18	-	16	82	82	-	-	37	70	-	-	-	7,443	713	-
2b.1.1.50	Service Bldg & New Cmptr Vent	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	6	-
2b.1.1.51	Shield Bldg Ventilation	-	95	10	17	159	92	-	74	448	448	-	-	2,028	363	-	-	-	113,240	1,739	-
2b.1.1.52	Station & Instrument Air	-	126	-	-	-	-	-	19	145	-	-	145	-	-	-	-	-	-	2,424	-
2b.1.1.53	Station & Instrument Air - RCA	-	240	2	9	127	-	-	81	459	459	-	-	1,625	-	-	-	-	65,986	3,638	-
2b.1.1.54	Turbine Bldg Traps & Drains	-	24	-	-	-	-	-	4	27	-	-	27	-	-	-	-	-	-	462	-
2b.1.1.55	Turbine Bldg Traps & Drains - RCA	-	24	0	1	14	-	-	8	47	47	-	-	180	-	-	-	-	7,321	344	-
2b.1.1.56	Turbine Bldg Ventilation	-	36	-	-	-	-	-	5	42	-	-	42	-	-	-	-	-	-	655	-
2b.1.1.57	Unit Coolers	-	18	-	-	-	-	-	3	20	-	-	20	-	-	-	-	-	-	332	-
2b.1.1.58	Unit Coolers - RCA	-	44	0	1	18	-	-	14	78	78	-	-	232	-	-	-	-	9,413	690	-
2b.1.1.59	Waste Gas Disposal	440	382	33	31	192	256	-	417	1,752	1,752	-	-	2,453	1,124	-	-	-	185,932	14,295	-
2b.1.1.60	Waste Liquid Disposal	1,141	1,430	84	68	286	679	-	1,159	4,847	4,847	-	-	3,655	2,811	-	-	-	377,193	44,443	-
2b.1.1.61	Waste Solid Disposal	91	116	8	7	30	74	-	100	428	428	-	-	389	304	-	-	-	40,825	3,477	-
2b.1.1	Totals	2,792	13,126	440	698	7,130	2,918	-	6,391	33,494	30,803	-	2,691	90,963	11,908	-	-	-	4,676,526	270,228	-
2b.1.2	Scaffolding in support of decommissioning	-	3,297	29	9	110	21	-	850	4,316	4,316	-	-	1,265	84	-	-	-	64,045	32,837	-
Decontamination of Site Buildings																					
2b.1.3.1	Reactor	975	829	31	140	175	1,302	-	1,071	4,523	4,523	-	-	2,230	7,732	-	-	-	661,035	30,714	-
2b.1.3.2	Auxiliary	1,039	339	10	74	83	524	-	760	2,830	2,830	-	-	1,060	3,353	-	-	-	332,478	23,808	-
2b.1.3.3	Backwash Waste Receiving Tank	-	23	1	10	-	79	-	27	141	141	-	-	-	507	-	-	-	43,896	299	-
2b.1.3.4	Drum Transfer & Truck Loading Enclosure	14	7	0	2	1	11	-	12	49	49	-	-	19	74	-	-	-	7,118	368	-
2b.1.3.5	LLRW Storage Enclosure	99	44	1	11	3	78	-	82	318	318	-	-	38	502	-	-	-	44,969	2,424	-
2b.1.3.6	Radwaste	44	19	1	5	3	35	-	37	144	144	-	-	42	225	-	-	-	21,136	1,082	-
2b.1.3.7	Resin Disposal	13	10	0	2	7	11	-	13	55	55	-	-	83	69	-	-	-	9,271	383	-
2b.1.3	Totals	2,186	1,271	45	243	272	2,041	-	2,003	8,060	8,060	-	-	3,471	12,462	-	-	-	1,119,903	59,077	-
2b.1	Subtotal Period 2b Activity Costs	4,978	17,695	514	949	7,512	4,980	-	9,244	45,870	43,180	-	2,691	95,700	24,454	-	-	-	5,860,474	362,142	-
Period 2b Collateral Costs																					
2b.3.1	Process decommissioning water waste	155	-	65	237	-	382	-	215	1,053	1,053	-	-	-	1,008	-	-	-	60,498	197	-
2b.3.2	Process decommissioning chemical flush waste	2	-	72	344	-	776	-	254	1,448	1,448	-	-	-	1,154	-	-	-	122,948	216	-
2b.3.3	Small tool allowance	-	323	-	-	-	-	-	48	371	371	-	-	-	-	-	-	-	-	-	-
2b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	5,783	868	6,651	-	6,651	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	157	323	137	581	-	1,158	5,784	1,385	9,524	2,874	6,651	-	-	2,162	-	-	-	183,446	413	-

Table C-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	845	-	-	-	-	-	-	211	1,057	1,057	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	617	62	679	679	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	1,708	171	1,879	1,879	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	2,116	-	-	-	-	-	529	2,645	2,645	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	2,786	-	-	-	-	-	418	3,204	3,204	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	110	31	-	384	-	112	637	637	-	-	-	5,197	-	-	-	103,950	170	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	3,177	477	3,654	3,654	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	745	74	819	819	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	1,058	106	1,163	-	1,163	-	-	-	-	-	-	-	-	-
2b.4.10	Fixed Overhead	-	-	-	-	-	-	1,755	263	2,019	2,019	-	-	-	-	-	-	-	-	-	-
2b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	578	87	665	-	665	-	-	-	-	-	-	-	-	-
2b.4.12	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	294	44	338	338	-	-	-	-	-	-	-	-	-	-
2b.4.13	ISFSI Operating Costs	-	-	-	-	-	-	68	10	78	-	78	-	-	-	-	-	-	-	-	-
2b.4.14	Railroad Track Maintenance	-	-	-	-	-	-	76	11	87	87	-	-	-	-	-	-	-	-	-	-
2b.4.15	Security Staff Cost	-	-	-	-	-	-	6,427	964	7,392	7,392	-	-	-	-	-	-	-	-	-	199,870
2b.4.16	DOC Staff Cost	-	-	-	-	-	-	15,618	2,343	17,961	17,961	-	-	-	-	-	-	-	-	-	230,680
2b.4.17	Utility Staff Cost	-	-	-	-	-	-	21,672	3,251	24,923	24,923	-	-	-	-	-	-	-	-	-	428,180
2b.4	Subtotal Period 2b Period-Dependent Costs	845	4,902	110	31	-	384	53,793	9,132	69,198	67,292	1,906	-	-	5,197	-	-	-	103,950	170	858,730
2b.0	TOTAL PERIOD 2b COST	5,980	22,919	761	1,561	7,512	6,521	59,577	19,761	124,593	113,345	8,557	2,691	95,700	31,814	-	-	-	6,147,870	362,724	858,730
PERIOD 2c - Spent fuel delay prior to SFP decon																					
Period 2c Direct Decommissioning Activities																					
Period 2c Collateral Costs																					
2c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	66,618	9,993	76,610	-	76,610	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	-	-	-	-	-	-	66,618	9,993	76,610	-	76,610	-	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																					
2c.4.1	Insurance	-	-	-	-	-	-	4,352	435	4,788	4,788	-	-	-	-	-	-	-	-	-	-
2c.4.2	Property taxes	-	-	-	-	-	-	8,613	861	9,474	9,474	-	-	-	-	-	-	-	-	-	-
2c.4.3	Health physics supplies	-	3,422	-	-	-	-	-	855	4,277	4,277	-	-	-	-	-	-	-	-	-	-
2c.4.4	Heavy equipment rental	-	983	-	-	-	-	-	147	1,130	1,130	-	-	-	-	-	-	-	-	-	-
2c.4.5	Disposal of DAW generated	-	-	94	26	-	326	-	95	540	540	-	-	-	4,411	-	-	-	88,213	144	-
2c.4.6	Plant energy budget	-	-	-	-	-	-	5,978	897	6,875	6,875	-	-	-	-	-	-	-	-	-	-
2c.4.7	NRC Fees	-	-	-	-	-	-	2,812	281	3,094	3,094	-	-	-	-	-	-	-	-	-	-
2c.4.8	Emergency Planning Fees	-	-	-	-	-	-	7,463	746	8,210	-	8,210	-	-	-	-	-	-	-	-	-
2c.4.9	Fixed Overhead	-	-	-	-	-	-	12,385	1,858	14,243	14,243	-	-	-	-	-	-	-	-	-	-
2c.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	4,079	612	4,691	-	4,691	-	-	-	-	-	-	-	-	-
2c.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	414	62	476	476	-	-	-	-	-	-	-	-	-	-
2c.4.12	ISFSI Operating Costs	-	-	-	-	-	-	478	72	550	-	550	-	-	-	-	-	-	-	-	-
2c.4.13	Railroad Track Maintenance	-	-	-	-	-	-	534	80	614	614	-	-	-	-	-	-	-	-	-	-
2c.4.14	Security Staff Cost	-	-	-	-	-	-	38,707	5,806	44,513	44,513	-	-	-	-	-	-	-	-	-	1,187,323
2c.4.15	Utility Staff Cost	-	-	-	-	-	-	43,730	6,559	50,289	50,289	-	-	-	-	-	-	-	-	-	880,737
2c.4	Subtotal Period 2c Period-Dependent Costs	-	4,405	94	26	-	326	129,547	19,368	153,765	140,314	13,451	-	-	4,411	-	-	-	88,213	144	2,068,060
2c.0	TOTAL PERIOD 2c COST	-	4,405	94	26	-	326	196,165	29,360	230,375	140,314	90,061	-	-	4,411	-	-	-	88,213	144	2,068,060
PERIOD 2d - Decontamination Following Wet Fuel Storage																					
Period 2d Direct Decommissioning Activities																					
2d.1.1	Remove spent fuel racks	279	28	92	28	-	396	-	259	1,082	1,082	-	-	-	1,569	-	-	-	133,386	576	-
Disposal of Plant Systems																					
2d.1.2.1	Electrical - Contaminated - Fuel Pool	-	162	2	5	68	6	-	53	296	296	-	-	864	24	-	-	-	37,174	2,783	-
2d.1.2.2	Electrical - Decontaminated - Fuel Pool	-	1,012	12	43	632	-	-	356	2,055	2,055	-	-	8,069	-	-	-	-	327,668	16,495	-
2d.1.2.3	Fire Protection & Detection - RCA Fuel P	-	30	0	2	22	-	-	11	65	65	-	-	286	-	-	-	-	11,622	476	-
2d.1.2.4	HVAC - Contaminated - Fuel Pool	-	442	10	28	378	34	-	181	1,074	1,074	-	-	4,828	136	-	-	-	207,653	7,447	-
2d.1.2.5	Safeguards Chilled Water - RCA	-	4	0	0	2	-	-	1	7	7	-	-	26	-	-	-	-	1,045	51	-
2d.1.2.6	Spent Fuel Pool Cooling	25	29	2	2	3	20	-	26	107	107	-	-	39	80	-	-	-	8,359	881	-
2d.1.2.7	Spent Fuel Pool Normal Ventilation	-	22	1	2	21	2	-	9	56	56	-	-	265	9	-	-	-	11,504	394	-
2d.1.2	Totals	25	1,699	27	82	1,127	63	-	637	3,660	3,660	-	-	14,376	250	-	-	-	605,025	28,526	-

Table C-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Decontamination of Site Buildings																					
2d.1.3.1	Fuel Handling of Aux Building	822	902	8	30	189	150	-	708	2,810	2,810	-	-	2,417	923	-	-	-	177,583	30,400	-
2d.1.3	Totals	822	902	8	30	189	150	-	708	2,810	2,810	-	-	2,417	923	-	-	-	177,583	30,400	-
2d.1.4	Scaffolding in support of decommissioning	-	659	6	2	22	4	-	170	863	863	-	-	253	17	-	-	-	12,809	6,567	-
2d.1	Subtotal Period 2d Activity Costs	1,127	3,288	132	142	1,338	613	-	1,774	8,415	8,415	-	-	17,046	2,758	-	-	-	928,804	66,070	-
Period 2d Additional Costs																					
2d.2.1	License Termination Survey Planning	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
Period 2d Collateral Costs																					
2d.3.1	Process decommissioning water waste	15	-	8	27	-	44	-	23	117	117	-	-	-	117	-	-	-	6,990	23	-
2d.3.2	Process decommissioning chemical flush waste	0	-	1	4	-	9	-	3	17	17	-	-	-	13	-	-	-	1,422	2	-
2d.3.3	Small tool allowance	-	65	-	-	-	-	-	10	75	75	-	-	-	-	-	-	-	-	-	-
2d.3.4	Decommissioning Equipment Disposition	-	-	136	51	521	100	-	124	933	933	-	-	6,000	397	-	-	-	303,726	88	-
2d.3.5	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,031	455	3,486	-	3,486	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	15	65	145	82	521	153	3,031	615	4,627	1,141	3,486	-	6,000	527	-	-	-	312,139	113	-
Period 2d Period-Dependent Costs																					
2d.4.1	Decon supplies	159	-	-	-	-	-	-	40	199	199	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	318	32	350	350	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	392	39	431	431	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	559	-	-	-	-	-	140	699	699	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,436	-	-	-	-	-	215	1,651	1,651	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	43	12	-	148	-	43	245	245	-	-	-	2,002	-	-	-	40,031	65	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	873	131	1,004	1,004	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	384	38	422	422	-	-	-	-	-	-	-	-	-	-
2d.4.9	Emergency Planning Fees	-	-	-	-	-	-	545	55	600	-	600	-	-	-	-	-	-	-	-	-
2d.4.10	Fixed Overhead	-	-	-	-	-	-	905	136	1,040	1,040	-	-	-	-	-	-	-	-	-	-
2d.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	303	45	348	348	-	-	-	-	-	-	-	-	-	-
2d.4.12	ISFSI Operating Costs	-	-	-	-	-	-	35	5	40	-	40	-	-	-	-	-	-	-	-	-
2d.4.13	Railroad Track Maintenance	-	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-	-	-	-
2d.4.14	Security Staff Cost	-	-	-	-	-	-	1,856	278	2,135	2,135	-	-	-	-	-	-	-	-	-	54,150
2d.4.15	DOC Staff Cost	-	-	-	-	-	-	4,717	708	5,424	5,424	-	-	-	-	-	-	-	-	-	70,436
2d.4.16	Utility Staff Cost	-	-	-	-	-	-	6,477	972	7,449	7,449	-	-	-	-	-	-	-	-	-	127,029
2d.4	Subtotal Period 2d Period-Dependent Costs	159	1,995	43	12	-	148	16,844	2,883	22,083	21,444	640	-	-	2,002	-	-	-	40,031	65	251,614
2d.0	TOTAL PERIOD 2d COST	1,301	5,349	320	236	1,859	914	20,402	5,430	35,810	31,685	4,126	-	23,046	5,286	-	-	-	1,280,973	66,249	257,854
PERIOD 2f - License Termination																					
Period 2f Direct Decommissioning Activities																					
2f.1.1	ORISE confirmatory survey	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
2f.1.2	Terminate license									a											
2f.1	Subtotal Period 2f Activity Costs	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
Period 2f Additional Costs																					
2f.2.1	License Termination Survey	-	-	-	-	-	-	5,526	1,658	7,184	7,184	-	-	-	-	-	-	-	-	102,642	3,120
2f.2	Subtotal Period 2f Additional Costs	-	-	-	-	-	-	5,526	1,658	7,184	7,184	-	-	-	-	-	-	-	-	102,642	3,120
Period 2f Collateral Costs																					
2f.3.1	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
2f.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	194	29	223	-	223	-	-	-	-	-	-	-	-	-
2f.3	Subtotal Period 2f Collateral Costs	-	-	-	-	-	-	1,223	183	1,407	1,184	223	-	-	-	-	-	-	-	-	-

Table C-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 2f Period-Dependent Costs																					
2f.4.1	Insurance	-	-	-	-	-	-	287	29	316	316	-	-	-	-	-	-	-	-	-	-
2f.4.2	Property taxes	-	-	-	-	-	-	348	35	383	383	-	-	-	-	-	-	-	-	-	-
2f.4.3	Health physics supplies	-	505	-	-	-	-	-	126	632	632	-	-	-	-	-	-	-	-	-	-
2f.4.4	Disposal of DAW generated	-	-	7	2	-	25	-	7	41	41	-	-	-	334	-	-	-	6,685	11	-
2f.4.5	Plant energy budget	-	-	-	-	-	-	418	63	481	481	-	-	-	-	-	-	-	-	-	-
2f.4.6	NRC Fees	-	-	-	-	-	-	384	38	423	423	-	-	-	-	-	-	-	-	-	-
2f.4.7	Emergency Planning Fees	-	-	-	-	-	-	44	4	49	-	49	-	-	-	-	-	-	-	-	-
2f.4.8	Fixed Overhead	-	-	-	-	-	-	867	130	997	997	-	-	-	-	-	-	-	-	-	-
2f.4.9	ISFSI Operating Costs	-	-	-	-	-	-	33	5	38	-	38	-	-	-	-	-	-	-	-	-
2f.4.10	Railroad Track Maintenance	-	-	-	-	-	-	37	6	43	43	-	-	-	-	-	-	-	-	-	-
2f.4.11	Security Staff Cost	-	-	-	-	-	-	1,743	262	2,005	2,005	-	-	-	-	-	-	-	-	-	50,700
2f.4.12	DOC Staff Cost	-	-	-	-	-	-	3,198	480	3,677	3,677	-	-	-	-	-	-	-	-	-	46,410
2f.4.13	Utility Staff Cost	-	-	-	-	-	-	3,175	476	3,652	3,652	-	-	-	-	-	-	-	-	-	59,670
2f.4	Subtotal Period 2f Period-Dependent Costs	-	505	7	2	-	25	10,536	1,661	12,735	12,648	87	-	-	334	-	-	-	6,685	11	156,780
2f.0	TOTAL PERIOD 2f COST	-	505	7	2	-	25	17,438	3,548	21,526	21,216	310	-	-	334	-	-	-	6,685	102,653	159,900
PERIOD 2 TOTALS		8,130	56,246	24,031	5,824	12,266	26,408	349,520	89,452	571,876	453,242	113,456	5,178	157,372	75,648	527	918	-	11,890,920	741,512	4,112,559
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Reactor	-	5,472	-	-	-	-	-	821	6,293	-	-	6,293	-	-	-	-	-	-	66,359	-
3b.1.1.2	Auxiliary	-	3,586	-	-	-	-	-	538	4,124	-	-	4,124	-	-	-	-	-	-	44,627	-
3b.1.1.3	Condensate Storage Tank Foundation	-	14	-	-	-	-	-	2	16	-	-	16	-	-	-	-	-	-	193	-
3b.1.1.4	Construction Warehouse & Fab Shop	-	158	-	-	-	-	-	24	182	-	-	182	-	-	-	-	-	-	2,477	-
3b.1.1.5	D3/D4 Emergency Generator	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	371	-
3b.1.1.6	Drum Transfer & Truck Loading Enclosure	-	23	-	-	-	-	-	3	26	-	-	26	-	-	-	-	-	-	361	-
3b.1.1.7	Hydrogen House	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	153	-
3b.1.1.8	LLRW Storage Enclosure	-	210	-	-	-	-	-	32	242	-	-	242	-	-	-	-	-	-	2,776	-
3b.1.1.9	Radwaste	-	280	-	-	-	-	-	42	322	-	-	322	-	-	-	-	-	-	3,555	-
3b.1.1.10	Resin Disposal	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	383	-
3b.1.1.11	Sulfuric Acid Tank Enclosure	-	3	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	-	54	-
3b.1.1.12	Turbine	-	2,506	-	-	-	-	-	376	2,881	-	-	2,881	-	-	-	-	-	-	34,352	-
3b.1.1.13	Turbine Pedestal	-	754	-	-	-	-	-	113	867	-	-	867	-	-	-	-	-	-	7,580	-
3b.1.1.14	Warehouse #2	-	31	-	-	-	-	-	5	36	-	-	36	-	-	-	-	-	-	457	-
3b.1.1.15	Waste Neutralizing Tank House	-	12	-	-	-	-	-	2	14	-	-	14	-	-	-	-	-	-	165	-
3b.1.1.16	Waste Oil Storage	-	16	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	225	-
3b.1.1.17	Water Treatment	-	481	-	-	-	-	-	72	554	-	-	554	-	-	-	-	-	-	6,498	-
3b.1.1.18	Fuel Handling of Aux Building	-	1,803	-	-	-	-	-	271	2,074	-	-	2,074	-	-	-	-	-	-	21,027	-
3b.1.1	Totals	-	15,415	-	-	-	-	-	2,312	17,727	-	-	17,727	-	-	-	-	-	-	191,615	-
Site Closeout Activities																					
3b.1.2	Remove Rubble	-	1,816	-	-	-	-	-	272	2,089	-	-	2,089	-	-	-	-	-	-	10,653	-
3b.1.3	Grade & landscape site	-	490	-	-	-	-	-	74	564	-	-	564	-	-	-	-	-	-	921	-
3b.1.4	Final report to NRC	-	-	-	-	-	-	63	9	72	72	-	-	-	-	-	-	-	-	-	668
3b.1	Subtotal Period 3b Activity Costs	-	17,722	-	-	-	-	63	2,668	20,452	72	-	20,380	-	-	-	-	-	-	203,188	668
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	580	-	-	-	-	6	88	673	-	-	673	-	-	-	-	-	-	2,731	-
3b.2	Subtotal Period 3b Additional Costs	-	580	-	-	-	-	6	88	673	-	-	673	-	-	-	-	-	-	2,731	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	201	-	-	-	-	-	30	231	-	-	231	-	-	-	-	-	-	-	-
3b.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	354	53	407	-	407	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	201	-	-	-	-	354	83	638	-	407	231	-	-	-	-	-	-	-	-

Table C-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	407	41	447	-	447	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	839	84	923	-	923	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	5,588	-	-	-	-	-	838	6,426	-	-	6,426	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	593	89	682	-	-	682	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	294	29	323	-	323	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	126	13	138	-	138	-	-	-	-	-	-	-	-	-
3b.4.7	Fixed Overhead	-	-	-	-	-	-	1,065	160	1,225	1,225	-	-	-	-	-	-	-	-	-	-
3b.4.8	ISFSI Operating Costs	-	-	-	-	-	-	95	14	109	-	109	-	-	-	-	-	-	-	-	-
3b.4.9	Railroad Track Maintenance	-	-	-	-	-	-	106	16	122	122	-	-	-	-	-	-	-	-	-	-
3b.4.10	Security Staff Cost	-	-	-	-	-	-	2,554	383	2,937	(0)	1,997	940	-	-	-	-	-	-	-	74,658
3b.4.11	DOC Staff Cost	-	-	-	-	-	-	8,197	1,229	9,426	-	-	9,426	-	-	-	-	-	-	-	117,206
3b.4.12	Utility Staff Cost	-	-	-	-	-	-	4,194	629	4,823	-	4,147	675	-	-	-	-	-	-	-	74,658
3b.4	Subtotal Period 3b Period-Dependent Costs	-	5,588	-	-	-	-	18,468	3,525	27,581	1,347	8,085	18,149	-	-	-	-	-	-	-	266,521
3b.0	TOTAL PERIOD 3b COST	-	24,090	-	-	-	-	18,891	6,364	49,345	1,418	8,493	39,433	-	-	-	-	-	-	205,919	267,189
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,288	493	3,781	-	3,781	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	3,288	493	3,781	-	3,781	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	2,397	240	2,637	-	2,637	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	4,490	449	4,938	-	4,938	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	1,733	173	1,906	-	1,906	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	740	74	814	-	814	-	-	-	-	-	-	-	-	-
3c.4.6	Fixed Overhead	-	-	-	-	-	-	6,276	941	7,217	-	7,217	-	-	-	-	-	-	-	-	-
3c.4.7	ISFSI Operating Costs	-	-	-	-	-	-	559	84	643	-	643	-	-	-	-	-	-	-	-	-
3c.4.8	Railroad Track Maintenance	-	-	-	-	-	-	624	94	718	-	718	-	-	-	-	-	-	-	-	-
3c.4.9	Security Staff Cost	-	-	-	-	-	-	12,427	1,864	14,291	-	14,291	-	-	-	-	-	-	-	-	351,849
3c.4.10	Utility Staff Cost	-	-	-	-	-	-	4,415	662	5,077	-	5,077	-	-	-	-	-	-	-	-	88,092
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	33,660	4,581	38,241	-	38,241	-	-	-	-	-	-	-	-	439,941
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	36,948	5,074	42,022	-	42,022	-	-	-	-	-	-	-	-	439,941
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-
3d.1.1	Totals	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-

Table C-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	7	1	8	-	8	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	14	1	15	-	15	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	5	1	6	-	6	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.6	Fixed Overhead	-	-	-	-	-	-	19	3	22	-	22	-	-	-	-	-	-	-	-	-
3d.4.7	ISFSI Operating Costs	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.8	Railroad Track Maintenance	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.9	Security Staff Cost	-	-	-	-	-	-	38	6	44	-	44	-	-	-	-	-	-	-	-	1,080
3d.4.10	Utility Staff Cost	-	-	-	-	-	-	14	2	16	-	16	-	-	-	-	-	-	-	-	270
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	103	14	117	-	117	-	-	-	-	-	-	-	-	1,350
3d.0	TOTAL PERIOD 3d COST	-	-	822	-	-	8,602	103	1,387	10,914	10,797	117	-	-	-	-	-	2,793	658,858	-	1,350
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI License Termination (TN-40)	-	5	0	0	-	1	622	95	724	-	724	-	-	17	-	-	-	349	1,437	1,280
3e.2	Subtotal Period 3e Additional Costs	-	5	0	0	-	1	622	95	724	-	724	-	-	17	-	-	-	349	1,437	1,280
Period 3e Collateral Costs																					
3e.3	Subtotal Period 3e Collateral Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Period 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	64	6	70	-	70	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	119	12	131	-	131	-	-	-	-	-	-	-	-	-
3e.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3e.4.4	NRC ISFSI Fees	-	-	-	-	-	-	36	4	39	-	39	-	-	-	-	-	-	-	-	-
3e.4.5	Railroad Track Maintenance	-	-	-	-	-	-	17	2	19	-	19	-	-	-	-	-	-	-	-	-
3e.4.6	Security Staff Cost	-	-	-	-	-	-	89	13	103	-	103	-	-	-	-	-	-	-	-	2,510
3e.4.7	Utility Staff Cost	-	-	-	-	-	-	98	15	113	-	113	-	-	-	-	-	-	-	-	1,901
3e.4	Subtotal Period 3e Period-Dependent Costs	-	-	-	-	-	-	422	52	475	-	475	-	-	-	-	-	-	-	-	4,411
3e.0	TOTAL PERIOD 3e COST	-	5	0	0	-	1	1,044	147	1,198	-	1,198	-	-	17	-	-	-	349	1,437	5,691
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Site Restoration (TN-40)	-	137	-	-	-	-	22	24	183	-	183	-	-	-	-	-	-	-	137	80
3f.2	Subtotal Period 3f Additional Costs	-	137	-	-	-	-	22	24	183	-	183	-	-	-	-	-	-	-	137	80
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	2	-	-	-	-	-	0	3	-	3	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	2	-	-	-	-	-	0	3	-	3	-	-	-	-	-	-	-	-	-

Table C-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3f Period-Dependent Costs																					
3f.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.2	Property taxes	-	-	-	-	-	-	60	6	66	-	66	-	-	-	-	-	-	-	-	-
3f.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.4	Railroad Track Maintenance	-	-	-	-	-	-	8	1	10	-	10	-	-	-	-	-	-	-	-	-
3f.4.5	Security Staff Cost	-	-	-	-	-	-	45	7	52	-	52	-	-	-	-	-	-	-	-	1,265
3f.4.6	Utility Staff Cost	-	-	-	-	-	-	39	6	44	-	44	-	-	-	-	-	-	-	-	784
3f.4	Subtotal Period 3f Period-Dependent Costs	-	-	-	-	-	-	152	20	172	-	172	-	-	-	-	-	-	-	-	2,050
3f.0	TOTAL PERIOD 3f COST	-	139	-	-	-	-	174	44	358	-	358	-	-	-	-	-	-	-	137	2,130
PERIOD 3 TOTALS		-	24,235	822	0	-	8,603	57,161	13,016	103,837	12,215	52,189	39,433	-	17	-	-	2,793	659,207	207,493	716,301
TOTAL COST TO DECOMMISSION		**10,961**	**85,026**	**25,201**	**6,211**	**12,413**	**38,151**	**491,079**	**117,475**	**786,517**	**552,230**	**189,180**	**45,108**	**163,696**	**89,553**	**1,115**	**918**	**2,793**	**13,169,650**	**981,639**	**5,683,153**

TOTAL COST TO DECOMMISSION WITH 17.56% CONTINGENCY:	**$786,517**	**thousands of 2011 dollars**
TOTAL NRC LICENSE TERMINATION COST IS 70.21% OR:	**$552,230**	**thousands of 2011 dollars**
SPENT FUEL MANAGEMENT COST IS 24.05% OR:	**$189,179**	**thousands of 2011 dollars**
NON-NUCLEAR DEMOLITION COST IS 5.74% OR:	**$45,108**	**thousands of 2011 dollars**
TOTAL LOW-LEVEL RADWASTE VOLUME BURIED (EXCLUDIING GTCC):	**91,586**	**Cubic Feet**
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	**2,793**	**Cubic Feet**
TOTAL SCRAP METAL REMOVED:	**35,187**	**Tons**
TOTAL CRAFT LABOR REQUIREMENTS:	**981,639**	**Man-hours**

End Notes:
n/a - indicates that this activity not charged as decommissioning expense.
a - indicates that this activity performed by decommissioning staff.
0 - indicates that this value is less than 0.5 but is non-zero.
a cell containing " - " indicates a zero value

APPENDIX D

DETAILED COST TABLES

SCENARIO 2

DECON DECOMMISSIONING COST ESTIMATE

WITH 60 YEARS OF SPENT FUEL STORAGE

Table D-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	122	18	140	140	-	-	-	-	-	-	-	-	-	1,300
1a.1.2	Notification of Cessation of Operations									a											
1a.1.3	Remove fuel & source material									n/a											
1a.1.4	Notification of Permanent Defueling									a											
1a.1.5	Deactivate plant systems & process waste									a											
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	187	28	215	215	-	-	-	-	-	-	-	-	-	2,000
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1a.1.10	End product description	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	122	18	140	140	-	-	-	-	-	-	-	-	-	1,300
1a.1.12	Define major work sequence	-	-	-	-	-	-	702	105	808	808	-	-	-	-	-	-	-	-	-	7,500
1a.1.13	Perform SER and EA	-	-	-	-	-	-	290	44	334	334	-	-	-	-	-	-	-	-	-	3,100
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	468	70	538	538	-	-	-	-	-	-	-	-	-	5,000
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	384	58	441	441	-	-	-	-	-	-	-	-	-	4,096
1a.1.16	Receive NRC approval of termination plan									a											
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	461	69	530	477	-	53	-	-	-	-	-	-	-	4,920
1a.1.17.2	Plant systems	-	-	-	-	-	-	390	59	449	404	-	45	-	-	-	-	-	-	-	4,167
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	47	7	54	54	-	-	-	-	-	-	-	-	-	500
1a.1.17.4	Reactor internals	-	-	-	-	-	-	665	100	765	765	-	-	-	-	-	-	-	-	-	7,100
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	609	91	700	700	-	-	-	-	-	-	-	-	-	6,500
1a.1.17.6	Biological shield	-	-	-	-	-	-	47	7	54	54	-	-	-	-	-	-	-	-	-	500
1a.1.17.7	Steam generators	-	-	-	-	-	-	292	44	336	336	-	-	-	-	-	-	-	-	-	3,120
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	150	22	172	86	-	86	-	-	-	-	-	-	-	1,600
1a.1.17.9	Main Turbine	-	-	-	-	-	-	37	6	43	-	-	43	-	-	-	-	-	-	-	400
1a.1.17.10	Main Condensers	-	-	-	-	-	-	37	6	43	-	-	43	-	-	-	-	-	-	-	400
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	292	44	336	168	-	168	-	-	-	-	-	-	-	3,120
1a.1.17.12	Waste management	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	84	13	97	48	-	48	-	-	-	-	-	-	-	900
1a.1.17	Total	-	-	-	-	-	-	3,542	531	4,073	3,587	-	487	-	-	-	-	-	-	-	37,827
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	225	34	258	258	-	-	-	-	-	-	-	-	-	2,400
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	2,800	420	3,220	3,220	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	131	20	151	151	-	-	-	-	-	-	-	-	-	1,400
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,200	330	2,530	2,530	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,230
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	11,906	1,786	13,692	13,206	-	487	-	-	-	-	-	-	-	73,753
Period 1a Additional Costs																					
1a.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
1a.2	Subtotal Period 1a Additional Costs	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	970	97	1,067	1,067	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	1,303	130	1,433	1,433	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	433	-	-	-	-	-	108	541	541	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	426	-	-	-	-	-	64	490	490	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	13	4	-	45	-	13	75	75	-	-	-	610	-	-	-	12,190	20	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	2,796	419	3,216	3,216	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	769	77	846	846	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	973	97	1,071	-	1,071	-	-	-	-	-	-	-	-	-
1a.4.9	Fixed Overhead	-	-	-	-	-	-	1,437	216	1,652	1,652	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	382	57	439	-	439	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	45	7	51	-	51	-	-	-	-	-	-	-	-	-

Table D-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1a Period-Dependent Costs (continued)																					
1a.4.12	Railroad Track Maintenance	-	-	-	-	-	-	50	7	57	57	-	-	-	-	-	-	-	-	-	-
1a.4.13	Security Staff Cost	-	-	-	-	-	-	365	55	420	420	-	-	-	-	-	-	-	-	-	12,264
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	20,432	3,065	23,497	23,497	-	-	-	-	-	-	-	-	-	423,400
1a.4	Subtotal Period 1a Period-Dependent Costs	-	859	13	4	-	45	29,522	4,413	34,855	33,294	1,561	-	-	610	-	-	-	12,190	20	435,664
1a.0	TOTAL PERIOD 1a COST	-	859	13	4	-	45	46,568	6,970	54,458	52,410	1,561	487	-	610	-	-	-	12,190	20	509,417
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	443	66	510	459	-	51	-	-	-	-	-	-	-	4,733
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.3	Reactor internals	-	-	-	-	-	-	234	35	269	269	-	-	-	-	-	-	-	-	-	2,500
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	126	19	145	36	-	109	-	-	-	-	-	-	-	1,350
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	340	51	391	391	-	-	-	-	-	-	-	-	-	3,630
1b.1.1.9	Facility closeout	-	-	-	-	-	-	112	17	129	65	-	65	-	-	-	-	-	-	-	1,200
1b.1.1.10	Missile shields	-	-	-	-	-	-	42	6	48	48	-	-	-	-	-	-	-	-	-	450
1b.1.1.11	Biological shield	-	-	-	-	-	-	112	17	129	129	-	-	-	-	-	-	-	-	-	1,200
1b.1.1.12	Steam generators	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	94	14	108	54	-	54	-	-	-	-	-	-	-	1,000
1b.1.1.14	Main Turbine	-	-	-	-	-	-	146	22	168	-	-	168	-	-	-	-	-	-	-	1,560
1b.1.1.15	Main Condensers	-	-	-	-	-	-	146	22	168	-	-	168	-	-	-	-	-	-	-	1,560
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	256	38	294	265	-	29	-	-	-	-	-	-	-	2,730
1b.1.1.17	Reactor building	-	-	-	-	-	-	256	38	294	265	-	29	-	-	-	-	-	-	-	2,730
1b.1.1	Total	-	-	-	-	-	-	3,113	467	3,580	2,907	-	673	-	-	-	-	-	-	-	33,243
1b.1.2	Decon primary loop	447	-	-	-	-	-	-	224	671	671	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	447	-	-	-	-	-	3,113	691	4,251	3,578	-	673	-	-	-	-	-	-	1,067	33,243
Period 1b Additional Costs																					
1b.2.1	Site Characterization	-	-	-	-	-	-	2,772	831	3,603	3,603	-	-	-	-	-	-	-	-	21,020	8,332
1b.2.2	Mixed/Hazardous Waste	-	-	274	69	142	-	-	59	544	544	-	-	6,133	-	-	-	-	351,986	2,361	-
1b.2.3	Asbestos Abatement	-	2,056	1	102	-	835	-	738	3,732	3,732	-	-	-	12,843	-	-	-	166,959	20,000	-
1b.2	Subtotal Period 1b Additional Costs	-	2,056	275	171	142	835	2,772	1,629	7,879	7,879	-	-	6,133	12,843	-	-	-	518,945	43,381	8,332
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	833	-	-	-	-	-	-	125	958	958	-	-	-	-	-	-	-	-	-	-
1b.3.2	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process decommissioning water waste	24	-	10	36	-	58	-	33	160	160	-	-	-	152	-	-	-	9,121	30	-
1b.3.4	Process decommissioning chemical flush waste	1	-	37	175	-	2,182	-	576	2,971	2,971	-	-	-	-	588	-	-	62,689	110	-
1b.3.5	Small tool allowance	-	26	-	-	-	-	-	4	30	30	-	-	-	-	-	-	-	-	-	-
1b.3.6	Pipe cutting equipment	-	1,100	-	-	-	-	-	165	1,265	1,265	-	-	-	-	-	-	-	-	-	-
1b.3.7	Decon rig	1,500	-	-	-	-	-	-	225	1,725	1,725	-	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	1,896	284	2,180	-	2,180	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	2,358	1,126	46	211	-	2,239	2,925	1,566	10,472	8,292	2,180	-	-	152	588	-	-	71,810	140	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	26	-	-	-	-	-	-	6	32	32	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	489	49	538	538	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	657	66	722	722	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	334	-	-	-	-	-	84	418	418	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	215	-	-	-	-	-	32	247	247	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	8	2	-	27	-	8	44	44	-	-	-	360	-	-	-	7,197	12	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	2,819	423	3,242	3,242	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	388	39	426	426	-	-	-	-	-	-	-	-	-	-

Table D-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1b Period-Dependent Costs (continued)																					
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	491	49	540	-	540	-	-	-	-	-	-	-	-	-
1b.4.10	Fixed Overhead	-	-	-	-	-	-	724	109	833	833	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	192	29	221	-	221	-	-	-	-	-	-	-	-	-
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	23	3	26	-	26	-	-	-	-	-	-	-	-	-
1b.4.13	Railroad Track Maintenance	-	-	-	-	-	-	25	4	29	29	-	-	-	-	-	-	-	-	-	-
1b.4.14	Security Staff Cost	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	6,182
1b.4.15	DOC Staff Cost	-	-	-	-	-	-	4,429	664	5,094	5,094	-	-	-	-	-	-	-	-	-	64,137
1b.4.16	Utility Staff Cost	-	-	-	-	-	-	10,353	1,553	11,906	11,906	-	-	-	-	-	-	-	-	-	214,491
1b.4	Subtotal Period 1b Period-Dependent Costs	26	549	8	2	-	27	20,774	3,145	24,530	23,743	787	-	-	360	-	-	-	7,197	12	284,811
1b.0	TOTAL PERIOD 1b COST	2,831	3,731	329	384	142	3,101	29,584	7,030	47,132	43,492	2,967	673	6,133	13,355	588	-	-	597,952	44,599	326,386
PERIOD 1 TOTALS		2,831	4,590	342	387	142	3,146	76,152	14,000	101,591	95,903	4,528	1,160	6,133	13,964	588	-	-	610,142	44,619	835,803
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	43	37	6	7	-	103	-	59	256	256	-	-	-	305	-	-	-	34,809	1,414	-
2a.1.1.2	Pressurizer Relief Tank	19	16	4	5	-	63	-	30	138	138	-	-	-	192	-	-	-	21,288	625	-
2a.1.1.3	Reactor Coolant Pumps & Motors	46	55	83	73	-	666	-	222	1,144	1,144	-	-	-	2,332	-	-	-	295,800	2,049	100
2a.1.1.4	Pressurizer	32	62	350	69	-	535	-	211	1,258	1,258	-	-	-	1,874	-	-	-	158,199	2,213	938
2a.1.1.5	Steam Generators	190	2,703	1,863	1,556	1,129	3,230	-	2,167	12,837	12,837	-	-	18,672	11,316	-	-	-	1,668,341	11,617	2,875
2a.1.1.6	CRDMs/ICIs/Service Structure Removal	241	98	213	44	-	403	-	274	1,274	1,274	-	-	-	4,797	-	-	-	135,744	5,671	-
2a.1.1.7	Reactor Vessel Internals	111	2,477	24,110	1,524	-	11,473	222	14,091	54,008	54,008	-	-	-	626	584	918	-	242,739	24,200	1,100
2a.1.1.8	Reactor Vessel	60	4,311	1,606	534	-	1,509	222	4,586	12,828	12,828	-	-	-	5,315	-	-	-	566,474	24,200	1,100
2a.1.1	Totals	742	9,759	28,235	3,811	1,129	17,982	443	21,640	83,742	83,742	-	-	18,672	26,757	584	918	-	3,123,395	71,988	6,113
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	262	184	50	329	282	-	211	1,319	1,319	-	-	2,131	1,187	-	-	-	271,373	4,667	-
2a.1.3	Main Condensers	-	2,222	108	44	330	300	-	698	3,702	3,702	-	-	3,800	1,190	-	-	-	272,178	39,151	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Reactor	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,415	-
2a.1.4	Totals	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,415	-
Disposal of Plant Systems																					
2a.1.5.1	Air Removal	-	24	-	-	-	-	-	4	28	-	-	28	-	-	-	-	-	-	452	-
2a.1.5.2	Auxiliary Feedwater	-	35	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	670	-
2a.1.5.3	Auxiliary Feedwater - RCA	-	37	0	1	17	-	-	12	67	67	-	-	215	-	-	-	-	8,722	601	-
2a.1.5.4	Bleed Steam	-	70	-	-	-	-	-	11	81	-	-	81	-	-	-	-	-	-	1,335	-
2a.1.5.5	Caustic Addition - RCA	-	30	0	1	18	-	-	11	61	61	-	-	233	-	-	-	-	9,453	444	-
2a.1.5.6	Chemical Feed	-	16	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	304	-
2a.1.5.7	Chemical Feed - RCA	-	1	0	0	0	-	-	0	2	2	-	-	6	-	-	-	-	243	12	-
2a.1.5.8	Circulating Water	-	33	-	-	-	-	-	5	38	-	-	38	-	-	-	-	-	-	619	-
2a.1.5.9	Condensate	-	371	-	-	-	-	-	56	426	-	-	426	-	-	-	-	-	-	6,837	-
2a.1.5.10	Condensate Polishing	-	183	-	-	-	-	-	28	211	-	-	211	-	-	-	-	-	-	3,420	-
2a.1.5.11	Condensate Polishing - RCA	-	146	3	11	163	-	-	63	386	386	-	-	2,078	-	-	-	-	84,395	2,329	-
2a.1.5.12	Electro-hydraulic	-	7	-	-	-	-	-	1	8	-	-	8	-	-	-	-	-	-	127	-
2a.1.5.13	Feedwater	-	119	-	-	-	-	-	18	137	-	-	137	-	-	-	-	-	-	2,215	-
2a.1.5.14	Feedwater - RCA	-	155	5	17	251	-	-	79	508	508	-	-	3,208	-	-	-	-	130,294	2,651	-
2a.1.5.15	Gland Seal	-	26	-	-	-	-	-	4	30	-	-	30	-	-	-	-	-	-	505	-
2a.1.5.16	Heater Drain	-	313	-	-	-	-	-	47	360	-	-	360	-	-	-	-	-	-	5,881	-
2a.1.5.17	Internal Circ Water & CDSR	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	389	-
2a.1.5.18	Main Gen/Exciter/Transformer	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2a.1.5.19	Main Steam	-	90	-	-	-	-	-	13	103	-	-	103	-	-	-	-	-	-	1,690	-
2a.1.5.20	Main Steam - RCA	-	291	8	27	395	-	-	137	858	858	-	-	5,044	-	-	-	-	204,825	4,956	-
2a.1.5.21	Steam Generator Blowdown	-	379	16	20	159	130	-	156	860	860	-	-	2,031	524	-	-	-	126,150	6,659	-
2a.1.5.22	Steam Generators	-	4	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	75	-

Table D-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Disposal of Plant Systems (continued)																					
2a.1.5.23	Turbine & Moisture Separators	-	303	-	-	-	-	-	45	348	-	-	348	-	-	-	-	-	-	5,609	-
2a.1.5.24	Turbine Oil Purification	-	55	-	-	-	-	-	8	63	-	-	63	-	-	-	-	-	-	1,003	-
2a.1.5	Totals	-	2,710	32	78	1,004	130	-	708	4,663	2,742	-	1,921	12,815	524	-	-	-	564,082	48,787	-
2a.1.6	Scaffolding in support of decommissioning	-	831	3	1	12	2	-	210	1,059	1,059	-	-	138	9	-	-	-	6,987	6,368	-
2a.1	Subtotal Period 2a Activity Costs	742	16,729	28,563	3,984	2,804	18,697	443	23,610	95,571	93,651	-	1,921	37,556	29,667	584	918	-	4,238,014	182,376	6,113
Period 2a Collateral Costs																					
2a.3.1	Process decommissioning water waste	47	-	20	71	-	115	-	65	319	319	-	-	-	304	-	-	-	18,262	59	-
2a.3.2	Process decommissioning chemical flush waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.3.3	Small tool allowance	-	187	-	-	-	-	-	28	215	193	-	21	-	-	-	-	-	-	-	-
2a.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	17,377	2,607	19,984	-	19,984	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	47	187	20	71	-	115	17,377	2,700	20,518	512	19,984	21	-	304	-	-	-	18,262	59	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	69	-	-	-	-	-	-	17	86	86	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	553	55	609	609	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	1,711	171	1,882	1,693	-	188	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,320	-	-	-	-	-	330	1,650	1,650	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	2,519	-	-	-	-	-	378	2,897	2,897	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	71	20	-	246	-	71	408	408	-	-	-	3,327	-	-	-	66,530	108	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	3,610	541	4,151	4,151	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	975	97	1,072	1,072	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	949	95	1,044	-	1,044	-	-	-	-	-	-	-	-	-
2a.4.10	Fixed Overhead	-	-	-	-	-	-	1,574	236	1,811	1,811	-	-	-	-	-	-	-	-	-	-
2a.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	519	78	596	-	596	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	61	9	70	-	70	-	-	-	-	-	-	-	-	-
2a.4.13	Railroad Track Maintenance	-	-	-	-	-	-	68	10	78	78	-	-	-	-	-	-	-	-	-	-
2a.4.14	Security Staff Cost	-	-	-	-	-	-	465	70	534	534	-	-	-	-	-	-	-	-	-	15,589
2a.4.15	DOC Staff Cost	-	-	-	-	-	-	13,583	2,037	15,620	15,620	-	-	-	-	-	-	-	-	-	201,461
2a.4.16	Utility Staff Cost	-	-	-	-	-	-	18,849	2,827	21,676	21,676	-	-	-	-	-	-	-	-	-	374,041
2a.4	Subtotal Period 2a Period-Dependent Costs	69	3,839	71	20	-	246	42,915	7,024	54,183	52,286	1,710	188	-	3,327	-	-	-	66,530	108	591,090
2a.0	TOTAL PERIOD 2a COST	858	20,755	28,653	4,075	2,804	19,058	60,735	33,334	170,272	146,448	21,694	2,130	37,556	33,298	584	918	-	4,322,806	182,543	597,203
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	Aux Bldg Normal Ventilation	-	2	0	0	0	-	-	0	2	2	-	-	3	-	-	-	-	140	29	-
2b.1.1.2	Battery Rm Special Ventilation	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	6	-
2b.1.1.3	Buildings Maintenance	-	4	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	-	65	-
2b.1.1.4	Chemical & Volume Control	891	1,103	67	63	353	538	-	924	3,937	3,937	-	-	4,498	2,304	-	-	-	363,693	34,506	-
2b.1.1.5	Component Cooling - RCA	-	682	19	67	974	-	-	329	2,070	2,070	-	-	12,427	-	-	-	-	504,675	11,242	-
2b.1.1.6	Containment Cooling	-	58	-	-	-	-	-	9	67	-	-	67	-	-	-	-	-	-	1,086	-
2b.1.1.7	Containment Cooling - RCA	-	242	5	18	267	-	-	104	636	636	-	-	3,400	-	-	-	-	138,090	3,971	-
2b.1.1.8	Containment Hydrogen Control - RCA	-	24	0	1	8	-	-	7	40	40	-	-	105	-	-	-	-	4,278	401	-
2b.1.1.9	Containment Spray - RCA	-	74	1	5	68	-	-	30	178	178	-	-	868	-	-	-	-	35,249	1,217	-
2b.1.1.10	Containment Ventilation	-	203	19	37	388	140	-	151	937	937	-	-	4,951	553	-	-	-	248,044	3,662	-
2b.1.1.11	Cooling Water	-	126	-	-	-	-	-	19	145	-	-	145	-	-	-	-	-	-	2,396	-
2b.1.1.12	Cooling Water - RCA	-	524	12	42	606	-	-	229	1,412	1,412	-	-	7,728	-	-	-	-	313,832	8,594	-
2b.1.1.13	D1 Emergency Diesel	-	39	-	-	-	-	-	6	45	-	-	45	-	-	-	-	-	-	730	-
2b.1.1.14	D2 Emergency Diesel	-	28	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	-	522	-
2b.1.1.15	Diesel Rooms Ventilation	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	135	-
2b.1.1.16	Electrical - Clean	-	1,491	-	-	-	-	-	224	1,715	-	-	1,715	-	-	-	-	-	-	26,981	-
2b.1.1.17	Electrical - Contaminated	-	486	5	15	198	18	-	159	881	881	-	-	2,527	71	-	-	-	108,711	8,376	-
2b.1.1.18	Electrical - Decontaminated	-	3,021	35	127	1,846	-	-	1,055	6,083	6,083	-	-	23,551	-	-	-	-	956,401	49,378	-
2b.1.1.19	Fuel Handling	-	96	5	8	71	41	-	47	267	267	-	-	908	164	-	-	-	50,768	1,782	-

Table D-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Disposal of Plant Systems (continued)																					
2b.1.1.20	Fuel Oil	-	95	-	-	-	-	-	14	109	-	-	109	-	-	-	-	-	-	1,697	-
2b.1.1.21	HVAC - Clean	-	95	-	-	-	-	-	14	109	-	-	109	-	-	-	-	-	-	1,891	-
2b.1.1.22	HVAC - Contaminated	-	298	7	19	256	23	-	122	725	725	-	-	3,261	92	-	-	-	140,285	5,031	-
2b.1.1.23	Incore Instrumentation	0	22	1	1	5	11	-	9	49	49	-	-	60	42	-	-	-	6,039	424	-
2b.1.1.24	Misc Drains & Vents	-	186	11	9	31	97	-	78	411	411	-	-	390	385	-	-	-	48,594	3,085	-
2b.1.1.25	Reactor Coolant	121	246	16	12	27	147	-	166	736	736	-	-	344	582	-	-	-	63,452	6,461	-
2b.1.1.26	Reactor Hot Sampling	118	109	8	5	5	65	-	105	415	415	-	-	66	256	-	-	-	24,422	3,941	-
2b.1.1.27	Reactor Makeup	-	57	-	-	-	-	-	9	66	-	-	66	-	-	-	-	-	-	1,042	-
2b.1.1.28	Reactor Vessel	7	16	0	0	2	3	-	9	38	38	-	-	26	11	-	-	-	1,971	425	-
2b.1.1.29	Residual Heat Removal	283	332	63	59	227	615	-	428	2,008	2,008	-	-	2,895	2,439	-	-	-	324,815	7,588	-
2b.1.1.30	Safeguards Chilled Water	-	14	-	-	-	-	-	2	16	-	-	16	-	-	-	-	-	-	259	-
2b.1.1.31	Safety Injection	-	709	32	52	532	219	-	323	1,866	1,866	-	-	6,788	899	-	-	-	349,249	12,550	-
2b.1.1.32	Sampling	-	48	3	2	5	20	-	18	95	95	-	-	59	80	-	-	-	9,214	809	-
2b.1.1.33	Shield Bldg Ventilation	-	111	11	18	169	93	-	80	481	481	-	-	2,152	368	-	-	-	118,685	2,026	-
2b.1.1.34	Station & Instrument Air	-	15	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	300	-
2b.1.1.35	Station & Instrument Air - RCA	-	65	0	2	26	-	-	21	114	114	-	-	332	-	-	-	-	13,496	1,053	-
2b.1.1.36	Turbine Bldg Traps & Drains	-	39	-	-	-	-	-	6	45	-	-	45	-	-	-	-	-	-	767	-
2b.1.1.37	Unit Coolers	-	32	-	-	-	-	-	5	37	-	-	37	-	-	-	-	-	-	611	-
2b.1.1.38	Unit Coolers - RCA	-	43	0	1	18	-	-	14	77	77	-	-	230	-	-	-	-	9,348	683	-
2b.1.1	Totals	1,421	10,743	319	562	6,080	2,029	-	4,722	25,876	23,459	-	2,417	77,571	8,248	-	-	-	3,833,452	205,722	-
2b.1.2	Scaffolding in support of decommissioning	-	1,038	4	1	15	3	-	263	1,324	1,324	-	-	173	11	-	-	-	8,734	7,960	-
Decontamination of Site Buildings																					
2b.1.3.1	Reactor	975	828	31	140	175	1,301	-	1,070	4,521	4,521	-	-	2,230	7,728	-	-	-	660,682	30,703	-
2b.1.3.2	Backwash Waste Receiving Tank	-	23	1	10	-	79	-	27	141	141	-	-	-	507	-	-	-	43,896	299	-
2b.1.3	Totals	975	852	32	150	175	1,380	-	1,098	4,662	4,662	-	-	2,230	8,235	-	-	-	704,578	31,001	-
2b.1	Subtotal Period 2b Activity Costs	2,397	12,633	355	714	6,270	3,412	-	6,082	31,862	29,445	-	2,417	79,974	16,494	-	-	-	4,546,764	244,683	-
Period 2b Collateral Costs																					
2b.3.1	Process decommissioning water waste	104	-	43	158	-	255	-	143	703	703	-	-	-	672	-	-	-	40,348	131	-
2b.3.2	Process decommissioning chemical flush waste	2	-	54	261	-	588	-	193	1,098	1,098	-	-	-	875	-	-	-	93,252	164	-
2b.3.3	Small tool allowance	-	221	-	-	-	-	-	33	254	254	-	-	-	-	-	-	-	-	-	-
2b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	9,442	1,416	10,858	-	10,858	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	105	221	98	419	-	843	9,442	1,785	12,913	2,055	10,858	-	-	1,548	-	-	-	133,600	295	-
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	353	-	-	-	-	-	-	88	441	441	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	499	50	548	548	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	1,463	146	1,610	1,610	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	1,472	-	-	-	-	-	368	1,840	1,840	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	2,252	-	-	-	-	-	338	2,590	2,590	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	71	20	-	245	-	71	407	407	-	-	-	3,322	-	-	-	66,436	108	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	2,568	385	2,954	2,954	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	878	88	966	966	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	855	85	940	-	940	-	-	-	-	-	-	-	-	-
2b.4.10	Fixed Overhead	-	-	-	-	-	-	1,419	213	1,632	1,632	-	-	-	-	-	-	-	-	-	-
2b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	467	70	537	-	537	-	-	-	-	-	-	-	-	-
2b.4.12	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	237	36	273	273	-	-	-	-	-	-	-	-	-	-
2b.4.13	ISFSI Operating Costs	-	-	-	-	-	-	55	8	63	-	63	-	-	-	-	-	-	-	-	-
2b.4.14	Railroad Track Maintenance	-	-	-	-	-	-	61	9	70	70	-	-	-	-	-	-	-	-	-	-
2b.4.15	Security Staff Cost	-	-	-	-	-	-	419	63	482	482	-	-	-	-	-	-	-	-	-	14,049
2b.4.16	DOC Staff Cost	-	-	-	-	-	-	8,816	1,322	10,139	10,139	-	-	-	-	-	-	-	-	-	137,931
2b.4.17	Utility Staff Cost	-	-	-	-	-	-	12,247	1,837	14,084	14,084	-	-	-	-	-	-	-	-	-	256,706
2b.4	Subtotal Period 2b Period-Dependent Costs	353	3,724	71	20	-	245	29,985	5,178	39,575	38,034	1,541	-	-	3,322	-	-	-	66,436	108	408,686
2b.0	TOTAL PERIOD 2b COST	2,855	16,577	523	1,152	6,270	4,501	39,426	13,046	84,350	69,534	12,399	2,417	79,974	21,363	-	-	-	4,746,800	245,087	408,686

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(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 2c - Spent fuel delay prior to SFP decon																					
Period 2c Direct Decommissioning Activities																					
Period 2c Collateral Costs																					
2c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	67,510	10,127	77,637	-	77,637	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	-	-	-	-	-	-	67,510	10,127	77,637	-	77,637	-	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																					
2c.4.1	Insurance	-	-	-	-	-	-	4,945	494	5,439	5,439	-	-	-	-	-	-	-	-	-	-
2c.4.2	Property taxes	-	-	-	-	-	-	10,250	1,025	11,275	11,275	-	-	-	-	-	-	-	-	-	-
2c.4.3	Health physics supplies	-	3,619	-	-	-	-	-	905	4,524	4,524	-	-	-	-	-	-	-	-	-	-
2c.4.4	Heavy equipment rental	-	1,117	-	-	-	-	-	167	1,284	1,284	-	-	-	-	-	-	-	-	-	-
2c.4.5	Disposal of DAW generated	-	-	97	27	-	336	-	98	557	557	-	-	-	4,543	-	-	-	90,854	148	-
2c.4.6	Plant energy budget	-	-	-	-	-	-	6,792	1,019	7,811	7,811	-	-	-	-	-	-	-	-	-	-
2c.4.7	NRC Fees	-	-	-	-	-	-	3,399	340	3,739	3,739	-	-	-	-	-	-	-	-	-	-
2c.4.8	Emergency Planning Fees	-	-	-	-	-	-	8,479	848	9,327	-	9,327	-	-	-	-	-	-	-	-	-
2c.4.9	Fixed Overhead	-	-	-	-	-	-	14,071	2,111	16,181	16,181	-	-	-	-	-	-	-	-	-	-
2c.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	4,634	695	5,329	-	5,329	-	-	-	-	-	-	-	-	-
2c.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	471	71	541	541	-	-	-	-	-	-	-	-	-	-
2c.4.12	ISFSI Operating Costs	-	-	-	-	-	-	543	81	625	-	625	-	-	-	-	-	-	-	-	-
2c.4.13	Railroad Track Maintenance	-	-	-	-	-	-	607	91	698	698	-	-	-	-	-	-	-	-	-	-
2c.4.14	Utility Staff Cost	-	-	-	-	-	-	8,498	1,275	9,773	9,773	-	-	-	-	-	-	-	-	-	189,986
2c.4	Subtotal Period 2c Period-Dependent Costs	-	4,736	97	27	-	336	62,689	9,220	77,104	61,823	15,281	-	-	4,543	-	-	-	90,854	148	189,986
2c.0	TOTAL PERIOD 2c COST	-	4,736	97	27	-	336	130,200	19,346	154,741	61,823	92,918	-	-	4,543	-	-	-	90,854	148	189,986
PERIOD 2d - Decontamination Following Wet Fuel Storage																					
Period 2d Direct Decommissioning Activities																					
2d.1.1	Remove spent fuel racks	279	28	92	28	-	396	-	259	1,082	1,082	-	-	-	1,569	-	-	-	133,386	576	-
Disposal of Plant Systems																					
2d.1.2.1	Electrical - Contaminated - Fuel Pool	-	121	1	4	48	4	-	39	217	217	-	-	615	17	-	-	-	26,454	2,077	-
2d.1.2.2	Electrical - Decontaminated - Fuel Pool	-	755	9	32	462	-	-	264	1,521	1,521	-	-	5,893	-	-	-	-	239,327	12,340	-
2d.1.2.3	HVAC - Contaminated - Fuel Pool	-	128	3	8	110	10	-	52	311	311	-	-	1,398	40	-	-	-	60,122	2,156	-
2d.1.2.4	Safeguards Chilled Water - RCA	-	68	1	3	39	-	-	23	134	134	-	-	495	-	-	-	-	20,100	1,019	-
2d.1.2.5	Spent Fuel Pool Cooling	240	284	25	22	63	251	-	269	1,155	1,155	-	-	806	994	-	-	-	117,167	7,600	-
2d.1.2.6	Station & Instrument Air - RCA Fuel Pool	-	16	0	0	7	-	-	5	29	29	-	-	83	-	-	-	-	3,374	263	-
2d.1.2	Totals	240	1,372	39	69	728	265	-	653	3,367	3,367	-	-	9,290	1,050	-	-	-	466,544	25,454	-
2d.1.4	Scaffolding in support of decommissioning	-	208	1	0	3	1	-	53	265	265	-	-	35	2	-	-	-	1,747	1,592	-
2d.1	Subtotal Period 2d Activity Costs	519	1,608	132	97	731	662	-	964	4,713	4,713	-	-	9,325	2,622	-	-	-	601,676	27,623	-
Period 2d Additional Costs																					
2d.2.1	License Termination Survey Planning	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
Period 2d Collateral Costs																					
2d.3.1	Process decommissioning water waste	10	-	5	20	-	32	-	16	83	83	-	-	-	83	-	-	-	4,994	16	-
2d.3.2	Process decommissioning chemical flush waste	1	-	20	97	-	218	-	71	407	407	-	-	-	324	-	-	-	34,576	61	-
2d.3.3	Small tool allowance	-	29	-	-	-	-	-	4	33	33	-	-	-	-	-	-	-	-	-	-
2d.3.4	Decommissioning Equipment Disposition	-	-	136	51	521	100	-	124	933	933	-	-	6,000	397	-	-	-	303,726	88	-
2d.3.5	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,935	440	3,376	-	3,376	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	11	29	162	167	521	350	2,935	657	4,832	1,457	3,376	-	6,000	804	-	-	-	343,296	165	-

Table D-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 2d Period-Dependent Costs																					
2d.4.1	Decon supplies	40	-	-	-	-	-	-	10	50	50	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	318	32	350	350	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	392	39	431	431	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	405	-	-	-	-	-	101	507	507	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,436	-	-	-	-	-	215	1,651	1,651	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	18	5	-	61	-	18	102	102	-	-	-	830	-	-	-	16,609	27	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	873	131	1,004	1,004	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	560	56	616	616	-	-	-	-	-	-	-	-	-	-
2d.4.9	Emergency Planning Fees	-	-	-	-	-	-	545	55	600	-	600	-	-	-	-	-	-	-	-	-
2d.4.10	Fixed Overhead	-	-	-	-	-	-	905	136	1,040	1,040	-	-	-	-	-	-	-	-	-	-
2d.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	303	45	348	348	-	-	-	-	-	-	-	-	-	-
2d.4.12	ISFSI Operating Costs	-	-	-	-	-	-	35	5	40	-	40	-	-	-	-	-	-	-	-	-
2d.4.13	Railroad Track Maintenance	-	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-	-	-	-
2d.4.14	Security Staff Cost	-	-	-	-	-	-	146	22	167	167	-	-	-	-	-	-	-	-	-	4,886
2d.4.15	DOC Staff Cost	-	-	-	-	-	-	4,717	708	5,424	5,424	-	-	-	-	-	-	-	-	-	70,436
2d.4.16	Utility Staff Cost	-	-	-	-	-	-	6,477	972	7,449	7,449	-	-	-	-	-	-	-	-	-	127,029
2d.4	Subtotal Period 2d Period-Dependent Costs	40	1,841	18	5	-	61	15,310	2,550	19,824	19,185	640	-	-	830	-	-	-	16,609	27	202,350
2d.0	TOTAL PERIOD 2d COST	570	3,478	311	269	1,252	1,073	18,771	4,330	30,054	26,039	4,015	-	15,325	4,257	-	-	-	961,582	27,815	208,590
PERIOD 2f - License Termination																					
Period 2f Direct Decommissioning Activities																					
2f.1.1	ORISE confirmatory survey	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
2f.1.2	Terminate license									a											
2f.1	Subtotal Period 2f Activity Costs	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
Period 2f Additional Costs																					
2f.2.1	License Termination Survey	-	-	-	-	-	-	2,363	709	3,071	3,071	-	-	-	-	-	-	-	-	40,172	3,120
2f.2	Subtotal Period 2f Additional Costs	-	-	-	-	-	-	2,363	709	3,071	3,071	-	-	-	-	-	-	-	-	40,172	3,120
Period 2f Collateral Costs																					
2f.3.1	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
2f.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	97	15	111	-	111	-	-	-	-	-	-	-	-	-
2f.3	Subtotal Period 2f Collateral Costs	-	-	-	-	-	-	1,126	169	1,295	1,184	111	-	-	-	-	-	-	-	-	-
Period 2f Period-Dependent Costs																					
2f.4.1	Insurance	-	-	-	-	-	-	287	29	316	316	-	-	-	-	-	-	-	-	-	-
2f.4.2	Property taxes	-	-	-	-	-	-	348	35	383	383	-	-	-	-	-	-	-	-	-	-
2f.4.3	Health physics supplies	-	352	-	-	-	-	-	88	441	441	-	-	-	-	-	-	-	-	-	-
2f.4.4	Disposal of DAW generated	-	-	7	2	-	25	-	7	41	41	-	-	-	334	-	-	-	6,685	11	-
2f.4.5	Plant energy budget	-	-	-	-	-	-	418	63	481	481	-	-	-	-	-	-	-	-	-	-
2f.4.6	NRC Fees	-	-	-	-	-	-	575	58	633	633	-	-	-	-	-	-	-	-	-	-
2f.4.7	Emergency Planning Fees	-	-	-	-	-	-	44	4	49	-	49	-	-	-	-	-	-	-	-	-
2f.4.8	Fixed Overhead	-	-	-	-	-	-	867	130	997	997	-	-	-	-	-	-	-	-	-	-
2f.4.9	ISFSI Operating Costs	-	-	-	-	-	-	33	5	38	-	38	-	-	-	-	-	-	-	-	-
2f.4.10	Railroad Track Maintenance	-	-	-	-	-	-	37	6	43	43	-	-	-	-	-	-	-	-	-	-
2f.4.11	Security Staff Cost	-	-	-	-	-	-	139	21	160	160	-	-	-	-	-	-	-	-	-	4,680
2f.4.12	DOC Staff Cost	-	-	-	-	-	-	3,198	480	3,677	3,677	-	-	-	-	-	-	-	-	-	46,410
2f.4.13	Utility Staff Cost	-	-	-	-	-	-	3,175	476	3,652	3,652	-	-	-	-	-	-	-	-	-	59,670
2f.4	Subtotal Period 2f Period-Dependent Costs	-	352	7	2	-	25	9,123	1,401	10,910	10,823	87	-	-	334	-	-	-	6,685	11	110,760
2f.0	TOTAL PERIOD 2f COST	-	352	7	2	-	25	12,765	2,325	15,476	15,278	199	-	-	334	-	-	-	6,685	40,183	113,880
PERIOD 2 TOTALS		4,283	45,898	29,591	5,526	10,326	24,992	261,898	72,380	454,894	319,122	131,224	4,547	132,854	63,795	584	918	-	10,128,730	495,776	1,518,345

Table D-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Reactor	-	5,471	-	-	-	-	-	821	6,292	-	-	6,292	-	-	-	-	-	-	66,349	-
3b.1.1.2	Condensate Storage Tank Foundation	-	7	-	-	-	-	-	1	8	-	-	8	-	-	-	-	-	-	95	-
3b.1.1.3	Turbine	-	2,505	-	-	-	-	-	376	2,881	-	-	2,881	-	-	-	-	-	-	34,340	-
3b.1.1.4	Turbine Pedestal	-	754	-	-	-	-	-	113	867	-	-	867	-	-	-	-	-	-	7,580	-
3b.1.1	Totals	-	8,737	-	-	-	-	-	1,311	10,048	-	-	10,048	-	-	-	-	-	-	108,365	-
Site Closeout Activities																					
3b.1.2	Grade & landscape site	-	490	-	-	-	-	-	74	564	-	-	564	-	-	-	-	-	-	921	-
3b.1.3	Final report to NRC	-	-	-	-	-	-	146	22	168	168	-	-	-	-	-	-	-	-	-	1,560
3b.1	Subtotal Period 3b Activity Costs	-	9,228	-	-	-	-	146	1,406	10,780	168	-	10,612	-	-	-	-	-	-	109,285	1,560
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	239	-	-	-	-	2	36	278	-	-	278	-	-	-	-	-	-	1,126	-
3b.2	Subtotal Period 3b Additional Costs	-	239	-	-	-	-	2	36	278	-	-	278	-	-	-	-	-	-	1,126	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	108	-	-	-	-	-	16	124	-	-	124	-	-	-	-	-	-	-	-
3b.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	983	148	1,131	-	1,131	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	108	-	-	-	-	983	164	1,255	-	1,131	124	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	407	41	447	-	447	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	839	84	923	-	923	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	5,588	-	-	-	-	-	838	6,426	-	-	6,426	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	593	89	682	-	-	682	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	294	29	323	-	323	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	126	13	138	-	138	-	-	-	-	-	-	-	-	-
3b.4.7	Fixed Overhead	-	-	-	-	-	-	1,065	160	1,225	1,225	-	-	-	-	-	-	-	-	-	-
3b.4.8	ISFSI Operating Costs	-	-	-	-	-	-	95	14	109	-	109	-	-	-	-	-	-	-	-	-
3b.4.9	Railroad Track Maintenance	-	-	-	-	-	-	106	16	122	122	-	-	-	-	-	-	-	-	-	-
3b.4.10	Security Staff Cost	-	-	-	-	-	-	2,554	383	2,937	(0)	1,997	940	-	-	-	-	-	-	-	74,658
3b.4.11	DOC Staff Cost	-	-	-	-	-	-	8,197	1,229	9,426	-	-	9,426	-	-	-	-	-	-	-	117,206
3b.4.12	Utility Staff Cost	-	-	-	-	-	-	4,194	629	4,823	-	4,147	675	-	-	-	-	-	-	-	74,658
3b.4	Subtotal Period 3b Period-Dependent Costs	-	5,588	-	-	-	-	18,468	3,525	27,581	1,347	8,085	18,149	-	-	-	-	-	-	-	266,521
3b.0	TOTAL PERIOD 3b COST	-	15,163	-	-	-	-	19,600	5,131	39,894	1,515	9,216	29,163	-	-	-	-	-	-	110,411	268,081
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	13,330	1,999	15,329	-	15,329	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	13,330	1,999	15,329	-	15,329	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	4,700	470	5,170	-	5,170	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	8,804	880	9,684	-	9,684	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	3,398	340	3,737	-	3,737	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	1,452	145	1,597	-	1,597	-	-	-	-	-	-	-	-	-
3c.4.6	Fixed Overhead	-	-	-	-	-	-	12,306	1,846	14,152	-	14,152	-	-	-	-	-	-	-	-	-
3c.4.7	ISFSI Operating Costs	-	-	-	-	-	-	1,096	164	1,260	-	1,260	-	-	-	-	-	-	-	-	-

Table D-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3c Period-Dependent Costs (continued)																					
3c.4.8	Railroad Track Maintenance	-	-	-	-	-	-	1,224	184	1,408	-	1,408	-	-	-	-	-	-	-	-	-
3c.4.9	Security Staff Cost	-	-	-	-	-	-	24,369	3,655	28,024	-	28,024	-	-	-	-	-	-	-	-	689,966
3c.4.10	Utility Staff Cost	-	-	-	-	-	-	8,658	1,299	9,956	-	9,956	-	-	-	-	-	-	-	-	172,747
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	66,007	8,983	74,990	-	74,990	-	-	-	-	-	-	-	-	862,713
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	79,337	10,983	90,319	-	90,319	-	-	-	-	-	-	-	-	862,713
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
3d.1.1	Totals	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
Period 3d Collateral Costs																					
3d.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	16	2	18	-	18	-	-	-	-	-	-	-	-	-
3d.3	Subtotal Period 3d Collateral Costs	-	-	-	-	-	-	16	2	18	-	18	-	-	-	-	-	-	-	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	7	1	8	-	8	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	14	1	15	-	15	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	4	0	5	-	5	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.6	Fixed Overhead	-	-	-	-	-	-	19	3	22	-	22	-	-	-	-	-	-	-	-	-
3d.4.7	ISFSI Operating Costs	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.8	Railroad Track Maintenance	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.9	Security Staff Cost	-	-	-	-	-	-	38	6	44	-	44	-	-	-	-	-	-	-	-	1,080
3d.4.10	Utility Staff Cost	-	-	-	-	-	-	14	2	16	-	16	-	-	-	-	-	-	-	-	270
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	102	14	116	-	116	-	-	-	-	-	-	-	-	1,350
3d.0	TOTAL PERIOD 3d COST	-	-	1,096	-	-	9,588	118	1,564	12,367	12,232	134	-	-	-	-	-	3,724	857,261	-	1,350
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI License Termination (TN-40)	-	7	1	0	-	2	665	102	776	-	776	-	-	24	-	-	-	487	2,011	1,280
3e.2	Subtotal Period 3e Additional Costs	-	7	1	0	-	2	665	102	776	-	776	-	-	24	-	-	-	487	2,011	1,280
Period 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	64	6	70	-	70	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	119	12	131	-	131	-	-	-	-	-	-	-	-	-
3e.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3e.4.4	NRC ISFSI Fees	-	-	-	-	-	-	36	4	39	-	39	-	-	-	-	-	-	-	-	-
3e.4.5	Railroad Track Maintenance	-	-	-	-	-	-	17	2	19	-	19	-	-	-	-	-	-	-	-	-
3e.4.6	Security Staff Cost	-	-	-	-	-	-	89	13	103	-	103	-	-	-	-	-	-	-	-	2,510
3e.4.7	Utility Staff Cost	-	-	-	-	-	-	98	15	113	-	113	-	-	-	-	-	-	-	-	1,901
3e.4	Subtotal Period 3e Period-Dependent Costs	-	-	-	-	-	-	422	52	475	-	475	-	-	-	-	-	-	-	-	4,411
3e.0	TOTAL PERIOD 3e COST	-	7	1	0	-	2	1,087	154	1,251	-	1,251	-	-	24	-	-	-	487	2,011	5,691

Table D-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Site Restoration (TN-40)	-	218	-	-	-	-	22	36	276	-	276	-	-	-	-	-	-	-	218	80
3f.2	Subtotal Period 3f Additional Costs	-	218	-	-	-	-	22	36	276	-	276	-	-	-	-	-	-	-	218	80
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	4	-	-	-	-	-	1	4	-	4	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	4	-	-	-	-	-	1	4	-	4	-	-	-	-	-	-	-	-	-
Period 3f Period-Dependent Costs																					
3f.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.2	Property taxes	-	-	-	-	-	-	60	6	66	-	66	-	-	-	-	-	-	-	-	-
3f.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.4	Railroad Track Maintenance	-	-	-	-	-	-	8	1	10	-	10	-	-	-	-	-	-	-	-	-
3f.4.5	Security Staff Cost	-	-	-	-	-	-	45	7	52	-	52	-	-	-	-	-	-	-	-	1,265
3f.4.6	Utility Staff Cost	-	-	-	-	-	-	39	6	44	-	44	-	-	-	-	-	-	-	-	784
3f.4	Subtotal Period 3f Period-Dependent Costs	-	-	-	-	-	-	152	20	172	-	172	-	-	-	-	-	-	-	-	2,050
3f.0	TOTAL PERIOD 3f COST	-	222	-	-	-	-	174	56	452	-	452	-	-	-	-	-	-	-	218	2,130
PERIOD 3 TOTALS		-	15,391	1,097	0	-	9,590	100,316	17,889	144,283	13,747	101,373	29,163	-	24	-	-	3,724	857,748	112,640	1,139,965
TOTAL COST TO DECOMMISSION		**7,114**	**65,879**	**31,030**	**5,913**	**10,468**	**37,728**	**438,366**	**104,269**	**700,767**	**428,772**	**237,125**	**34,870**	**138,987**	**77,784**	**1,173**	**918**	**3,724**	**11,596,620**	**653,035**	**3,494,113**

TOTAL COST TO DECOMMISSION WITH 17.48% CONTINGENCY:	**$700,767**	**thousands of 2011 dollars**
TOTAL NRC LICENSE TERMINATION COST IS 61.19% OR:	**$428,772**	**thousands of 2011 dollars**
SPENT FUEL MANAGEMENT COST IS 33.84% OR:	**$237,125**	**thousands of 2011 dollars**
NON-NUCLEAR DEMOLITION COST IS 4.98% OR:	**$34,870**	**thousands of 2011 dollars**
TOTAL LOW-LEVEL RADWASTE VOLUME BURIED (EXCLUDING GTCC):	**79,875**	**Cubic Feet**
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	**3,724**	**Cubic Feet**
TOTAL SCRAP METAL REMOVED:	**28,060**	**Tons**
TOTAL CRAFT LABOR REQUIREMENTS:	**653,035**	**Man-hours**

End Notes:
n/a - indicates that this activity not charged as decommissioning expense.
a - indicates that this activity performed by decommissioning staff.
0 - indicates that this value is less than 0.5 but is non-zero.
a cell containing " - " indicates a zero value

Table D-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	52	8	60	60	-	-	-	-	-	-	-	-	-	556
1a.1.2	Notification of Cessation of Operations									a											
1a.1.3	Remove fuel & source material									n/a											
1a.1.4	Notification of Permanent Defueling									a											
1a.1.5	Deactivate plant systems & process waste									a											
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	80	12	92	92	-	-	-	-	-	-	-	-	-	856
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1a.1.10	End product description	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	52	8	60	60	-	-	-	-	-	-	-	-	-	556
1a.1.12	Define major work sequence	-	-	-	-	-	-	301	45	346	346	-	-	-	-	-	-	-	-	-	3,210
1a.1.13	Perform SER and EA	-	-	-	-	-	-	124	19	143	143	-	-	-	-	-	-	-	-	-	1,327
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	200	30	230	230	-	-	-	-	-	-	-	-	-	2,140
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	164	25	189	189	-	-	-	-	-	-	-	-	-	1,753
1a.1.16	Receive NRC approval of termination plan									a											
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	197	30	227	204	-	23	-	-	-	-	-	-	-	2,106
1a.1.17.2	Plant systems	-	-	-	-	-	-	167	25	192	173	-	19	-	-	-	-	-	-	-	1,783
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	20	3	23	23	-	-	-	-	-	-	-	-	-	214
1a.1.17.4	Reactor internals	-	-	-	-	-	-	285	43	327	327	-	-	-	-	-	-	-	-	-	3,039
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	261	39	300	300	-	-	-	-	-	-	-	-	-	2,782
1a.1.17.6	Biological shield	-	-	-	-	-	-	20	3	23	23	-	-	-	-	-	-	-	-	-	214
1a.1.17.7	Steam generators	-	-	-	-	-	-	125	19	144	144	-	-	-	-	-	-	-	-	-	1,335
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	64	10	74	37	-	37	-	-	-	-	-	-	-	685
1a.1.17.9	Main Turbine	-	-	-	-	-	-	16	2	18	-	-	18	-	-	-	-	-	-	-	171
1a.1.17.10	Main Condensers	-	-	-	-	-	-	16	2	18	-	-	18	-	-	-	-	-	-	-	171
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	125	19	144	72	-	72	-	-	-	-	-	-	-	1,335
1a.1.17.12	Waste management	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	36	5	41	21	-	21	-	-	-	-	-	-	-	385
1a.1.17	Total	-	-	-	-	-	-	1,516	227	1,743	1,535	-	208	-	-	-	-	-	-	-	16,190
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	96	14	111	111	-	-	-	-	-	-	-	-	-	1,027
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	2,800	420	3,220	3,220	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	56	8	65	65	-	-	-	-	-	-	-	-	-	599
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,200	330	2,530	2,530	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	49	7	57	57	-	-	-	-	-	-	-	-	-	526
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	7,956	1,193	9,149	8,941	-	208	-	-	-	-	-	-	-	31,566
Period 1a Additional Costs																					
1a.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
1a.2	Subtotal Period 1a Additional Costs	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
Period 1a Collateral Costs																					
1a.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	14,629	2,194	16,824	-	16,824	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	-	-	-	-	-	14,629	2,194	16,824	-	16,824	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	970	97	1,067	1,067	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	1,303	130	1,433	1,433	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	407	-	-	-	-	-	102	509	509	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	426	-	-	-	-	-	64	490	490	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	12	3	-	42	-	12	69	69	-	-	-	565	-	-	-	11,299	18	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	2,796	419	3,216	3,216	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	514	51	565	565	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	973	97	1,071	-	1,071	-	-	-	-	-	-	-	-	-
1a.4.9	Fixed Overhead	-	-	-	-	-	-	1,437	216	1,652	1,652	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	382	57	439	-	439	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	45	7	51	-	51	-	-	-	-	-	-	-	-	-
1a.4.12	Railroad Track Maintenance	-	-	-	-	-	-	50	7	57	57	-	-	-	-	-	-	-	-	-	-

Table D-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1a Period-Dependent Costs (continued)																					
1a.4.13	Security Staff Cost	-	-	-	-	-	-	5,004	751	5,754	5,754	-	-	-	-	-	-	-	-	-	157,471
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	16,333	2,450	18,783	18,783	-	-	-	-	-	-	-	-	-	346,229
1a.4	Subtotal Period 1a Period-Dependent Costs	-	833	12	3	-	42	29,806	4,461	35,157	33,596	1,561	-	-	565	-	-	-	11,299	18	503,700
1a.0	TOTAL PERIOD 1a COST	-	833	12	3	-	42	57,531	8,620	67,041	48,448	18,385	208	-	565	-	-	-	11,299	18	535,266
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	190	28	218	196	-	22	-	-	-	-	-	-	-	2,026
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.3	Reactor internals	-	-	-	-	-	-	100	15	115	115	-	-	-	-	-	-	-	-	-	1,070
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	54	8	62	16	-	47	-	-	-	-	-	-	-	578
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	145	22	167	167	-	-	-	-	-	-	-	-	-	1,554
1b.1.1.9	Facility closeout	-	-	-	-	-	-	48	7	55	28	-	28	-	-	-	-	-	-	-	514
1b.1.1.10	Missile shields	-	-	-	-	-	-	18	3	21	21	-	-	-	-	-	-	-	-	-	193
1b.1.1.11	Biological shield	-	-	-	-	-	-	48	7	55	55	-	-	-	-	-	-	-	-	-	514
1b.1.1.12	Steam generators	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	40	6	46	23	-	23	-	-	-	-	-	-	-	428
1b.1.1.14	Main Turbine	-	-	-	-	-	-	63	9	72	-	-	72	-	-	-	-	-	-	-	668
1b.1.1.15	Main Condensers	-	-	-	-	-	-	63	9	72	-	-	72	-	-	-	-	-	-	-	668
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	109	16	126	113	-	13	-	-	-	-	-	-	-	1,168
1b.1.1.17	Reactor building	-	-	-	-	-	-	109	16	126	113	-	13	-	-	-	-	-	-	-	1,168
1b.1.1	Total	-	-	-	-	-	-	1,332	200	1,532	1,244	-	288	-	-	-	-	-	-	-	14,228
1b.1.2	Decon primary loop	447	-	-	-	-	-	-	224	671	671	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	447	-	-	-	-	-	1,332	424	2,203	1,915	-	288	-	-	-	-	-	-	1,067	14,228
Period 1b Additional Costs																					
1b.2.1	Site Characterization	-	-	-	-	-	-	1,185	356	1,541	1,541	-	-	-	-	-	-	-	-	8,988	3,563
1b.2.2	Mixed/Hazardous Waste	-	-	281	69	146	-	-	60	557	557	-	-	6,324	-	-	-	-	362,914	2,410	-
1b.2.3	Asbestos Abatement	-	2,056	1	102	-	835	-	738	3,732	3,732	-	-	-	12,843	-	-	-	166,959	20,000	-
1b.2	Subtotal Period 1b Additional Costs	-	2,056	283	171	146	835	1,185	1,154	5,830	5,830	-	-	6,324	12,843	-	-	-	529,873	31,398	3,563
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	833	-	-	-	-	-	-	125	958	958	-	-	-	-	-	-	-	-	-	-
1b.3.2	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process decommissioning water waste	24	-	10	36	-	58	-	33	160	160	-	-	-	152	-	-	-	9,121	30	-
1b.3.4	Process decommissioning chemical flush waste	1	-	37	175	-	2,182	-	576	2,971	2,971	-	-	-	-	588	-	-	62,689	110	-
1b.3.5	Small tool allowance	-	26	-	-	-	-	-	4	30	30	-	-	-	-	-	-	-	-	-	-
1b.3.6	Pipe cutting equipment	-	1,100	-	-	-	-	-	165	1,265	1,265	-	-	-	-	-	-	-	-	-	-
1b.3.7	Decon rig	1,500	-	-	-	-	-	-	225	1,725	1,725	-	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	4,193	629	4,821	-	4,821	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	2,358	1,126	46	211	-	2,239	5,222	1,911	13,113	8,292	4,821	-	-	152	588	-	-	71,810	140	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	26	-	-	-	-	-	-	6	32	32	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	489	49	538	538	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	657	66	722	722	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	316	-	-	-	-	-	79	395	395	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	215	-	-	-	-	-	32	247	247	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	7	2	-	24	-	7	40	40	-	-	-	327	-	-	-	6,541	11	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	2,819	423	3,242	3,242	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	259	26	285	285	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	491	49	540	-	540	-	-	-	-	-	-	-	-	-
1b.4.10	Fixed Overhead	-	-	-	-	-	-	724	109	833	833	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	192	29	221	-	221	-	-	-	-	-	-	-	-	-
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	23	3	26	-	26	-	-	-	-	-	-	-	-	-
1b.4.13	Railroad Track Maintenance	-	-	-	-	-	-	25	4	29	29	-	-	-	-	-	-	-	-	-	-
1b.4.14	Security Staff Cost	-	-	-	-	-	-	2,522	378	2,901	2,901	-	-	-	-	-	-	-	-	-	79,383

Table D-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1b Period-Dependent Costs (continued)																					
1b.4.15	DOC Staff Cost	-	-	-	-	-	-	3,092	464	3,556	3,556	-	-	-	-	-	-	-	-	-	47,314
1b.4.16	Utility Staff Cost	-	-	-	-	-	-	8,234	1,235	9,469	9,469	-	-	-	-	-	-	-	-	-	174,537
1b.4	Subtotal Period 1b Period-Dependent Costs	26	531	7	2	-	24	19,527	2,959	23,075	22,288	787	-	-	327	-	-	-	6,541	11	301,234
1b.0	TOTAL PERIOD 1b COST	2,831	3,712	336	384	146	3,098	27,267	6,447	44,222	38,325	5,608	288	6,324	13,322	588	-	-	608,224	32,615	319,025
PERIOD 1 TOTALS		2,831	4,546	348	387	146	3,140	84,798	15,067	111,263	86,773	23,993	496	6,324	13,887	588	-	-	619,523	32,633	854,291
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	43	37	6	7	-	103	-	59	256	256	-	-	-	305	-	-	-	34,809	1,414	-
2a.1.1.2	Pressurizer Relief Tank	19	16	4	5	-	63	-	30	138	138	-	-	-	192	-	-	-	21,288	625	-
2a.1.1.3	Reactor Coolant Pumps & Motors	46	55	83	73	-	666	-	222	1,144	1,144	-	-	-	2,332	-	-	-	295,800	2,049	100
2a.1.1.4	Pressurizer	32	62	350	69	-	535	-	211	1,258	1,258	-	-	-	1,874	-	-	-	158,199	2,213	938
2a.1.1.5	Steam Generators	190	2,703	1,863	1,556	1,129	3,230	-	2,167	12,837	12,837	-	-	18,672	11,316	-	-	-	1,668,341	11,617	2,875
2a.1.1.6	CRDMs/ICIs/Service Structure Removal	241	98	213	44	-	403	-	274	1,274	1,274	-	-	-	4,797	-	-	-	135,744	5,671	-
2a.1.1.7	Reactor Vessel Internals	103	2,373	18,389	1,435	-	10,984	208	12,310	45,802	45,802	-	-	-	501	527	918	-	225,717	22,533	1,033
2a.1.1.8	Reactor Vessel	60	4,206	1,491	534	-	1,509	208	4,477	12,485	12,485	-	-	-	5,315	-	-	-	566,474	22,533	1,033
2a.1.1	Totals	733	9,550	22,399	3,723	1,129	17,493	416	19,749	75,193	75,193	-	-	18,672	26,632	527	918	-	3,106,373	68,655	5,980
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	262	184	50	329	282	-	211	1,319	1,319	-	-	2,131	1,187	-	-	-	271,373	4,667	-
2a.1.3	Main Condensers	-	2,222	108	44	330	300	-	698	3,702	3,702	-	-	3,800	1,190	-	-	-	272,178	39,151	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Reactor	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,414	-
2a.1.4.2	Auxiliary	-	398	-	-	-	-	-	60	457	457	-	-	-	-	-	-	-	-	4,945	-
2a.1.4.3	Radwaste	-	14	-	-	-	-	-	2	16	16	-	-	-	-	-	-	-	-	179	-
2a.1.4	Totals	-	1,357	-	-	-	-	-	204	1,560	1,560	-	-	-	-	-	-	-	-	16,538	-
Disposal of Plant Systems																					
2a.1.5.1	Admin Bldg Ventilation	-	5	-	-	-	-	-	1	6	-	-	6	-	-	-	-	-	-	90	-
2a.1.5.2	Air Removal	-	23	-	-	-	-	-	3	26	-	-	26	-	-	-	-	-	-	422	-
2a.1.5.3	Auxiliary Feedwater	-	36	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	676	-
2a.1.5.4	Auxiliary Feedwater - RCA	-	30	0	1	14	-	-	10	55	55	-	-	178	-	-	-	-	7,214	486	-
2a.1.5.5	Bleed Steam	-	70	-	-	-	-	-	11	81	-	-	81	-	-	-	-	-	-	1,331	-
2a.1.5.6	Caustic Addition - RCA	-	32	0	1	19	-	-	11	63	63	-	-	240	-	-	-	-	9,761	468	-
2a.1.5.7	Chemical Feed	-	13	-	-	-	-	-	2	15	-	-	15	-	-	-	-	-	-	261	-
2a.1.5.8	Chemical Feed - RCA	-	2	0	0	1	-	-	1	4	4	-	-	16	-	-	-	-	634	31	-
2a.1.5.9	Circulating Water	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	401	-
2a.1.5.10	Condensate	-	411	-	-	-	-	-	62	472	-	-	472	-	-	-	-	-	-	7,537	-
2a.1.5.11	Condensate Polishing	-	162	-	-	-	-	-	24	186	-	-	186	-	-	-	-	-	-	2,987	-
2a.1.5.12	Condensate Polishing - RCA	-	30	1	3	38	-	-	14	85	85	-	-	483	-	-	-	-	19,616	493	-
2a.1.5.13	Electro-Hydraulic	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	143	-
2a.1.5.14	External Circulating Water	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	385	-
2a.1.5.15	External Circulating Water - RCA	-	58	1	4	57	-	-	24	143	143	-	-	721	-	-	-	-	29,284	938	-
2a.1.5.16	Feedwater	-	99	-	-	-	-	-	15	114	-	-	114	-	-	-	-	-	-	1,840	-
2a.1.5.17	Feedwater - RCA	-	197	6	22	325	-	-	102	652	652	-	-	4,147	-	-	-	-	168,414	3,377	-
2a.1.5.18	Gland Seal	-	26	-	-	-	-	-	4	30	-	-	30	-	-	-	-	-	-	504	-
2a.1.5.19	Heater Drain	-	300	-	-	-	-	-	45	345	-	-	345	-	-	-	-	-	-	5,638	-
2a.1.5.20	Hypobromous Acid Feed	-	5	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	86	-
2a.1.5.21	Hypobromous Acid Feed - RCA	-	1	0	0	0	-	-	0	1	1	-	-	2	-	-	-	-	100	12	-
2a.1.5.22	Internal Circ Water & CDSR	-	20	-	-	-	-	-	3	22	-	-	22	-	-	-	-	-	-	366	-
2a.1.5.23	Main Gen/Exciter/Transformer	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2a.1.5.24	Main Steam	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	1,482	-
2a.1.5.25	Main Steam - RCA	-	302	8	28	405	-	-	141	884	884	-	-	5,166	-	-	-	-	209,799	5,146	-
2a.1.5.26	Repairable Spare Snubbers	-	5	0	0	1	-	-	1	7	7	-	-	12	-	-	-	-	490	82	-
2a.1.5.27	Steam Exclusion	-	2	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	32	-
2a.1.5.28	Steam Exclusion - RCA	-	3	0	0	2	-	-	1	7	7	-	-	24	-	-	-	-	966	47	-
2a.1.5.29	Steam Generator Blowdown	-	331	15	19	149	119	-	139	773	773	-	-	1,906	483	-	-	-	117,630	5,771	-
2a.1.5.30	Steam Generators	-	4	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	75	-
2a.1.5.31	Turbine & Moisture Separators	-	296	-	-	-	-	-	44	340	-	-	340	-	-	-	-	-	-	5,472	-

Table D-2
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(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Disposal of Plant Systems (continued)																					
2a.1.5.32	Turbine Oil Purification	-	41	-	-	-	-	-	6	47	-	-	47	-	-	-	-	-	-	757	-
2a.1.5.33	Water Treatment	-	353	-	-	-	-	-	53	406	-	-	406	-	-	-	-	-	-	6,677	-
2a.1.5.34	Water Treatment - RCA	-	16	0	1	9	-	-	6	32	32	-	-	115	-	-	-	-	4,652	252	-
2a.1.5	Totals	-	2,999	32	79	1,020	119	-	748	4,997	2,706	-	2,291	13,010	483	-	-	-	568,561	54,274	-
2a.1.6	Scaffolding in support of decommissioning	-	2,637	23	7	88	17	-	680	3,453	3,453	-	-	1,012	67	-	-	-	51,236	26,270	-
2a.1	Subtotal Period 2a Activity Costs	733	19,028	22,745	3,903	2,895	18,212	416	22,290	90,224	87,933	-	2,291	38,625	29,559	527	918	-	4,269,720	209,554	5,980
Period 2a Collateral Costs																					
2a.3.1	Process decommissioning water waste	49	-	20	74	-	119	-	67	330	330	-	-	-	314	-	-	-	18,857	61	-
2a.3.2	Process decommissioning chemical flush waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.3.3	Small tool allowance	-	210	-	-	-	-	-	31	241	217	-	24	-	-	-	-	-	-	-	-
2a.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	9,220	1,383	10,603	-	10,603	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	49	210	20	74	-	119	9,220	1,482	11,174	547	10,603	24	-	314	-	-	-	18,857	61	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	66	-	-	-	-	-	-	17	83	83	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	530	53	583	583	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	1,560	156	1,716	1,545	-	172	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,417	-	-	-	-	-	354	1,772	1,772	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	2,412	-	-	-	-	-	362	2,774	2,774	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	84	23	-	290	-	84	482	482	-	-	-	3,930	-	-	-	78,601	128	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	3,457	519	3,975	3,975	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	640	64	704	704	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	909	91	999	-	999	-	-	-	-	-	-	-	-	-
2a.4.10	Fixed Overhead	-	-	-	-	-	-	1,508	226	1,734	1,734	-	-	-	-	-	-	-	-	-	-
2a.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	497	74	571	-	571	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	58	9	67	-	67	-	-	-	-	-	-	-	-	-
2a.4.13	Railroad Track Maintenance	-	-	-	-	-	-	65	10	75	75	-	-	-	-	-	-	-	-	-	-
2a.4.14	Security Staff Cost	-	-	-	-	-	-	5,521	828	6,349	6,349	-	-	-	-	-	-	-	-	-	171,679
2a.4.15	DOC Staff Cost	-	-	-	-	-	-	13,873	2,081	15,954	15,954	-	-	-	-	-	-	-	-	-	206,286
2a.4.16	Utility Staff Cost	-	-	-	-	-	-	19,283	2,892	22,176	22,176	-	-	-	-	-	-	-	-	-	384,071
2a.4	Subtotal Period 2a Period-Dependent Costs	66	3,830	84	23	-	290	47,900	7,820	60,013	58,204	1,637	172	-	3,930	-	-	-	78,601	128	762,036
2a.0	TOTAL PERIOD 2a COST	849	23,068	22,849	4,000	2,895	18,622	57,536	31,592	161,410	146,683	12,240	2,487	38,625	33,803	527	918	-	4,367,179	209,743	768,015
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	ADT & Misc Ventilation	-	20	0	1	12	2	-	7	42	42	-	-	153	7	-	-	-	6,796	363	-
2b.1.1.2	Aux Bldg Normal Ventilation	-	55	2	4	54	7	-	25	147	147	-	-	692	29	-	-	-	30,575	1,012	-
2b.1.1.3	Aux Bldg Special Ventilation	-	11	0	0	6	1	-	4	22	22	-	-	70	4	-	-	-	3,228	197	-
2b.1.1.4	Battery Rm Special Ventilation	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	24	-
2b.1.1.5	Boron Recycle	0	3	0	0	0	2	-	1	7	7	-	-	3	7	-	-	-	684	50	-
2b.1.1.6	Chemical & Volume Control	595	748	46	39	185	374	-	616	2,603	2,603	-	-	2,356	1,557	-	-	-	221,508	23,175	-
2b.1.1.7	Cold Chemical Lab Ventilation	-	1	-	-	-	-	-	0	1	-	-	1	-	-	-	-	-	-	9	-
2b.1.1.8	Component Cooling - RCA	-	515	18	65	940	-	-	281	1,819	1,819	-	-	11,996	-	-	-	-	487,169	8,583	-
2b.1.1.9	Containment Cooling	-	27	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	-	502	-
2b.1.1.10	Containment Cooling - RCA	-	240	4	15	215	-	-	95	569	569	-	-	2,743	-	-	-	-	111,390	3,949	-
2b.1.1.11	Containment Hydrogen Control - RCA	-	29	0	1	11	-	-	9	50	50	-	-	141	-	-	-	-	5,742	494	-
2b.1.1.12	Containment Spray - RCA	-	154	2	8	114	-	-	57	335	335	-	-	1,453	-	-	-	-	59,019	2,617	-
2b.1.1.13	Containment Ventilation	-	186	18	35	370	137	-	143	890	890	-	-	4,721	541	-	-	-	237,746	3,370	-
2b.1.1.14	Control/Relay/Cmptr Rm Vent	-	25	1	2	20	4	-	11	62	62	-	-	260	15	-	-	-	11,864	454	-
2b.1.1.15	Cooling Water	-	124	-	-	-	-	-	19	143	-	-	143	-	-	-	-	-	-	2,344	-
2b.1.1.16	Cooling Water - RCA	-	380	13	45	662	-	-	202	1,302	1,302	-	-	8,442	-	-	-	-	342,822	6,311	-
2b.1.1.17	Cranes/Hoists/Elevators - RCA	-	3	0	1	8	-	-	2	13	13	-	-	103	-	-	-	-	4,184	48	-
2b.1.1.18	D3 Emergency Diesel	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	141	-
2b.1.1.19	D4 Emergency Diesel	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	141	-
2b.1.1.20	D5 Emergency Diesel	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2b.1.1.21	Electrical - Clean	-	1,341	-	-	-	-	-	201	1,542	-	-	1,542	-	-	-	-	-	-	24,276	-
2b.1.1.22	Electrical - Contaminated	-	378	4	12	157	14	-	124	689	689	-	-	1,997	56	-	-	-	85,904	6,502	-
2b.1.1.23	Electrical - Decontaminated	-	2,357	28	101	1,470	-	-	828	4,784	4,784	-	-	18,753	-	-	-	-	761,569	38,423	-

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Disposal of Plant Systems (continued)																					
2b.1.1.24	Filter Rm Ventilation	-	4	0	0	2	0	-	1	7	7	-	-	24	1	-	-	-	1,018	69	-
2b.1.1.25	Fire Protection & Detection	-	159	-	-	-	-	-	24	183	-	-	183	-	-	-	-	-	-	3,009	-
2b.1.1.26	Fire Protection & Detection - RCA	-	196	3	10	143	-	-	72	424	424	-	-	1,828	-	-	-	-	74,245	3,134	-
2b.1.1.27	Fuel Handling	-	59	1	2	16	9	-	20	106	106	-	-	200	37	-	-	-	11,280	1,101	-
2b.1.1.28	Fuel Oil	-	1	-	-	-	-	-	0	1	-	-	1	-	-	-	-	-	-	9	-
2b.1.1.29	HVAC - Clean	-	119	-	-	-	-	-	18	136	-	-	136	-	-	-	-	-	-	2,373	-
2b.1.1.30	HVAC - Contaminated	-	983	22	63	842	77	-	403	2,390	2,390	-	-	10,745	304	-	-	-	462,193	16,575	-
2b.1.1.31	Heating	-	250	-	-	-	-	-	38	288	-	-	288	-	-	-	-	-	-	4,804	-
2b.1.1.32	Heating - RCA	-	270	3	10	149	-	-	92	524	524	-	-	1,907	-	-	-	-	77,458	4,086	-
2b.1.1.33	Hot Lab & Sample Rm Ventilation	-	16	0	1	8	1	-	5	31	31	-	-	107	3	-	-	-	4,623	285	-
2b.1.1.34	Incore Instrumentation	0	24	1	1	5	11	-	10	51	51	-	-	60	43	-	-	-	6,122	457	-
2b.1.1.35	Misc Drains & Vents	-	186	9	8	36	81	-	74	394	394	-	-	458	320	-	-	-	45,786	3,175	-
2b.1.1.36	Misc Lab & Service Areas Vent	-	103	6	5	29	46	-	43	232	232	-	-	370	183	-	-	-	30,543	1,709	-
2b.1.1.37	Miscellaneous Gas	-	56	-	-	-	-	-	8	64	-	-	64	-	-	-	-	-	-	1,073	-
2b.1.1.38	Miscellaneous Gas - RCA	-	107	1	3	47	-	-	34	192	192	-	-	600	-	-	-	-	24,378	1,636	-
2b.1.1.39	Radiation Monitoring	-	6	-	-	-	-	-	1	7	-	-	7	-	-	-	-	-	-	111	-
2b.1.1.40	Radiation Monitoring - RCA	-	52	0	2	25	-	-	17	96	96	-	-	316	-	-	-	-	12,826	782	-
2b.1.1.41	Reactor Coolant	129	188	15	11	18	138	-	152	651	651	-	-	229	548	-	-	-	55,824	5,508	-
2b.1.1.42	Reactor Hot Sampling	111	101	8	4	4	59	-	97	385	385	-	-	54	234	-	-	-	22,070	3,681	-
2b.1.1.43	Reactor Makeup	-	32	-	-	-	-	-	5	37	-	-	37	-	-	-	-	-	-	583	-
2b.1.1.44	Reactor Makeup - RCA	-	3	0	0	2	-	-	1	7	7	-	-	28	-	-	-	-	1,148	47	-
2b.1.1.45	Reactor Vessel	7	14	0	0	2	3	-	8	34	34	-	-	22	11	-	-	-	1,788	385	-
2b.1.1.46	Residual Heat Removal	276	312	63	59	224	614	-	418	1,966	1,966	-	-	2,853	2,433	-	-	-	322,636	7,079	-
2b.1.1.47	Safeguards Chilled Water	-	4	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	-	75	-
2b.1.1.48	Safety Injection	-	694	32	52	523	220	-	318	1,838	1,838	-	-	6,676	902	-	-	-	345,035	12,273	-
2b.1.1.49	Sampling	-	42	2	1	3	18	-	16	82	82	-	-	37	70	-	-	-	7,443	713	-
2b.1.1.50	Service Bldg & New Cmptr Vent	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	6	-
2b.1.1.51	Shield Bldg Ventilation	-	95	10	17	159	92	-	74	448	448	-	-	2,028	363	-	-	-	113,240	1,739	-
2b.1.1.52	Station & Instrument Air	-	126	-	-	-	-	-	19	145	-	-	145	-	-	-	-	-	-	2,424	-
2b.1.1.53	Station & Instrument Air - RCA	-	240	2	9	127	-	-	81	459	459	-	-	1,625	-	-	-	-	65,986	3,638	-
2b.1.1.54	Turbine Bldg Traps & Drains	-	24	-	-	-	-	-	4	27	-	-	27	-	-	-	-	-	-	462	-
2b.1.1.55	Turbine Bldg Traps & Drains - RCA	-	24	0	1	14	-	-	8	47	47	-	-	180	-	-	-	-	7,321	344	-
2b.1.1.56	Turbine Bldg Ventilation	-	36	-	-	-	-	-	5	42	-	-	42	-	-	-	-	-	-	655	-
2b.1.1.57	Unit Coolers	-	18	-	-	-	-	-	3	20	-	-	20	-	-	-	-	-	-	332	-
2b.1.1.58	Unit Coolers - RCA	-	44	0	1	18	-	-	14	78	78	-	-	232	-	-	-	-	9,413	690	-
2b.1.1.59	Waste Gas Disposal	440	382	33	31	192	256	-	417	1,752	1,752	-	-	2,453	1,124	-	-	-	185,932	14,295	-
2b.1.1.60	Waste Liquid Disposal	1,141	1,430	84	68	286	679	-	1,159	4,847	4,847	-	-	3,655	2,811	-	-	-	377,193	44,443	-
2b.1.1.61	Waste Solid Disposal	91	116	8	7	30	74	-	100	428	428	-	-	389	304	-	-	-	40,825	3,477	-
2b.1.1	Totals	2,792	13,126	440	698	7,130	2,918	-	6,391	33,494	30,803	-	2,691	90,963	11,908	-	-	-	4,676,526	270,228	-
2b.1.2	Scaffolding in support of decommissioning	-	3,297	29	9	110	21	-	850	4,316	4,316	-	-	1,265	84	-	-	-	64,045	32,837	-
Decontamination of Site Buildings																					
2b.1.3.1	Reactor	975	829	31	140	175	1,302	-	1,071	4,523	4,523	-	-	2,230	7,732	-	-	-	661,035	30,714	-
2b.1.3.2	Auxiliary	1,039	339	10	74	83	524	-	760	2,830	2,830	-	-	1,060	3,353	-	-	-	332,478	23,808	-
2b.1.3.3	Backwash Waste Receiving Tank	-	23	1	10	-	79	-	27	141	141	-	-	-	507	-	-	-	43,896	299	-
2b.1.3.4	Drum Transfer & Truck Loading Enclosure	14	7	0	2	1	11	-	12	49	49	-	-	19	74	-	-	-	7,118	368	-
2b.1.3.5	LLRW Storage Enclosure	99	44	1	11	3	78	-	82	318	318	-	-	38	502	-	-	-	44,969	2,424	-
2b.1.3.6	Radwaste	44	19	1	5	3	35	-	37	144	144	-	-	42	225	-	-	-	21,136	1,082	-
2b.1.3.7	Resin Disposal	13	10	0	2	7	11	-	13	55	55	-	-	83	69	-	-	-	9,271	383	-
2b.1.3	Totals	2,186	1,271	45	243	272	2,041	-	2,003	8,060	8,060	-	-	3,471	12,462	-	-	-	1,119,903	59,077	-
2b.1	Subtotal Period 2b Activity Costs	4,978	17,695	514	949	7,512	4,980	-	9,244	45,870	43,180	-	2,691	95,700	24,454	-	-	-	5,860,474	362,142	-
Period 2b Collateral Costs																					
2b.3.1	Process decommissioning water waste	155	-	65	237	-	382	-	215	1,053	1,053	-	-	-	1,008	-	-	-	60,498	197	-
2b.3.2	Process decommissioning chemical flush waste	2	-	72	344	-	776	-	254	1,448	1,448	-	-	-	1,154	-	-	-	122,948	216	-
2b.3.3	Small tool allowance	-	323	-	-	-	-	-	48	371	371	-	-	-	-	-	-	-	-	-	-
2b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	4,953	743	5,696	-	5,696	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	157	323	137	581	-	1,158	4,954	1,260	8,570	2,874	5,696	-	-	2,162	-	-	-	183,446	413	-

Table D-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	845	-	-	-	-	-	-	211	1,057	1,057	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	617	62	679	679	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	1,708	171	1,879	1,879	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	2,116	-	-	-	-	-	529	2,645	2,645	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	2,786	-	-	-	-	-	418	3,204	3,204	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	110	31	-	384	-	112	637	637	-	-	-	5,197	-	-	-	103,950	170	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	3,177	477	3,654	3,654	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	745	74	819	819	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	1,058	106	1,163	-	1,163	-	-	-	-	-	-	-	-	-
2b.4.10	Fixed Overhead	-	-	-	-	-	-	1,755	263	2,019	2,019	-	-	-	-	-	-	-	-	-	-
2b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	578	87	665	-	665	-	-	-	-	-	-	-	-	-
2b.4.12	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	294	44	338	338	-	-	-	-	-	-	-	-	-	-
2b.4.13	ISFSI Operating Costs	-	-	-	-	-	-	68	10	78	-	78	-	-	-	-	-	-	-	-	-
2b.4.14	Railroad Track Maintenance	-	-	-	-	-	-	76	11	87	87	-	-	-	-	-	-	-	-	-	-
2b.4.15	Security Staff Cost	-	-	-	-	-	-	6,427	964	7,392	7,392	-	-	-	-	-	-	-	-	-	199,870
2b.4.16	DOC Staff Cost	-	-	-	-	-	-	15,618	2,343	17,961	17,961	-	-	-	-	-	-	-	-	-	230,680
2b.4.17	Utility Staff Cost	-	-	-	-	-	-	21,672	3,251	24,923	24,923	-	-	-	-	-	-	-	-	-	428,180
2b.4	Subtotal Period 2b Period-Dependent Costs	845	4,902	110	31	-	384	53,793	9,132	69,198	67,292	1,906	-	-	5,197	-	-	-	103,950	170	858,730
2b.0	TOTAL PERIOD 2b COST	5,980	22,919	761	1,561	7,512	6,521	58,747	19,637	123,638	113,345	7,602	2,691	95,700	31,814	-	-	-	6,147,870	362,724	858,730
PERIOD 2c - Spent fuel delay prior to SFP decon																					
Period 2c Direct Decommissioning Activities																					
Period 2c Collateral Costs																					
2c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	63,230	9,484	72,714	-	72,714	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	-	-	-	-	-	-	63,230	9,484	72,714	-	72,714	-	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																					
2c.4.1	Insurance	-	-	-	-	-	-	4,352	435	4,788	4,788	-	-	-	-	-	-	-	-	-	-
2c.4.2	Property taxes	-	-	-	-	-	-	8,613	861	9,474	9,474	-	-	-	-	-	-	-	-	-	-
2c.4.3	Health physics supplies	-	3,422	-	-	-	-	-	855	4,277	4,277	-	-	-	-	-	-	-	-	-	-
2c.4.4	Heavy equipment rental	-	983	-	-	-	-	-	147	1,130	1,130	-	-	-	-	-	-	-	-	-	-
2c.4.5	Disposal of DAW generated	-	-	94	26	-	326	-	95	540	540	-	-	-	4,411	-	-	-	88,213	144	-
2c.4.6	Plant energy budget	-	-	-	-	-	-	5,978	897	6,875	6,875	-	-	-	-	-	-	-	-	-	-
2c.4.7	NRC Fees	-	-	-	-	-	-	2,812	281	3,094	3,094	-	-	-	-	-	-	-	-	-	-
2c.4.8	Emergency Planning Fees	-	-	-	-	-	-	7,463	746	8,210	-	8,210	-	-	-	-	-	-	-	-	-
2c.4.9	Fixed Overhead	-	-	-	-	-	-	12,385	1,858	14,243	14,243	-	-	-	-	-	-	-	-	-	-
2c.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	4,079	612	4,691	-	4,691	-	-	-	-	-	-	-	-	-
2c.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	414	62	476	476	-	-	-	-	-	-	-	-	-	-
2c.4.12	ISFSI Operating Costs	-	-	-	-	-	-	478	72	550	-	550	-	-	-	-	-	-	-	-	-
2c.4.13	Railroad Track Maintenance	-	-	-	-	-	-	534	80	614	614	-	-	-	-	-	-	-	-	-	-
2c.4.14	Security Staff Cost	-	-	-	-	-	-	38,707	5,806	44,513	44,513	-	-	-	-	-	-	-	-	-	1,187,323
2c.4.15	Utility Staff Cost	-	-	-	-	-	-	43,730	6,559	50,289	50,289	-	-	-	-	-	-	-	-	-	880,737
2c.4	Subtotal Period 2c Period-Dependent Costs	-	4,405	94	26	-	326	129,547	19,368	153,765	140,314	13,451	-	-	4,411	-	-	-	88,213	144	2,068,060
2c.0	TOTAL PERIOD 2c COST	-	4,405	94	26	-	326	192,777	28,852	226,479	140,314	86,165	-	-	4,411	-	-	-	88,213	144	2,068,060
PERIOD 2d - Decontamination Following Wet Fuel Storage																					
Period 2d Direct Decommissioning Activities																					
2d.1.1	Remove spent fuel racks	279	28	92	28	-	396	-	259	1,082	1,082	-	-	-	1,569	-	-	-	133,386	576	-
Disposal of Plant Systems																					
2d.1.2.1	Electrical - Contaminated - Fuel Pool	-	162	2	5	68	6	-	53	296	296	-	-	864	24	-	-	-	37,174	2,783	-
2d.1.2.2	Electrical - Decontaminated - Fuel Pool	-	1,012	12	43	632	-	-	356	2,055	2,055	-	-	8,069	-	-	-	-	327,668	16,495	-
2d.1.2.3	Fire Protection & Detection - RCA Fuel P	-	30	0	2	22	-	-	11	65	65	-	-	286	-	-	-	-	11,622	476	-
2d.1.2.4	HVAC - Contaminated - Fuel Pool	-	442	10	28	378	34	-	181	1,074	1,074	-	-	4,828	136	-	-	-	207,653	7,447	-
2d.1.2.5	Safeguards Chilled Water - RCA	-	4	0	0	2	-	-	1	7	7	-	-	26	-	-	-	-	1,045	51	-
2d.1.2.6	Spent Fuel Pool Cooling	25	29	2	2	3	20	-	26	107	107	-	-	39	80	-	-	-	8,359	881	-
2d.1.2.7	Spent Fuel Pool Normal Ventilation	-	22	1	2	21	2	-	9	56	56	-	-	265	9	-	-	-	11,504	394	-
2d.1.2	Totals	25	1,699	27	82	1,127	63	-	637	3,660	3,660	-	-	14,376	250	-	-	-	605,025	28,526	-

Table D-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Decontamination of Site Buildings																					
2d.1.3.1	Fuel Handling of Aux Building	822	902	8	30	189	150	-	708	2,810	2,810	-	-	2,417	923	-	-	-	177,583	30,400	-
2d.1.3	Totals	822	902	8	30	189	150	-	708	2,810	2,810	-	-	2,417	923	-	-	-	177,583	30,400	-
2d.1.4	Scaffolding in support of decommissioning	-	659	6	2	22	4	-	170	863	863	-	-	253	17	-	-	-	12,809	6,567	-
2d.1	Subtotal Period 2d Activity Costs	1,127	3,288	132	142	1,338	613	-	1,774	8,415	8,415	-	-	17,046	2,758	-	-	-	928,804	66,070	-
Period 2d Additional Costs																					
2d.2.1	License Termination Survey Planning	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
Period 2d Collateral Costs																					
2d.3.1	Process decommissioning water waste	15	-	8	27	-	44	-	23	117	117	-	-	-	117	-	-	-	6,990	23	-
2d.3.2	Process decommissioning chemical flush waste	0	-	1	4	-	9	-	3	17	17	-	-	-	13	-	-	-	1,422	2	-
2d.3.3	Small tool allowance	-	65	-	-	-	-	-	10	75	75	-	-	-	-	-	-	-	-	-	-
2d.3.4	Decommissioning Equipment Disposition	-	-	136	51	521	100	-	124	933	933	-	-	6,000	397	-	-	-	303,726	88	-
2d.3.5	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,935	440	3,376	-	3,376	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	15	65	145	82	521	153	2,935	601	4,517	1,141	3,376	-	6,000	527	-	-	-	312,139	113	-
Period 2d Period-Dependent Costs																					
2d.4.1	Decon supplies	159	-	-	-	-	-	-	40	199	199	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	318	32	350	350	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	392	39	431	431	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	559	-	-	-	-	-	140	699	699	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,436	-	-	-	-	-	215	1,651	1,651	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	43	12	-	148	-	43	245	245	-	-	-	2,002	-	-	-	40,031	65	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	873	131	1,004	1,004	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	384	38	422	422	-	-	-	-	-	-	-	-	-	-
2d.4.9	Emergency Planning Fees	-	-	-	-	-	-	545	55	600	-	600	-	-	-	-	-	-	-	-	-
2d.4.10	Fixed Overhead	-	-	-	-	-	-	905	136	1,040	1,040	-	-	-	-	-	-	-	-	-	-
2d.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	303	45	348	348	-	-	-	-	-	-	-	-	-	-
2d.4.12	ISFSI Operating Costs	-	-	-	-	-	-	35	5	40	-	40	-	-	-	-	-	-	-	-	-
2d.4.13	Railroad Track Maintenance	-	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-	-	-	-
2d.4.14	Security Staff Cost	-	-	-	-	-	-	1,856	278	2,135	2,135	-	-	-	-	-	-	-	-	-	54,150
2d.4.15	DOC Staff Cost	-	-	-	-	-	-	4,717	708	5,424	5,424	-	-	-	-	-	-	-	-	-	70,436
2d.4.16	Utility Staff Cost	-	-	-	-	-	-	6,477	972	7,449	7,449	-	-	-	-	-	-	-	-	-	127,029
2d.4	Subtotal Period 2d Period-Dependent Costs	159	1,995	43	12	-	148	16,844	2,883	22,083	21,444	640	-	-	2,002	-	-	-	40,031	65	251,614
2d.0	TOTAL PERIOD 2d COST	1,301	5,349	320	236	1,859	914	20,306	5,415	35,700	31,685	4,015	-	23,046	5,286	-	-	-	1,280,973	66,249	257,854
PERIOD 2f - License Termination																					
Period 2f Direct Decommissioning Activities																					
2f.1.1	ORISE confirmatory survey	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
2f.1.2	Terminate license									a											
2f.1	Subtotal Period 2f Activity Costs	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
Period 2f Additional Costs																					
2f.2.1	License Termination Survey	-	-	-	-	-	-	5,526	1,658	7,184	7,184	-	-	-	-	-	-	-	-	102,642	3,120
2f.2	Subtotal Period 2f Additional Costs	-	-	-	-	-	-	5,526	1,658	7,184	7,184	-	-	-	-	-	-	-	-	102,642	3,120
Period 2f Collateral Costs																					
2f.3.1	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
2f.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	97	15	111	-	111	-	-	-	-	-	-	-	-	-
2f.3	Subtotal Period 2f Collateral Costs	-	-	-	-	-	-	1,126	169	1,295	1,184	111	-	-	-	-	-	-	-	-	-

Table D-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 2f Period-Dependent Costs																					
2f.4.1	Insurance	-	-	-	-	-	-	287	29	316	316	-	-	-	-	-	-	-	-	-	-
2f.4.2	Property taxes	-	-	-	-	-	-	348	35	383	383	-	-	-	-	-	-	-	-	-	-
2f.4.3	Health physics supplies	-	505	-	-	-	-	-	126	632	632	-	-	-	-	-	-	-	-	-	-
2f.4.4	Disposal of DAW generated	-	-	7	2	-	25	-	7	41	41	-	-	-	334	-	-	-	6,685	11	-
2f.4.5	Plant energy budget	-	-	-	-	-	-	418	63	481	481	-	-	-	-	-	-	-	-	-	-
2f.4.6	NRC Fees	-	-	-	-	-	-	384	38	423	423	-	-	-	-	-	-	-	-	-	-
2f.4.7	Emergency Planning Fees	-	-	-	-	-	-	44	4	49	-	49	-	-	-	-	-	-	-	-	-
2f.4.8	Fixed Overhead	-	-	-	-	-	-	867	130	997	997	-	-	-	-	-	-	-	-	-	-
2f.4.9	ISFSI Operating Costs	-	-	-	-	-	-	33	5	38	-	38	-	-	-	-	-	-	-	-	-
2f.4.10	Railroad Track Maintenance	-	-	-	-	-	-	37	6	43	43	-	-	-	-	-	-	-	-	-	-
2f.4.11	Security Staff Cost	-	-	-	-	-	-	1,743	262	2,005	2,005	-	-	-	-	-	-	-	-	-	50,700
2f.4.12	DOC Staff Cost	-	-	-	-	-	-	3,198	480	3,677	3,677	-	-	-	-	-	-	-	-	-	46,410
2f.4.13	Utility Staff Cost	-	-	-	-	-	-	3,175	476	3,652	3,652	-	-	-	-	-	-	-	-	-	59,670
2f.4	Subtotal Period 2f Period-Dependent Costs	-	505	7	2	-	25	10,536	1,661	12,735	12,648	87	-	-	334	-	-	-	6,685	11	156,780
2f.0	TOTAL PERIOD 2f COST	-	505	7	2	-	25	17,342	3,534	21,414	21,216	199	-	-	334	-	-	-	6,685	102,653	159,900
PERIOD 2 TOTALS		8,130	56,246	24,031	5,824	12,266	26,408	346,707	89,030	568,641	453,242	110,221	5,178	157,372	75,648	527	918	-	11,890,920	741,512	4,112,559
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Reactor	-	5,472	-	-	-	-	-	821	6,293	-	-	6,293	-	-	-	-	-	-	66,359	-
3b.1.1.2	Auxiliary	-	3,586	-	-	-	-	-	538	4,124	-	-	4,124	-	-	-	-	-	-	44,627	-
3b.1.1.3	Condensate Storage Tank Foundation	-	14	-	-	-	-	-	2	16	-	-	16	-	-	-	-	-	-	193	-
3b.1.1.4	Construction Warehouse & Fab Shop	-	158	-	-	-	-	-	24	182	-	-	182	-	-	-	-	-	-	2,477	-
3b.1.1.5	D3/D4 Emergency Generator	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	371	-
3b.1.1.6	Drum Transfer & Truck Loading Enclosure	-	23	-	-	-	-	-	3	26	-	-	26	-	-	-	-	-	-	361	-
3b.1.1.7	Hydrogen House	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	153	-
3b.1.1.8	LLRW Storage Enclosure	-	210	-	-	-	-	-	32	242	-	-	242	-	-	-	-	-	-	2,776	-
3b.1.1.9	Radwaste	-	280	-	-	-	-	-	42	322	-	-	322	-	-	-	-	-	-	3,555	-
3b.1.1.10	Resin Disposal	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	383	-
3b.1.1.11	Sulfuric Acid Tank Enclosure	-	3	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	-	54	-
3b.1.1.12	Turbine	-	2,506	-	-	-	-	-	376	2,881	-	-	2,881	-	-	-	-	-	-	34,352	-
3b.1.1.13	Turbine Pedestal	-	754	-	-	-	-	-	113	867	-	-	867	-	-	-	-	-	-	7,580	-
3b.1.1.14	Warehouse #2	-	31	-	-	-	-	-	5	36	-	-	36	-	-	-	-	-	-	457	-
3b.1.1.15	Waste Neutralizing Tank House	-	12	-	-	-	-	-	2	14	-	-	14	-	-	-	-	-	-	165	-
3b.1.1.16	Waste Oil Storage	-	16	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	225	-
3b.1.1.17	Water Treatment	-	481	-	-	-	-	-	72	554	-	-	554	-	-	-	-	-	-	6,498	-
3b.1.1.18	Fuel Handling of Aux Building	-	1,803	-	-	-	-	-	271	2,074	-	-	2,074	-	-	-	-	-	-	21,027	-
3b.1.1	Totals	-	15,415	-	-	-	-	-	2,312	17,727	-	-	17,727	-	-	-	-	-	-	191,615	-
Site Closeout Activities																					
3b.1.2	Remove Rubble	-	1,816	-	-	-	-	-	272	2,089	-	-	2,089	-	-	-	-	-	-	10,653	-
3b.1.3	Grade & landscape site	-	490	-	-	-	-	-	74	564	-	-	564	-	-	-	-	-	-	921	-
3b.1.4	Final report to NRC	-	-	-	-	-	-	63	9	72	72	-	-	-	-	-	-	-	-	-	668
3b.1	Subtotal Period 3b Activity Costs	-	17,722	-	-	-	-	63	2,668	20,452	72	-	20,380	-	-	-	-	-	-	203,188	668
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	580	-	-	-	-	6	88	673	-	-	673	-	-	-	-	-	-	2,731	-
3b.2	Subtotal Period 3b Additional Costs	-	580	-	-	-	-	6	88	673	-	-	673	-	-	-	-	-	-	2,731	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	201	-	-	-	-	-	30	231	-	-	231	-	-	-	-	-	-	-	-
3b.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	983	148	1,131	-	1,131	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	201	-	-	-	-	983	178	1,362	-	1,131	231	-	-	-	-	-	-	-	-

Table D-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	407	41	447	-	447	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	839	84	923	-	923	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	5,588	-	-	-	-	-	838	6,426	-	-	6,426	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	593	89	682	-	-	682	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	294	29	323	-	323	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	126	13	138	-	138	-	-	-	-	-	-	-	-	-
3b.4.7	Fixed Overhead	-	-	-	-	-	-	1,065	160	1,225	1,225	-	-	-	-	-	-	-	-	-	-
3b.4.8	ISFSI Operating Costs	-	-	-	-	-	-	95	14	109	-	109	-	-	-	-	-	-	-	-	-
3b.4.9	Railroad Track Maintenance	-	-	-	-	-	-	106	16	122	122	-	-	-	-	-	-	-	-	-	-
3b.4.10	Security Staff Cost	-	-	-	-	-	-	2,554	383	2,937	(0)	1,997	940	-	-	-	-	-	-	-	74,658
3b.4.11	DOC Staff Cost	-	-	-	-	-	-	8,197	1,229	9,426	-	-	9,426	-	-	-	-	-	-	-	117,206
3b.4.12	Utility Staff Cost	-	-	-	-	-	-	4,194	629	4,823	-	4,147	675	-	-	-	-	-	-	-	74,658
3b.4	Subtotal Period 3b Period-Dependent Costs	-	5,588	-	-	-	-	18,468	3,525	27,581	1,347	8,085	18,149	-	-	-	-	-	-	-	266,521
3b.0	TOTAL PERIOD 3b COST	-	24,090	-	-	-	-	19,520	6,458	50,068	1,418	9,216	39,433	-	-	-	-	-	-	205,919	267,189
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	13,330	1,999	15,329	-	15,329	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	13,330	1,999	15,329	-	15,329	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	4,700	470	5,170	-	5,170	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	8,804	880	9,684	-	9,684	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	3,398	340	3,737	-	3,737	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	1,452	145	1,597	-	1,597	-	-	-	-	-	-	-	-	-
3c.4.6	Fixed Overhead	-	-	-	-	-	-	12,306	1,846	14,152	-	14,152	-	-	-	-	-	-	-	-	-
3c.4.7	ISFSI Operating Costs	-	-	-	-	-	-	1,096	164	1,260	-	1,260	-	-	-	-	-	-	-	-	-
3c.4.8	Railroad Track Maintenance	-	-	-	-	-	-	1,224	184	1,408	-	1,408	-	-	-	-	-	-	-	-	-
3c.4.9	Security Staff Cost	-	-	-	-	-	-	24,369	3,655	28,024	-	28,024	-	-	-	-	-	-	-	-	689,966
3c.4.10	Utility Staff Cost	-	-	-	-	-	-	8,658	1,299	9,956	-	9,956	-	-	-	-	-	-	-	-	172,747
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	66,007	8,983	74,990	-	74,990	-	-	-	-	-	-	-	-	862,713
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	79,337	10,983	90,319	-	90,319	-	-	-	-	-	-	-	-	862,713
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-
3d.1.1	Totals	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-
Period 3d Collateral Costs																					
3d.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	16	2	18	-	18	-	-	-	-	-	-	-	-	-
3d.3	Subtotal Period 3d Collateral Costs	-	-	-	-	-	-	16	2	18	-	18	-	-	-	-	-	-	-	-	-

Table D-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	7	1	8	-	8	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	14	1	15	-	15	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	4	0	5	-	5	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.6	Fixed Overhead	-	-	-	-	-	-	19	3	22	-	22	-	-	-	-	-	-	-	-	-
3d.4.7	ISFSI Operating Costs	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.8	Railroad Track Maintenance	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3d.4.9	Security Staff Cost	-	-	-	-	-	-	38	6	44	-	44	-	-	-	-	-	-	-	-	1,080
3d.4.10	Utility Staff Cost	-	-	-	-	-	-	14	2	16	-	16	-	-	-	-	-	-	-	-	270
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	102	14	116	-	116	-	-	-	-	-	-	-	-	1,350
3d.0	TOTAL PERIOD 3d COST	-	-	822	-	-	8,602	118	1,389	10,931	10,797	134	-	-	-	-	-	2,793	658,858	-	1,350
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI License Termination (TN-40)	-	7	1	0	-	2	665	102	776	-	776	-	-	24	-	-	-	487	2,011	1,280
3e.2	Subtotal Period 3e Additional Costs	-	7	1	0	-	2	665	102	776	-	776	-	-	24	-	-	-	487	2,011	1,280
Period 3e Collateral Costs																					
3e.3	Subtotal Period 3e Collateral Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Period 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	64	6	70	-	70	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	119	12	131	-	131	-	-	-	-	-	-	-	-	-
3e.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3e.4.4	NRC ISFSI Fees	-	-	-	-	-	-	36	4	39	-	39	-	-	-	-	-	-	-	-	-
3e.4.5	Railroad Track Maintenance	-	-	-	-	-	-	17	2	19	-	19	-	-	-	-	-	-	-	-	-
3e.4.6	Security Staff Cost	-	-	-	-	-	-	89	13	103	-	103	-	-	-	-	-	-	-	-	2,510
3e.4.7	Utility Staff Cost	-	-	-	-	-	-	98	15	113	-	113	-	-	-	-	-	-	-	-	1,901
3e.4	Subtotal Period 3e Period-Dependent Costs	-	-	-	-	-	-	422	52	475	-	475	-	-	-	-	-	-	-	-	4,411
3e.0	TOTAL PERIOD 3e COST	-	7	1	0	-	2	1,087	154	1,251	-	1,251	-	-	24	-	-	-	487	2,011	5,691
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Site Restoration (TN-40)	-	218	-	-	-	-	22	36	276	-	276	-	-	-	-	-	-	-	218	80
3f.2	Subtotal Period 3f Additional Costs	-	218	-	-	-	-	22	36	276	-	276	-	-	-	-	-	-	-	218	80
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	4	-	-	-	-	-	1	4	-	4	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	4	-	-	-	-	-	1	4	-	4	-	-	-	-	-	-	-	-	-

Table D-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3f Period-Dependent Costs																					
3f.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.2	Property taxes	-	-	-	-	-	-	60	6	66	-	66	-	-	-	-	-	-	-	-	-
3f.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.4	Railroad Track Maintenance	-	-	-	-	-	-	8	1	10	-	10	-	-	-	-	-	-	-	-	-
3f.4.5	Security Staff Cost	-	-	-	-	-	-	45	7	52	-	52	-	-	-	-	-	-	-	-	1,265
3f.4.6	Utility Staff Cost	-	-	-	-	-	-	39	6	44	-	44	-	-	-	-	-	-	-	-	784
3f.4	Subtotal Period 3f Period-Dependent Costs	-	-	-	-	-	-	152	20	172	-	172	-	-	-	-	-	-	-	-	2,050
3f.0	TOTAL PERIOD 3f COST	-	222	-	-	-	-	174	56	452	-	452	-	-	-	-	-	-	-	218	2,130
PERIOD 3 TOTALS		-	24,319	823	0	-	8,604	100,236	19,041	153,022	12,215	101,373	39,433	-	24	-	-	2,793	659,345	208,148	1,139,073
TOTAL COST TO DECOMMISSION		**10,961**	**85,110**	**25,202**	**6,211**	**12,413**	**38,152**	**531,740**	**123,138**	**832,926**	**552,230**	**235,588**	**45,108**	**163,696**	**89,559**	**1,115**	**918**	**2,793**	**13,169,790**	**982,293**	**6,105,924**

TOTAL COST TO DECOMMISSION WITH 17.35% CONTINGENCY:	**$832,926**	**thousands of 2011 dollars**
TOTAL NRC LICENSE TERMINATION COST IS 66.3% OR:	**$552,230**	**thousands of 2011 dollars**
SPENT FUEL MANAGEMENT COST IS 28.28% OR:	**$235,588**	**thousands of 2011 dollars**
NON-NUCLEAR DEMOLITION COST IS 5.42% OR:	**$45,108**	**thousands of 2011 dollars**
TOTAL LOW-LEVEL RADWASTE VOLUME BURIED (EXCLUDING GTCC):	**91,593**	**Cubic Feet**
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	**2,793**	**Cubic Feet**
TOTAL SCRAP METAL REMOVED:	**35,187**	**Tons**
TOTAL CRAFT LABOR REQUIREMENTS:	**982,293**	**Man-hours**

End Notes:
n/a - indicates that this activity not charged as decommissioning expense.
a - indicates that this activity performed by decommissioning staff.
0 - indicates that this value is less than 0.5 but is non-zero.
a cell containing " - " indicates a zero value

APPENDIX E

DETAILED COST TABLES

SCENARIO 3

DECON DECOMMISSIONING COST ESTIMATE

WITH 200 YEARS OF SPENT FUEL STORAGE

Table — Page

Table E-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	122	18	140	140	-	-	-	-	-	-	-	-	-	1,300
1a.1.2	Notification of Cessation of Operations									a											
1a.1.3	Remove fuel & source material									n/a											
1a.1.4	Notification of Permanent Defueling									a											
1a.1.5	Deactivate plant systems & process waste									a											
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	187	28	215	215	-	-	-	-	-	-	-	-	-	2,000
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1a.1.10	End product description	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	122	18	140	140	-	-	-	-	-	-	-	-	-	1,300
1a.1.12	Define major work sequence	-	-	-	-	-	-	702	105	808	808	-	-	-	-	-	-	-	-	-	7,500
1a.1.13	Perform SER and EA	-	-	-	-	-	-	290	44	334	334	-	-	-	-	-	-	-	-	-	3,100
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	468	70	538	538	-	-	-	-	-	-	-	-	-	5,000
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	384	58	441	441	-	-	-	-	-	-	-	-	-	4,096
1a.1.16	Receive NRC approval of termination plan									a											
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	461	69	530	477	-	53	-	-	-	-	-	-	-	4,920
1a.1.17.2	Plant systems	-	-	-	-	-	-	390	59	449	404	-	45	-	-	-	-	-	-	-	4,167
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	47	7	54	54	-	-	-	-	-	-	-	-	-	500
1a.1.17.4	Reactor internals	-	-	-	-	-	-	665	100	765	765	-	-	-	-	-	-	-	-	-	7,100
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	609	91	700	700	-	-	-	-	-	-	-	-	-	6,500
1a.1.17.6	Biological shield	-	-	-	-	-	-	47	7	54	54	-	-	-	-	-	-	-	-	-	500
1a.1.17.7	Steam generators	-	-	-	-	-	-	292	44	336	336	-	-	-	-	-	-	-	-	-	3,120
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	150	22	172	86	-	86	-	-	-	-	-	-	-	1,600
1a.1.17.9	Main Turbine	-	-	-	-	-	-	37	6	43	-	-	43	-	-	-	-	-	-	-	400
1a.1.17.10	Main Condensers	-	-	-	-	-	-	37	6	43	-	-	43	-	-	-	-	-	-	-	400
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	292	44	336	168	-	168	-	-	-	-	-	-	-	3,120
1a.1.17.12	Waste management	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	84	13	97	48	-	48	-	-	-	-	-	-	-	900
1a.1.17	Total	-	-	-	-	-	-	3,542	531	4,073	3,587	-	487	-	-	-	-	-	-	-	37,827
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	225	34	258	258	-	-	-	-	-	-	-	-	-	2,400
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	2,800	420	3,220	3,220	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	131	20	151	151	-	-	-	-	-	-	-	-	-	1,400
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,200	330	2,530	2,530	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,230
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	11,906	1,786	13,692	13,206	-	487	-	-	-	-	-	-	-	73,753
Period 1a Additional Costs																					
1a.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
1a.2	Subtotal Period 1a Additional Costs	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	970	97	1,067	1,067	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	1,303	130	1,433	1,433	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	433	-	-	-	-	-	108	541	541	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	426	-	-	-	-	-	64	490	490	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	13	4	-	45	-	13	75	75	-	-	-	610	-	-	-	12,190	20	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	2,796	419	3,216	3,216	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	769	77	846	846	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	973	97	1,071	-	1,071	-	-	-	-	-	-	-	-	-
1a.4.9	Fixed Overhead	-	-	-	-	-	-	1,437	216	1,652	1,652	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	382	57	439	-	439	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	45	7	51	-	51	-	-	-	-	-	-	-	-	-
1a.4.12	Railroad Track Maintenance	-	-	-	-	-	-	50	7	57	57	-	-	-	-	-	-	-	-	-	-
1a.4.13	Security Staff Cost	-	-	-	-	-	-	365	55	420	420	-	-	-	-	-	-	-	-	-	12,264
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	20,432	3,065	23,497	23,497	-	-	-	-	-	-	-	-	-	423,400
1a.4	Subtotal Period 1a Period-Dependent Costs	-	859	13	4	-	45	29,522	4,413	34,855	33,294	1,561	-	-	610	-	-	-	12,190	20	435,664

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(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
1a.0	TOTAL PERIOD 1a COST	-	859	13	4	-	45	46,568	6,970	54,458	52,410	1,561	487	-	610	-	-	-	12,190	20	509,417
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	443	66	510	459	-	51	-	-	-	-	-	-	-	4,733
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.3	Reactor internals	-	-	-	-	-	-	234	35	269	269	-	-	-	-	-	-	-	-	-	2,500
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	126	19	145	36	-	109	-	-	-	-	-	-	-	1,350
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	340	51	391	391	-	-	-	-	-	-	-	-	-	3,630
1b.1.1.9	Facility closeout	-	-	-	-	-	-	112	17	129	65	-	65	-	-	-	-	-	-	-	1,200
1b.1.1.10	Missile shields	-	-	-	-	-	-	42	6	48	48	-	-	-	-	-	-	-	-	-	450
1b.1.1.11	Biological shield	-	-	-	-	-	-	112	17	129	129	-	-	-	-	-	-	-	-	-	1,200
1b.1.1.12	Steam generators	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	94	14	108	54	-	54	-	-	-	-	-	-	-	1,000
1b.1.1.14	Main Turbine	-	-	-	-	-	-	146	22	168	-	-	168	-	-	-	-	-	-	-	1,560
1b.1.1.15	Main Condensers	-	-	-	-	-	-	146	22	168	-	-	168	-	-	-	-	-	-	-	1,560
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	256	38	294	265	-	29	-	-	-	-	-	-	-	2,730
1b.1.1.17	Reactor building	-	-	-	-	-	-	256	38	294	265	-	29	-	-	-	-	-	-	-	2,730
1b.1.1	Total	-	-	-	-	-	-	3,113	467	3,580	2,907	-	673	-	-	-	-	-	-	-	33,243
1b.1.2	Decon primary loop	447	-	-	-	-	-	-	224	671	671	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	447	-	-	-	-	-	3,113	691	4,251	3,578	-	673	-	-	-	-	-	-	1,067	33,243
Period 1b Additional Costs																					
1b.2.1	Site Characterization	-	-	-	-	-	-	2,772	831	3,603	3,603	-	-	-	-	-	-	-	-	21,020	8,332
1b.2.2	Mixed/Hazardous Waste	-	-	274	69	142	-	-	59	544	544	-	-	6,133	-	-	-	-	351,986	2,361	-
1b.2.3	Asbestos Abatement	-	2,056	1	102	-	835	-	738	3,732	3,732	-	-	-	12,843	-	-	-	166,959	20,000	-
1b.2	Subtotal Period 1b Additional Costs	-	2,056	275	171	142	835	2,772	1,629	7,879	7,879	-	-	6,133	12,843	-	-	-	518,945	43,381	8,332
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	833	-	-	-	-	-	-	125	958	958	-	-	-	-	-	-	-	-	-	-
1b.3.2	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process decommissioning water waste	24	-	10	36	-	58	-	33	160	160	-	-	-	152	-	-	-	9,121	30	-
1b.3.4	Process decommissioning chemical flush waste	1	-	37	175	-	2,182	-	576	2,971	2,971	-	-	-	-	588	-	-	62,689	110	-
1b.3.5	Small tool allowance	-	26	-	-	-	-	-	4	30	30	-	-	-	-	-	-	-	-	-	-
1b.3.6	Pipe cutting equipment	-	1,100	-	-	-	-	-	165	1,265	1,265	-	-	-	-	-	-	-	-	-	-
1b.3.7	Decon rig	1,500	-	-	-	-	-	-	225	1,725	1,725	-	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	1,896	284	2,180	-	2,180	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	2,358	1,126	46	211	-	2,239	2,925	1,566	10,472	8,292	2,180	-	-	152	588	-	-	71,810	140	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	26	-	-	-	-	-	-	6	32	32	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	489	49	538	538	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	657	66	722	722	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	334	-	-	-	-	-	84	418	418	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	215	-	-	-	-	-	32	247	247	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	8	2	-	27	-	8	44	44	-	-	-	360	-	-	-	7,197	12	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	2,819	423	3,242	3,242	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	388	39	426	426	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	491	49	540	-	540	-	-	-	-	-	-	-	-	-
1b.4.10	Fixed Overhead	-	-	-	-	-	-	724	109	833	833	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	192	29	221	-	221	-	-	-	-	-	-	-	-	-
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	23	3	26	-	26	-	-	-	-	-	-	-	-	-
1b.4.13	Railroad Track Maintenance	-	-	-	-	-	-	25	4	29	29	-	-	-	-	-	-	-	-	-	-
1b.4.14	Security Staff Cost	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	6,182
1b.4.15	DOC Staff Cost	-	-	-	-	-	-	4,429	664	5,094	5,094	-	-	-	-	-	-	-	-	-	64,137
1b.4.16	Utility Staff Cost	-	-	-	-	-	-	10,353	1,553	11,906	11,906	-	-	-	-	-	-	-	-	-	214,491
1b.4	Subtotal Period 1b Period-Dependent Costs	26	549	8	2	-	27	20,774	3,145	24,530	23,743	787	-	-	360	-	-	-	7,197	12	284,811
1b.0	TOTAL PERIOD 1b COST	2,831	3,731	329	384	142	3,101	29,584	7,030	47,132	43,492	2,967	673	6,133	13,355	588	-	-	597,952	44,599	326,386

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PERIOD 1 TOTALS		2,831	4,590	342	387	142	3,146	76,152	14,000	101,591	95,903	4,528	1,160	6,133	13,964	588	-	-	610,142	44,619	835,803
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	43	37	6	7	-	103	-	59	256	256	-	-	-	305	-	-	-	34,809	1,414	-
2a.1.1.2	Pressurizer Relief Tank	19	16	4	5	-	63	-	30	138	138	-	-	-	192	-	-	-	21,288	625	-
2a.1.1.3	Reactor Coolant Pumps & Motors	46	55	83	73	-	666	-	222	1,144	1,144	-	-	-	2,332	-	-	-	295,800	2,049	100
2a.1.1.4	Pressurizer	32	62	350	69	-	535	-	211	1,258	1,258	-	-	-	1,874	-	-	-	158,199	2,213	938
2a.1.1.5	Steam Generators	190	2,703	1,863	1,556	1,129	3,230	-	2,167	12,837	12,837	-	-	18,672	11,316	-	-	-	1,668,341	11,617	2,875
2a.1.1.6	CRDMs/ICIs/Service Structure Removal	241	98	213	44	-	403	-	274	1,274	1,274	-	-	-	4,797	-	-	-	135,744	5,671	-
2a.1.1.7	Reactor Vessel Internals	111	2,477	24,110	1,524	-	11,473	222	14,091	54,008	54,008	-	-	-	626	584	918	-	242,739	24,200	1,100
2a.1.1.8	Reactor Vessel	60	4,311	1,606	534	-	1,509	222	4,586	12,828	12,828	-	-	-	5,315	-	-	-	566,474	24,200	1,100
2a.1.1	Totals	742	9,759	28,235	3,811	1,129	17,982	443	21,640	83,742	83,742	-	-	18,672	26,757	584	918	-	3,123,395	71,988	6,113
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	262	184	50	329	282	-	211	1,319	1,319	-	-	2,131	1,187	-	-	-	271,373	4,667	-
2a.1.3	Main Condensers	-	2,222	108	44	330	300	-	698	3,702	3,702	-	-	3,800	1,190	-	-	-	272,178	39,151	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Reactor	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,415	-
2a.1.4	Totals	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,415	-
Disposal of Plant Systems																					
2a.1.5.1	Air Removal	-	24	-	-	-	-	-	4	28	-	-	28	-	-	-	-	-	-	452	-
2a.1.5.2	Auxiliary Feedwater	-	35	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	670	-
2a.1.5.3	Auxiliary Feedwater - RCA	-	37	0	1	17	-	-	12	67	67	-	-	215	-	-	-	-	8,722	601	-
2a.1.5.4	Bleed Steam	-	70	-	-	-	-	-	11	81	-	-	81	-	-	-	-	-	-	1,335	-
2a.1.5.5	Caustic Addition - RCA	-	30	0	1	18	-	-	11	61	61	-	-	233	-	-	-	-	9,453	444	-
2a.1.5.6	Chemical Feed	-	16	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	304	-
2a.1.5.7	Chemical Feed - RCA	-	1	0	0	0	-	-	0	2	2	-	-	6	-	-	-	-	243	12	-
2a.1.5.8	Circulating Water	-	33	-	-	-	-	-	5	38	-	-	38	-	-	-	-	-	-	619	-
2a.1.5.9	Condensate	-	371	-	-	-	-	-	56	426	-	-	426	-	-	-	-	-	-	6,837	-
2a.1.5.10	Condensate Polishing	-	183	-	-	-	-	-	28	211	-	-	211	-	-	-	-	-	-	3,420	-
2a.1.5.11	Condensate Polishing - RCA	-	146	3	11	163	-	-	63	386	386	-	-	2,078	-	-	-	-	84,395	2,329	-
2a.1.5.12	Electro-hydraulic	-	7	-	-	-	-	-	1	8	-	-	8	-	-	-	-	-	-	127	-
2a.1.5.13	Feedwater	-	119	-	-	-	-	-	18	137	-	-	137	-	-	-	-	-	-	2,215	-
2a.1.5.14	Feedwater - RCA	-	155	5	17	251	-	-	79	508	508	-	-	3,208	-	-	-	-	130,294	2,651	-
2a.1.5.15	Gland Seal	-	26	-	-	-	-	-	4	30	-	-	30	-	-	-	-	-	-	505	-
2a.1.5.16	Heater Drain	-	313	-	-	-	-	-	47	360	-	-	360	-	-	-	-	-	-	5,881	-
2a.1.5.17	Internal Circ Water & CDSR	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	389	-
2a.1.5.18	Main Gen/Exciter/Transformer	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2a.1.5.19	Main Steam	-	90	-	-	-	-	-	13	103	-	-	103	-	-	-	-	-	-	1,690	-
2a.1.5.20	Main Steam - RCA	-	291	8	27	395	-	-	137	858	858	-	-	5,044	-	-	-	-	204,825	4,956	-
2a.1.5.21	Steam Generator Blowdown	-	379	16	20	159	130	-	156	860	860	-	-	2,031	524	-	-	-	126,150	6,659	-
2a.1.5.22	Steam Generators	-	4	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	75	-
2a.1.5.23	Turbine & Moisture Separators	-	303	-	-	-	-	-	45	348	-	-	348	-	-	-	-	-	-	5,609	-
2a.1.5.24	Turbine Oil Purification	-	55	-	-	-	-	-	8	63	-	-	63	-	-	-	-	-	-	1,003	-
2a.1.5	Totals	-	2,710	32	78	1,004	130	-	708	4,663	2,742	-	1,921	12,815	524	-	-	-	564,082	48,787	-
2a.1.6	Scaffolding in support of decommissioning	-	831	3	1	12	2	-	210	1,059	1,059	-	-	138	9	-	-	-	6,987	6,368	-
2a.1	Subtotal Period 2a Activity Costs	742	16,729	28,563	3,984	2,804	18,697	443	23,610	95,571	93,651	-	1,921	37,556	29,667	584	918	-	4,238,014	182,376	6,113
Period 2a Collateral Costs																					
2a.3.1	Process decommissioning water waste	47	-	20	71	-	115	-	65	319	319	-	-	-	304	-	-	-	18,262	59	-
2a.3.2	Process decommissioning chemical flush waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.3.3	Small tool allowance	-	187	-	-	-	-	-	28	215	193	-	21	-	-	-	-	-	-	-	-
2a.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	17,377	2,607	19,984	-	19,984	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	47	187	20	71	-	115	17,377	2,700	20,518	512	19,984	21	-	304	-	-	-	18,262	59	-

Table E-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	69	-	-	-	-	-	-	17	86	86	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	553	55	609	609	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	1,711	171	1,882	1,693	-	188	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,320	-	-	-	-	-	330	1,650	1,650	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	2,519	-	-	-	-	-	378	2,897	2,897	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	71	20	-	246	-	71	408	408	-	-	-	3,327	-	-	-	66,530	108	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	3,610	541	4,151	4,151	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	975	97	1,072	1,072	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	949	95	1,044	-	1,044	-	-	-	-	-	-	-	-	-
2a.4.10	Fixed Overhead	-	-	-	-	-	-	1,574	236	1,811	1,811	-	-	-	-	-	-	-	-	-	-
2a.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	519	78	596	-	596	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	61	9	70	-	70	-	-	-	-	-	-	-	-	-
2a.4.13	Railroad Track Maintenance	-	-	-	-	-	-	68	10	78	78	-	-	-	-	-	-	-	-	-	-
2a.4.14	Security Staff Cost	-	-	-	-	-	-	465	70	534	534	-	-	-	-	-	-	-	-	-	15,589
2a.4.15	DOC Staff Cost	-	-	-	-	-	-	13,583	2,037	15,620	15,620	-	-	-	-	-	-	-	-	-	201,461
2a.4.16	Utility Staff Cost	-	-	-	-	-	-	18,849	2,827	21,676	21,676	-	-	-	-	-	-	-	-	-	374,041
2a.4	Subtotal Period 2a Period-Dependent Costs	69	3,839	71	20	-	246	42,915	7,024	54,183	52,286	1,710	188	-	3,327	-	-	-	66,530	108	591,090
2a.0	TOTAL PERIOD 2a COST	858	20,755	28,653	4,075	2,804	19,058	60,735	33,334	170,272	146,448	21,694	2,130	37,556	33,298	584	918	-	4,322,806	182,543	597,203
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	Aux Bldg Normal Ventilation	-	2	0	0	0	-	-	0	2	2	-	-	3	-	-	-	-	140	29	-
2b.1.1.2	Battery Rm Special Ventilation	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	6	-
2b.1.1.3	Buildings Maintenance	-	4	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	-	65	-
2b.1.1.4	Chemical & Volume Control	891	1,103	67	63	353	538	-	924	3,937	3,937	-	-	4,498	2,304	-	-	-	363,693	34,506	-
2b.1.1.5	Component Cooling - RCA	-	682	19	67	974	-	-	329	2,070	2,070	-	-	12,427	-	-	-	-	504,675	11,242	-
2b.1.1.6	Containment Cooling	-	58	-	-	-	-	-	9	67	-	-	67	-	-	-	-	-	-	1,086	-
2b.1.1.7	Containment Cooling - RCA	-	242	5	18	267	-	-	104	636	636	-	-	3,400	-	-	-	-	138,090	3,971	-
2b.1.1.8	Containment Hydrogen Control - RCA	-	24	0	1	8	-	-	7	40	40	-	-	105	-	-	-	-	4,278	401	-
2b.1.1.9	Containment Spray - RCA	-	74	1	5	68	-	-	30	178	178	-	-	868	-	-	-	-	35,249	1,217	-
2b.1.1.10	Containment Ventilation	-	203	19	37	388	140	-	151	937	937	-	-	4,951	553	-	-	-	248,044	3,662	-
2b.1.1.11	Cooling Water	-	126	-	-	-	-	-	19	145	-	-	145	-	-	-	-	-	-	2,396	-
2b.1.1.12	Cooling Water - RCA	-	524	12	42	606	-	-	229	1,412	1,412	-	-	7,728	-	-	-	-	313,832	8,594	-
2b.1.1.13	D1 Emergency Diesel	-	39	-	-	-	-	-	6	45	-	-	45	-	-	-	-	-	-	730	-
2b.1.1.14	D2 Emergency Diesel	-	28	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	-	522	-
2b.1.1.15	Diesel Rooms Ventilation	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	135	-
2b.1.1.16	Electrical - Clean	-	1,491	-	-	-	-	-	224	1,715	-	-	1,715	-	-	-	-	-	-	26,981	-
2b.1.1.17	Electrical - Contaminated	-	486	5	15	198	18	-	159	881	881	-	-	2,527	71	-	-	-	108,711	8,376	-
2b.1.1.18	Electrical - Decontaminated	-	3,021	35	127	1,846	-	-	1,055	6,083	6,083	-	-	23,551	-	-	-	-	956,401	49,378	-
2b.1.1.19	Fuel Handling	-	96	5	8	71	41	-	47	267	267	-	-	908	164	-	-	-	50,768	1,782	-
2b.1.1.20	Fuel Oil	-	95	-	-	-	-	-	14	109	-	-	109	-	-	-	-	-	-	1,697	-
2b.1.1.21	HVAC - Clean	-	95	-	-	-	-	-	14	109	-	-	109	-	-	-	-	-	-	1,891	-
2b.1.1.22	HVAC - Contaminated	-	298	7	19	256	23	-	122	725	725	-	-	3,261	92	-	-	-	140,285	5,031	-
2b.1.1.23	Incore Instrumentation	0	22	1	1	5	11	-	9	49	49	-	-	60	42	-	-	-	6,039	424	-
2b.1.1.24	Misc Drains & Vents	-	186	11	9	31	97	-	78	411	411	-	-	390	385	-	-	-	48,594	3,085	-
2b.1.1.25	Reactor Coolant	121	246	16	12	27	147	-	166	736	736	-	-	344	582	-	-	-	63,452	6,461	-
2b.1.1.26	Reactor Hot Sampling	118	109	8	5	5	65	-	105	415	415	-	-	66	256	-	-	-	24,422	3,941	-
2b.1.1.27	Reactor Makeup	-	57	-	-	-	-	-	9	66	-	-	66	-	-	-	-	-	-	1,042	-
2b.1.1.28	Reactor Vessel	7	16	0	0	2	3	-	9	38	38	-	-	26	11	-	-	-	1,971	425	-
2b.1.1.29	Residual Heat Removal	283	332	63	59	227	615	-	428	2,008	2,008	-	-	2,895	2,439	-	-	-	324,815	7,588	-
2b.1.1.30	Safeguards Chilled Water	-	14	-	-	-	-	-	2	16	-	-	16	-	-	-	-	-	-	259	-
2b.1.1.31	Safety Injection	-	709	32	52	532	219	-	323	1,866	1,866	-	-	6,788	899	-	-	-	349,249	12,550	-
2b.1.1.32	Sampling	-	48	3	2	5	20	-	18	95	95	-	-	59	80	-	-	-	9,214	809	-
2b.1.1.33	Shield Bldg Ventilation	-	111	11	18	169	93	-	80	481	481	-	-	2,152	368	-	-	-	118,685	2,026	-
2b.1.1.34	Station & Instrument Air	-	15	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	300	-
2b.1.1.35	Station & Instrument Air - RCA	-	65	0	2	26	-	-	21	114	114	-	-	332	-	-	-	-	13,496	1,053	-
2b.1.1.36	Turbine Bldg Traps & Drains	-	39	-	-	-	-	-	6	45	-	-	45	-	-	-	-	-	-	767	-
2b.1.1.37	Unit Coolers	-	32	-	-	-	-	-	5	37	-	-	37	-	-	-	-	-	-	611	-
2b.1.1.38	Unit Coolers - RCA	-	43	0	1	18	-	-	14	77	77	-	-	230	-	-	-	-	9,348	683	-
2b.1.1	Totals	1,421	10,743	319	562	6,080	2,029	-	4,722	25,876	23,459	-	2,417	77,571	8,248	-	-	-	3,833,452	205,722	-

Table E-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
2b.1.2	Scaffolding in support of decommissioning	-	1,038	4	1	15	3	-	263	1,324	1,324	-	-	173	11	-	-	-	8,734	7,960	-
Decontamination of Site Buildings																					
2b.1.3.1	Reactor	975	828	31	140	175	1,301	-	1,070	4,521	4,521	-	-	2,230	7,728	-	-	-	660,682	30,703	-
2b.1.3.2	Backwash Waste Receiving Tank	-	23	1	10	-	79	-	27	141	141	-	-	-	507	-	-	-	43,896	299	-
2b.1.3	Totals	975	852	32	150	175	1,380	-	1,098	4,662	4,662	-	-	2,230	8,235	-	-	-	704,578	31,001	-
2b.1	Subtotal Period 2b Activity Costs	2,397	12,633	355	714	6,270	3,412	-	6,082	31,862	29,445	-	2,417	79,974	16,494	-	-	-	4,546,764	244,683	-
Period 2b Collateral Costs																					
2b.3.1	Process decommissioning water waste	104	-	43	158	-	255	-	143	703	703	-	-	-	672	-	-	-	40,348	131	-
2b.3.2	Process decommissioning chemical flush waste	2	-	54	261	-	588	-	193	1,098	1,098	-	-	-	875	-	-	-	93,252	164	-
2b.3.3	Small tool allowance	-	221	-	-	-	-	-	33	254	254	-	-	-	-	-	-	-	-	-	-
2b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	9,442	1,416	10,858	-	10,858	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	105	221	98	419	-	843	9,442	1,785	12,913	2,055	10,858	-	-	1,548	-	-	-	133,600	295	-
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	353	-	-	-	-	-	-	88	441	441	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	499	50	548	548	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	1,463	146	1,610	1,610	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	1,472	-	-	-	-	-	368	1,840	1,840	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	2,252	-	-	-	-	-	338	2,590	2,590	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	71	20	-	245	-	71	407	407	-	-	-	3,322	-	-	-	66,436	108	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	2,568	385	2,954	2,954	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	878	88	966	966	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	855	85	940	-	940	-	-	-	-	-	-	-	-	-
2b.4.10	Fixed Overhead	-	-	-	-	-	-	1,419	213	1,632	1,632	-	-	-	-	-	-	-	-	-	-
2b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	467	70	537	-	537	-	-	-	-	-	-	-	-	-
2b.4.12	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	237	36	273	273	-	-	-	-	-	-	-	-	-	-
2b.4.13	ISFSI Operating Costs	-	-	-	-	-	-	55	8	63	-	63	-	-	-	-	-	-	-	-	-
2b.4.14	Railroad Track Maintenance	-	-	-	-	-	-	61	9	70	70	-	-	-	-	-	-	-	-	-	-
2b.4.15	Security Staff Cost	-	-	-	-	-	-	419	63	482	482	-	-	-	-	-	-	-	-	-	14,049
2b.4.16	DOC Staff Cost	-	-	-	-	-	-	8,816	1,322	10,139	10,139	-	-	-	-	-	-	-	-	-	137,931
2b.4.17	Utility Staff Cost	-	-	-	-	-	-	12,247	1,837	14,084	14,084	-	-	-	-	-	-	-	-	-	256,706
2b.4	Subtotal Period 2b Period-Dependent Costs	353	3,724	71	20	-	245	29,985	5,178	39,575	38,034	1,541	-	-	3,322	-	-	-	66,436	108	408,686
2b.0	TOTAL PERIOD 2b COST	2,855	16,577	523	1,152	6,270	4,501	39,426	13,046	84,350	69,534	12,399	2,417	79,974	21,363	-	-	-	4,746,800	245,087	408,686
PERIOD 2c - Spent fuel delay prior to SFP decon																					
Period 2c Direct Decommissioning Activities																					
Period 2c Collateral Costs																					
2c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	67,510	10,127	77,637	-	77,637	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	-	-	-	-	-	-	67,510	10,127	77,637	-	77,637	-	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																					
2c.4.1	Insurance	-	-	-	-	-	-	4,945	494	5,439	5,439	-	-	-	-	-	-	-	-	-	-
2c.4.2	Property taxes	-	-	-	-	-	-	10,250	1,025	11,275	11,275	-	-	-	-	-	-	-	-	-	-
2c.4.3	Health physics supplies	-	3,619	-	-	-	-	-	905	4,524	4,524	-	-	-	-	-	-	-	-	-	-
2c.4.4	Heavy equipment rental	-	1,117	-	-	-	-	-	167	1,284	1,284	-	-	-	-	-	-	-	-	-	-
2c.4.5	Disposal of DAW generated	-	-	97	27	-	336	-	98	557	557	-	-	-	4,543	-	-	-	90,854	148	-
2c.4.6	Plant energy budget	-	-	-	-	-	-	6,792	1,019	7,811	7,811	-	-	-	-	-	-	-	-	-	-
2c.4.7	NRC Fees	-	-	-	-	-	-	3,399	340	3,739	3,739	-	-	-	-	-	-	-	-	-	-
2c.4.8	Emergency Planning Fees	-	-	-	-	-	-	8,479	848	9,327	-	9,327	-	-	-	-	-	-	-	-	-
2c.4.9	Fixed Overhead	-	-	-	-	-	-	14,071	2,111	16,181	16,181	-	-	-	-	-	-	-	-	-	-
2c.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	4,634	695	5,329	-	5,329	-	-	-	-	-	-	-	-	-
2c.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	471	71	541	541	-	-	-	-	-	-	-	-	-	-
2c.4.12	ISFSI Operating Costs	-	-	-	-	-	-	543	81	625	-	625	-	-	-	-	-	-	-	-	-
2c.4.13	Railroad Track Maintenance	-	-	-	-	-	-	607	91	698	698	-	-	-	-	-	-	-	-	-	-
2c.4.14	Utility Staff Cost	-	-	-	-	-	-	8,498	1,275	9,773	9,773	-	-	-	-	-	-	-	-	-	189,986
2c.4	Subtotal Period 2c Period-Dependent Costs	-	4,736	97	27	-	336	62,689	9,220	77,104	61,823	15,281	-	-	4,543	-	-	-	90,854	148	189,986
2c.0	TOTAL PERIOD 2c COST	-	4,736	97	27	-	336	130,200	19,346	154,741	61,823	92,918	-	-	4,543	-	-	-	90,854	148	189,986

Table E-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 2d - Decontamination Following Wet Fuel Storage																					
Period 2d Direct Decommissioning Activities																					
2d.1.1	Remove spent fuel racks	279	28	92	28	-	396	-	259	1,082	1,082	-	-	-	1,569	-	-	-	133,386	576	-
Disposal of Plant Systems																					
2d.1.2.1	Electrical - Contaminated - Fuel Pool	-	121	1	4	48	4	-	39	217	217	-	-	615	17	-	-	-	26,454	2,077	-
2d.1.2.2	Electrical - Decontaminated - Fuel Pool	-	755	9	32	462	-	-	264	1,521	1,521	-	-	5,893	-	-	-	-	239,327	12,340	-
2d.1.2.3	HVAC - Contaminated - Fuel Pool	-	128	3	8	110	10	-	52	311	311	-	-	1,398	40	-	-	-	60,122	2,156	-
2d.1.2.4	Safeguards Chilled Water - RCA	-	68	1	3	39	-	-	23	134	134	-	-	495	-	-	-	-	20,100	1,019	-
2d.1.2.5	Spent Fuel Pool Cooling	240	284	25	22	63	251	-	269	1,155	1,155	-	-	806	994	-	-	-	117,167	7,600	-
2d.1.2.6	Station & Instrument Air - RCA Fuel Pool	-	16	0	0	7	-	-	5	29	29	-	-	83	-	-	-	-	3,374	263	-
2d.1.2	Totals	240	1,372	39	69	728	265	-	653	3,367	3,367	-	-	9,290	1,050	-	-	-	466,544	25,454	-
Decontamination of Site Buildings																					
2d.1.3	Totals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2d.1.4	Scaffolding in support of decommissioning	-	208	1	0	3	1	-	53	265	265	-	-	35	2	-	-	-	1,747	1,592	-
2d.1	Subtotal Period 2d Activity Costs	519	1,608	132	97	731	662	-	964	4,713	4,713	-	-	9,325	2,622	-	-	-	601,676	27,623	-
Period 2d Additional Costs																					
2d.2.1	License Termination Survey Planning	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
Period 2d Collateral Costs																					
2d.3.1	Process decommissioning water waste	10	-	5	20	-	32	-	16	83	83	-	-	-	83	-	-	-	4,994	16	-
2d.3.2	Process decommissioning chemical flush waste	1	-	20	97	-	218	-	71	407	407	-	-	-	324	-	-	-	34,576	61	-
2d.3.3	Small tool allowance	-	29	-	-	-	-	-	4	33	33	-	-	-	-	-	-	-	-	-	-
2d.3.4	Decommissioning Equipment Disposition	-	-	136	51	521	100	-	124	933	933	-	-	6,000	397	-	-	-	303,726	88	-
2d.3.5	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,935	440	3,376	-	3,376	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	11	29	162	167	521	350	2,935	657	4,832	1,457	3,376	-	6,000	804	-	-	-	343,296	165	-
Period 2d Period-Dependent Costs																					
2d.4.1	Decon supplies	40	-	-	-	-	-	-	10	50	50	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	318	32	350	350	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	392	39	431	431	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	405	-	-	-	-	-	101	507	507	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,436	-	-	-	-	-	215	1,651	1,651	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	18	5	-	61	-	18	102	102	-	-	-	830	-	-	-	16,609	27	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	873	131	1,004	1,004	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	560	56	616	616	-	-	-	-	-	-	-	-	-	-
2d.4.9	Emergency Planning Fees	-	-	-	-	-	-	545	55	600	-	600	-	-	-	-	-	-	-	-	-
2d.4.10	Fixed Overhead	-	-	-	-	-	-	905	136	1,040	1,040	-	-	-	-	-	-	-	-	-	-
2d.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	303	45	348	348	-	-	-	-	-	-	-	-	-	-
2d.4.12	ISFSI Operating Costs	-	-	-	-	-	-	35	5	40	-	40	-	-	-	-	-	-	-	-	-
2d.4.13	Railroad Track Maintenance	-	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-	-	-	-
2d.4.14	Security Staff Cost	-	-	-	-	-	-	146	22	167	167	-	-	-	-	-	-	-	-	-	4,886
2d.4.15	DOC Staff Cost	-	-	-	-	-	-	4,717	708	5,424	5,424	-	-	-	-	-	-	-	-	-	70,436
2d.4.16	Utility Staff Cost	-	-	-	-	-	-	6,477	972	7,449	7,449	-	-	-	-	-	-	-	-	-	127,029
2d.4	Subtotal Period 2d Period-Dependent Costs	40	1,841	18	5	-	61	15,310	2,550	19,824	19,185	640	-	-	830	-	-	-	16,609	27	202,350
2d.0	TOTAL PERIOD 2d COST	570	3,478	311	269	1,252	1,073	18,771	4,330	30,054	26,039	4,015	-	15,325	4,257	-	-	-	961,582	27,815	208,590
PERIOD 2f - License Termination																					
Period 2f Direct Decommissioning Activities																					
2f.1.1	ORISE confirmatory survey	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
2f.1.2	Terminate license									a											
2f.1	Subtotal Period 2f Activity Costs	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
Period 2f Additional Costs																					
2f.2.1	License Termination Survey	-	-	-	-	-	-	2,363	709	3,071	3,071	-	-	-	-	-	-	-	-	40,172	3,120
2f.2	Subtotal Period 2f Additional Costs	-	-	-	-	-	-	2,363	709	3,071	3,071	-	-	-	-	-	-	-	-	40,172	3,120

Table E-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 2f Collateral Costs																					
2f.3.1	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
2f.3	Subtotal Period 2f Collateral Costs	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
Period 2f Period-Dependent Costs																					
2f.4.1	Insurance	-	-	-	-	-	-	287	29	316	316	-	-	-	-	-	-	-	-	-	-
2f.4.2	Property taxes	-	-	-	-	-	-	348	35	383	383	-	-	-	-	-	-	-	-	-	-
2f.4.3	Health physics supplies	-	352	-	-	-	-	-	88	441	441	-	-	-	-	-	-	-	-	-	-
2f.4.4	Disposal of DAW generated	-	-	7	2	-	25	-	7	41	41	-	-	-	334	-	-	-	6,685	11	-
2f.4.5	Plant energy budget	-	-	-	-	-	-	418	63	481	481	-	-	-	-	-	-	-	-	-	-
2f.4.6	NRC Fees	-	-	-	-	-	-	575	58	633	633	-	-	-	-	-	-	-	-	-	-
2f.4.7	Emergency Planning Fees	-	-	-	-	-	-	44	4	49	-	49	-	-	-	-	-	-	-	-	-
2f.4.8	Fixed Overhead	-	-	-	-	-	-	867	130	997	997	-	-	-	-	-	-	-	-	-	-
2f.4.9	ISFSI Operating Costs	-	-	-	-	-	-	33	5	38	-	38	-	-	-	-	-	-	-	-	-
2f.4.10	Railroad Track Maintenance	-	-	-	-	-	-	37	6	43	43	-	-	-	-	-	-	-	-	-	-
2f.4.11	Security Staff Cost	-	-	-	-	-	-	139	21	160	160	-	-	-	-	-	-	-	-	-	4,680
2f.4.12	DOC Staff Cost	-	-	-	-	-	-	3,198	480	3,677	3,677	-	-	-	-	-	-	-	-	-	46,410
2f.4.13	Utility Staff Cost	-	-	-	-	-	-	3,175	476	3,652	3,652	-	-	-	-	-	-	-	-	-	59,670
2f.4	Subtotal Period 2f Period-Dependent Costs	-	352	7	2	-	25	9,123	1,401	10,910	10,823	87	-	-	334	-	-	-	6,685	11	110,760
2f.0	TOTAL PERIOD 2f COST	-	352	7	2	-	25	12,668	2,310	15,365	15,278	87	-	-	334	-	-	-	6,685	40,183	113,880
PERIOD 2 TOTALS		4,283	45,898	29,591	5,526	10,326	24,992	261,801	72,366	454,782	319,122	131,113	4,547	132,854	63,795	584	918	-	10,128,730	495,776	1,518,345
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Reactor	-	5,471	-	-	-	-	-	821	6,292	-	-	6,292	-	-	-	-	-	-	66,349	-
3b.1.1.2	Condensate Storage Tank Foundation	-	7	-	-	-	-	-	1	8	-	-	8	-	-	-	-	-	-	95	-
3b.1.1.3	Turbine	-	2,505	-	-	-	-	-	376	2,881	-	-	2,881	-	-	-	-	-	-	34,340	-
3b.1.1.4	Turbine Pedestal	-	754	-	-	-	-	-	113	867	-	-	867	-	-	-	-	-	-	7,580	-
3b.1.1	Totals	-	8,737	-	-	-	-	-	1,311	10,048	-	-	10,048	-	-	-	-	-	-	108,365	-
Site Closeout Activities																					
3b.1.2	Grade & landscape site	-	490	-	-	-	-	-	74	564	-	-	564	-	-	-	-	-	-	921	-
3b.1.3	Final report to NRC	-	-	-	-	-	-	146	22	168	168	-	-	-	-	-	-	-	-	-	1,560
3b.1	Subtotal Period 3b Activity Costs	-	9,228	-	-	-	-	146	1,406	10,780	168	-	10,612	-	-	-	-	-	-	109,285	1,560
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	239	-	-	-	-	2	36	278	-	-	278	-	-	-	-	-	-	1,126	-
3b.2	Subtotal Period 3b Additional Costs	-	239	-	-	-	-	2	36	278	-	-	278	-	-	-	-	-	-	1,126	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	108	-	-	-	-	-	16	124	-	-	124	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	108	-	-	-	-	-	16	124	-	-	124	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	407	41	447	-	447	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	839	84	923	-	923	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	5,588	-	-	-	-	-	838	6,426	-	-	6,426	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	593	89	682	-	-	682	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	228	23	251	-	251	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	126	13	138	-	138	-	-	-	-	-	-	-	-	-
3b.4.7	Fixed Overhead	-	-	-	-	-	-	1,065	160	1,225	1,225	-	-	-	-	-	-	-	-	-	-
3b.4.8	ISFSI Operating Costs	-	-	-	-	-	-	95	14	109	-	109	-	-	-	-	-	-	-	-	-
3b.4.9	Railroad Track Maintenance	-	-	-	-	-	-	106	16	122	122	-	-	-	-	-	-	-	-	-	-
3b.4.10	Security Staff Cost	-	-	-	-	-	-	2,554	383	2,937	(0)	1,997	940	-	-	-	-	-	-	-	74,658
3b.4.11	DOC Staff Cost	-	-	-	-	-	-	8,197	1,229	9,426	-	-	9,426	-	-	-	-	-	-	-	117,206
3b.4.12	Utility Staff Cost	-	-	-	-	-	-	4,194	629	4,823	-	4,147	675	-	-	-	-	-	-	-	74,658
3b.4	Subtotal Period 3b Period-Dependent Costs	-	5,588	-	-	-	-	18,402	3,519	27,509	1,347	8,013	18,149	-	-	-	-	-	-	-	266,521
3b.0	TOTAL PERIOD 3b COST	-	15,163	-	-	-	-	18,551	4,977	38,690	1,515	8,013	29,163	-	-	-	-	-	-	110,411	268,081

Table E-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,000	450	3,450	-	3,450	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	3,000	450	3,450	-	3,450	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	26,398	2,640	29,038	-	29,038	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	49,444	4,944	54,388	-	54,388	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	14,807	1,481	16,288	-	16,288	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	8,153	815	8,968	-	8,968	-	-	-	-	-	-	-	-	-
3c.4.6	Fixed Overhead	-	-	-	-	-	-	69,114	10,367	79,481	-	79,481	-	-	-	-	-	-	-	-	-
3c.4.7	ISFSI Operating Costs	-	-	-	-	-	-	6,155	923	7,079	-	7,079	-	-	-	-	-	-	-	-	-
3c.4.8	Security Staff Cost	-	-	-	-	-	-	136,859	20,529	157,388	-	157,388	-	-	-	-	-	-	-	-	3,874,963
3c.4.9	Utility Staff Cost	-	-	-	-	-	-	48,624	7,294	55,917	-	55,917	-	-	-	-	-	-	-	-	970,176
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	359,554	48,993	408,547	-	408,547	-	-	-	-	-	-	-	-	4,845,139
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	362,554	49,443	411,997	-	411,997	-	-	-	-	-	-	-	-	4,845,139
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
3d.1.1	Totals	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
Period 3d Additional Costs																					
3d.2.1	ISFSI Railroad Track Refurbishment	-	-	-	-	-	-	250	38	288	-	288	-	-	-	-	-	-	-	-	-
3d.2	Subtotal Period 3d Additional Costs	-	-	-	-	-	-	250	38	288	-	288	-	-	-	-	-	-	-	-	-
Period 3d Collateral Costs																					
3d.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	14,426	2,164	16,590	-	16,590	-	-	-	-	-	-	-	-	-
3d.3	Subtotal Period 3d Collateral Costs	-	-	-	-	-	-	14,426	2,164	16,590	-	16,590	-	-	-	-	-	-	-	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	5,182	518	5,700	-	5,700	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	9,706	971	10,677	-	10,677	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	3,746	375	4,121	-	4,121	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	1,601	160	1,761	-	1,761	-	-	-	-	-	-	-	-	-
3d.4.6	Fixed Overhead	-	-	-	-	-	-	13,568	2,035	15,603	-	15,603	-	-	-	-	-	-	-	-	-
3d.4.7	ISFSI Operating Costs	-	-	-	-	-	-	1,208	181	1,390	-	1,390	-	-	-	-	-	-	-	-	-
3d.4.8	Railroad Track Maintenance	-	-	-	-	-	-	1,350	202	1,552	-	1,552	-	-	-	-	-	-	-	-	-
3d.4.9	Security Staff Cost	-	-	-	-	-	-	26,867	4,030	30,897	-	30,897	-	-	-	-	-	-	-	-	760,706
3d.4.10	Utility Staff Cost	-	-	-	-	-	-	9,545	1,432	10,977	-	10,977	-	-	-	-	-	-	-	-	190,458
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	72,774	9,904	82,678	-	82,678	-	-	-	-	-	-	-	-	951,164
3d.0	TOTAL PERIOD 3d COST	-	-	1,096	-	-	9,588	87,450	13,654	111,788	12,232	99,556	-	-	-	-	-	3,724	857,261	-	951,164
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI License Termination (TN-40)	-	7	1	0	-	2	665	102	776	-	776	-	-	24	-	-	-	487	2,011	1,280
3e.2	Subtotal Period 3e Additional Costs	-	7	1	0	-	2	665	102	776	-	776	-	-	24	-	-	-	487	2,011	1,280
Period 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	64	6	70	-	70	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	119	12	131	-	131	-	-	-	-	-	-	-	-	-
3e.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table E-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 3e Period-Dependent Costs (continued)																					
3e.4.4	NRC ISFSI Fees	-	-	-	-	-	-	36	4	39	-	39	-	-	-	-	-	-	-	-	-
3e.4.5	Railroad Track Maintenance	-	-	-	-	-	-	17	2	19	-	19	-	-	-	-	-	-	-	-	-
3e.4.6	Security Staff Cost	-	-	-	-	-	-	89	13	103	-	103	-	-	-	-	-	-	-	-	2,510
3e.4.7	Utility Staff Cost	-	-	-	-	-	-	98	15	113	-	113	-	-	-	-	-	-	-	-	1,901
3e.4	Subtotal Period 3e Period-Dependent Costs	-	-	-	-	-	-	422	52	475	-	475	-	-	-	-	-	-	-	-	4,411
3e.0	TOTAL PERIOD 3e COST	-	7	1	0	-	2	1,087	154	1,251	-	1,251	-	-	24	-	-	-	487	2,011	5,691
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Site Restoration (TN-40)	-	218	-	-	-	-	22	36	276	-	276	-	-	-	-	-	-	-	218	80
3f.2	Subtotal Period 3f Additional Costs	-	218	-	-	-	-	22	36	276	-	276	-	-	-	-	-	-	-	218	80
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	4	-	-	-	-	-	1	4	-	4	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	4	-	-	-	-	-	1	4	-	4	-	-	-	-	-	-	-	-	-
Period 3f Period-Dependent Costs																					
3f.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.2	Property taxes	-	-	-	-	-	-	60	6	66	-	66	-	-	-	-	-	-	-	-	-
3f.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.4	Railroad Track Maintenance	-	-	-	-	-	-	8	1	10	-	10	-	-	-	-	-	-	-	-	-
3f.4.5	Security Staff Cost	-	-	-	-	-	-	45	7	52	-	52	-	-	-	-	-	-	-	-	1,265
3f.4.6	Utility Staff Cost	-	-	-	-	-	-	39	6	44	-	44	-	-	-	-	-	-	-	-	784
3f.4	Subtotal Period 3f Period-Dependent Costs	-	-	-	-	-	-	152	20	172	-	172	-	-	-	-	-	-	-	-	2,050
3f.0	TOTAL PERIOD 3f COST	-	222	-	-	-	-	174	56	452	-	452	-	-	-	-	-	-	-	218	2,130
PERIOD 3 TOTALS		-	15,391	1,097	0	-	9,590	469,816	68,284	564,178	13,747	521,269	29,163	-	24	-	-	3,724	857,748	112,640	6,072,205
TOTAL COST TO DECOMMISSION		**7,114**	**65,879**	**31,030**	**5,913**	**10,468**	**37,728**	**807,769**	**154,650**	**1,120,551**	**428,772**	**656,909**	**34,870**	**138,987**	**77,784**	**1,173**	**918**	**3,724**	**11,596,620**	**653,035**	**8,426,352**

TOTAL COST TO DECOMMISSION WITH 16.01% CONTINGENCY:	**$1,120,551**	**thousands of 2011 dollars**
TOTAL NRC LICENSE TERMINATION COST IS 38.26% OR:	**$428,772**	**thousands of 2011 dollars**
SPENT FUEL MANAGEMENT COST IS 58.62% OR:	**$656,909**	**thousands of 2011 dollars**
NON-NUCLEAR DEMOLITION COST IS 3.11% OR:	**$34,870**	**thousands of 2011 dollars**
TOTAL LOW-LEVEL RADWASTE VOLUME BURIED (EXCLUDING GTCC):	**79,875**	**Cubic Feet**
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	**3,724**	**Cubic Feet**
TOTAL SCRAP METAL REMOVED:	**28,060**	**Tons**
TOTAL CRAFT LABOR REQUIREMENTS:	**653,035**	**Man-hours**

End Notes:
n/a - indicates that this activity not charged as decommissioning expense.
a - indicates that this activity performed by decommissioning staff.
0 - indicates that this value is less than 0.5 but is non-zero.
a cell containing " - " indicates a zero value

Table E-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes: Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	52	8	60	60	-	-	-	-	-	-	-	-	-	556
1a.1.2	Notification of Cessation of Operations									a											
1a.1.3	Remove fuel & source material									n/a											
1a.1.4	Notification of Permanent Defueling									a											
1a.1.5	Deactivate plant systems & process waste									a											
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	80	12	92	92	-	-	-	-	-	-	-	-	-	856
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1a.1.10	End product description	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	52	8	60	60	-	-	-	-	-	-	-	-	-	556
1a.1.12	Define major work sequence	-	-	-	-	-	-	301	45	346	346	-	-	-	-	-	-	-	-	-	3,210
1a.1.13	Perform SER and EA	-	-	-	-	-	-	124	19	143	143	-	-	-	-	-	-	-	-	-	1,327
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	200	30	230	230	-	-	-	-	-	-	-	-	-	2,140
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	164	25	189	189	-	-	-	-	-	-	-	-	-	1,753
1a.1.16	Receive NRC approval of termination plan									a											
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	197	30	227	204	-	23	-	-	-	-	-	-	-	2,106
1a.1.17.2	Plant systems	-	-	-	-	-	-	167	25	192	173	-	19	-	-	-	-	-	-	-	1,783
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	20	3	23	23	-	-	-	-	-	-	-	-	-	214
1a.1.17.4	Reactor internals	-	-	-	-	-	-	285	43	327	327	-	-	-	-	-	-	-	-	-	3,039
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	261	39	300	300	-	-	-	-	-	-	-	-	-	2,782
1a.1.17.6	Biological shield	-	-	-	-	-	-	20	3	23	23	-	-	-	-	-	-	-	-	-	214
1a.1.17.7	Steam generators	-	-	-	-	-	-	125	19	144	144	-	-	-	-	-	-	-	-	-	1,335
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	64	10	74	37	-	37	-	-	-	-	-	-	-	685
1a.1.17.9	Main Turbine	-	-	-	-	-	-	16	2	18	-	-	18	-	-	-	-	-	-	-	171
1a.1.17.10	Main Condensers	-	-	-	-	-	-	16	2	18	-	-	18	-	-	-	-	-	-	-	171
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	125	19	144	72	-	72	-	-	-	-	-	-	-	1,335
1a.1.17.12	Waste management	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	36	5	41	21	-	21	-	-	-	-	-	-	-	385
1a.1.17	Total	-	-	-	-	-	-	1,516	227	1,743	1,535	-	208	-	-	-	-	-	-	-	16,190
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	96	14	111	111	-	-	-	-	-	-	-	-	-	1,027
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	2,800	420	3,220	3,220	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	56	8	65	65	-	-	-	-	-	-	-	-	-	599
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,200	330	2,530	2,530	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	49	7	57	57	-	-	-	-	-	-	-	-	-	526
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	7,956	1,193	9,149	8,941	-	208	-	-	-	-	-	-	-	31,566
Period 1a Additional Costs																					
1a.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
1a.2	Subtotal Period 1a Additional Costs	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
Period 1a Collateral Costs																					
1a.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	14,629	2,194	16,824	-	16,824	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	-	-	-	-	-	14,629	2,194	16,824	-	16,824	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	970	97	1,067	1,067	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	1,303	130	1,433	1,433	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	407	-	-	-	-	-	102	509	509	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	426	-	-	-	-	-	64	490	490	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	12	3	-	42	-	12	69	69	-	-	-	565	-	-	-	11,299	18	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	2,796	419	3,216	3,216	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	514	51	565	565	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	973	97	1,071	-	1,071	-	-	-	-	-	-	-	-	-
1a.4.9	Fixed Overhead	-	-	-	-	-	-	1,437	216	1,652	1,652	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	382	57	439	-	439	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	45	7	51	-	51	-	-	-	-	-	-	-	-	-
1a.4.12	Railroad Track Maintenance	-	-	-	-	-	-	50	7	57	57	-	-	-	-	-	-	-	-	-	-

Table E-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1a Period-Dependent Costs (continued)																					
1a.4.13	Security Staff Cost	-	-	-	-	-	-	5,004	751	5,754	5,754	-	-	-	-	-	-	-	-	-	157,471
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	16,333	2,450	18,783	18,783	-	-	-	-	-	-	-	-	-	346,229
1a.4	Subtotal Period 1a Period-Dependent Costs	-	833	12	3	-	42	29,806	4,461	35,157	33,596	1,561	-	-	565	-	-	-	11,299	18	503,700
1a.0	TOTAL PERIOD 1a COST	-	833	12	3	-	42	57,531	8,620	67,041	48,448	18,385	208	-	565	-	-	-	11,299	18	535,266
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	190	28	218	196	-	22	-	-	-	-	-	-	-	2,026
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.3	Reactor internals	-	-	-	-	-	-	100	15	115	115	-	-	-	-	-	-	-	-	-	1,070
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	54	8	62	16	-	47	-	-	-	-	-	-	-	578
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	145	22	167	167	-	-	-	-	-	-	-	-	-	1,554
1b.1.1.9	Facility closeout	-	-	-	-	-	-	48	7	55	28	-	28	-	-	-	-	-	-	-	514
1b.1.1.10	Missile shields	-	-	-	-	-	-	18	3	21	21	-	-	-	-	-	-	-	-	-	193
1b.1.1.11	Biological shield	-	-	-	-	-	-	48	7	55	55	-	-	-	-	-	-	-	-	-	514
1b.1.1.12	Steam generators	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	40	6	46	23	-	23	-	-	-	-	-	-	-	428
1b.1.1.14	Main Turbine	-	-	-	-	-	-	63	9	72	-	-	72	-	-	-	-	-	-	-	668
1b.1.1.15	Main Condensers	-	-	-	-	-	-	63	9	72	-	-	72	-	-	-	-	-	-	-	668
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	109	16	126	113	-	13	-	-	-	-	-	-	-	1,168
1b.1.1.17	Reactor building	-	-	-	-	-	-	109	16	126	113	-	13	-	-	-	-	-	-	-	1,168
1b.1.1	Total	-	-	-	-	-	-	1,332	200	1,532	1,244	-	288	-	-	-	-	-	-	-	14,228
1b.1.2	Decon primary loop	447	-	-	-	-	-	-	224	671	671	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	447	-	-	-	-	-	1,332	424	2,203	1,915	-	288	-	-	-	-	-	-	1,067	14,228
Period 1b Additional Costs																					
1b.2.1	Site Characterization	-	-	-	-	-	-	1,185	356	1,541	1,541	-	-	-	-	-	-	-	-	8,988	3,563
1b.2.2	Mixed/Hazardous Waste	-	-	281	69	146	-	-	60	557	557	-	-	6,324	-	-	-	-	362,914	2,410	-
1b.2.3	Asbestos Abatement	-	2,056	1	102	-	835	-	738	3,732	3,732	-	-	-	12,843	-	-	-	166,959	20,000	-
1b.2	Subtotal Period 1b Additional Costs	-	2,056	283	171	146	835	1,185	1,154	5,830	5,830	-	-	6,324	12,843	-	-	-	529,873	31,398	3,563
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	833	-	-	-	-	-	-	125	958	958	-	-	-	-	-	-	-	-	-	-
1b.3.2	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process decommissioning water waste	24	-	10	36	-	58	-	33	160	160	-	-	-	152	-	-	-	9,121	30	-
1b.3.4	Process decommissioning chemical flush waste	1	-	37	175	-	2,182	-	576	2,971	2,971	-	-	-	-	588	-	-	62,689	110	-
1b.3.5	Small tool allowance	-	26	-	-	-	-	-	4	30	30	-	-	-	-	-	-	-	-	-	-
1b.3.6	Pipe cutting equipment	-	1,100	-	-	-	-	-	165	1,265	1,265	-	-	-	-	-	-	-	-	-	-
1b.3.7	Decon rig	1,500	-	-	-	-	-	-	225	1,725	1,725	-	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	4,193	629	4,821	-	4,821	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	2,358	1,126	46	211	-	2,239	5,222	1,911	13,113	8,292	4,821	-	-	152	588	-	-	71,810	140	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	26	-	-	-	-	-	-	6	32	32	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	489	49	538	538	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	657	66	722	722	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	316	-	-	-	-	-	79	395	395	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	215	-	-	-	-	-	32	247	247	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	7	2	-	24	-	7	40	40	-	-	-	327	-	-	-	6,541	11	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	2,819	423	3,242	3,242	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	259	26	285	285	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	491	49	540	-	540	-	-	-	-	-	-	-	-	-
1b.4.10	Fixed Overhead	-	-	-	-	-	-	724	109	833	833	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	192	29	221	-	221	-	-	-	-	-	-	-	-	-
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	23	3	26	-	26	-	-	-	-	-	-	-	-	-
1b.4.13	Railroad Track Maintenance	-	-	-	-	-	-	25	4	29	29	-	-	-	-	-	-	-	-	-	-
1b.4.14	Security Staff Cost	-	-	-	-	-	-	2,522	378	2,901	2,901	-	-	-	-	-	-	-	-	-	79,383

Table E-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1b Period-Dependent Costs (continued)																					
1b.4.15	DOC Staff Cost	-	-	-	-	-	-	3,092	464	3,556	3,556	-	-	-	-	-	-	-	-	-	47,314
1b.4.16	Utility Staff Cost	-	-	-	-	-	-	8,234	1,235	9,469	9,469	-	-	-	-	-	-	-	-	-	174,537
1b.4	Subtotal Period 1b Period-Dependent Costs	26	531	7	2	-	24	19,527	2,959	23,075	22,288	787	-	-	327	-	-	-	6,541	11	301,234
1b.0	TOTAL PERIOD 1b COST	2,831	3,712	336	384	146	3,098	27,267	6,447	44,222	38,325	5,608	288	6,324	13,322	588	-	-	608,224	32,615	319,025
PERIOD 1 TOTALS		2,831	4,546	348	387	146	3,140	84,798	15,067	111,263	86,773	23,993	496	6,324	13,887	588	-	-	619,523	32,633	854,291
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	43	37	6	7	-	103	-	59	256	256	-	-	-	305	-	-	-	34,809	1,414	-
2a.1.1.2	Pressurizer Relief Tank	19	16	4	5	-	63	-	30	138	138	-	-	-	192	-	-	-	21,288	625	-
2a.1.1.3	Reactor Coolant Pumps & Motors	46	55	83	73	-	666	-	222	1,144	1,144	-	-	-	2,332	-	-	-	295,800	2,049	100
2a.1.1.4	Pressurizer	32	62	350	69	-	535	-	211	1,258	1,258	-	-	-	1,874	-	-	-	158,199	2,213	938
2a.1.1.5	Steam Generators	190	2,703	1,863	1,556	1,129	3,230	-	2,167	12,837	12,837	-	-	18,672	11,316	-	-	-	1,668,341	11,617	2,875
2a.1.1.6	CRDMs/ICIs/Service Structure Removal	241	98	213	44	-	403	-	274	1,274	1,274	-	-	-	4,797	-	-	-	135,744	5,671	-
2a.1.1.7	Reactor Vessel Internals	103	2,373	18,389	1,435	-	10,984	208	12,310	45,802	45,802	-	-	-	501	527	918	-	225,717	22,533	1,033
2a.1.1.8	Reactor Vessel	60	4,206	1,491	534	-	1,509	208	4,477	12,485	12,485	-	-	-	5,315	-	-	-	566,474	22,533	1,033
2a.1.1	Totals	733	9,550	22,399	3,723	1,129	17,493	416	19,749	75,193	75,193	-	-	18,672	26,632	527	918	-	3,106,373	68,655	5,980
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	262	184	50	329	282	-	211	1,319	1,319	-	-	2,131	1,187	-	-	-	271,373	4,667	-
2a.1.3	Main Condensers	-	2,222	108	44	330	300	-	698	3,702	3,702	-	-	3,800	1,190	-	-	-	272,178	39,151	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Reactor	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,414	-
2a.1.4.2	Auxiliary	-	398	-	-	-	-	-	60	457	457	-	-	-	-	-	-	-	-	4,945	-
2a.1.4.3	Radwaste	-	14	-	-	-	-	-	2	16	16	-	-	-	-	-	-	-	-	179	-
2a.1.4	Totals	-	1,357	-	-	-	-	-	204	1,560	1,560	-	-	-	-	-	-	-	-	16,538	-
Disposal of Plant Systems																					
2a.1.5.1	Admin Bldg Ventilation	-	5	-	-	-	-	-	1	6	-	-	6	-	-	-	-	-	-	90	-
2a.1.5.2	Air Removal	-	23	-	-	-	-	-	3	26	-	-	26	-	-	-	-	-	-	422	-
2a.1.5.3	Auxiliary Feedwater	-	36	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	676	-
2a.1.5.4	Auxiliary Feedwater - RCA	-	30	0	1	14	-	-	10	55	55	-	-	178	-	-	-	-	7,214	486	-
2a.1.5.5	Bleed Steam	-	70	-	-	-	-	-	11	81	-	-	81	-	-	-	-	-	-	1,331	-
2a.1.5.6	Caustic Addition - RCA	-	32	0	1	19	-	-	11	63	63	-	-	240	-	-	-	-	9,761	468	-
2a.1.5.7	Chemical Feed	-	13	-	-	-	-	-	2	15	-	-	15	-	-	-	-	-	-	261	-
2a.1.5.8	Chemical Feed - RCA	-	2	0	0	1	-	-	1	4	4	-	-	16	-	-	-	-	634	31	-
2a.1.5.9	Circulating Water	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	401	-
2a.1.5.10	Condensate	-	411	-	-	-	-	-	62	472	-	-	472	-	-	-	-	-	-	7,537	-
2a.1.5.11	Condensate Polishing	-	162	-	-	-	-	-	24	186	-	-	186	-	-	-	-	-	-	2,987	-
2a.1.5.12	Condensate Polishing - RCA	-	30	1	3	38	-	-	14	85	85	-	-	483	-	-	-	-	19,616	493	-
2a.1.5.13	Electro-Hydraulic	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	143	-
2a.1.5.14	External Circulating Water	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	385	-
2a.1.5.15	External Circulating Water - RCA	-	58	1	4	57	-	-	24	143	143	-	-	721	-	-	-	-	29,284	938	-
2a.1.5.16	Feedwater	-	99	-	-	-	-	-	15	114	-	-	114	-	-	-	-	-	-	1,840	-
2a.1.5.17	Feedwater - RCA	-	197	6	22	325	-	-	102	652	652	-	-	4,147	-	-	-	-	168,414	3,377	-
2a.1.5.18	Gland Seal	-	26	-	-	-	-	-	4	30	-	-	30	-	-	-	-	-	-	504	-
2a.1.5.19	Heater Drain	-	300	-	-	-	-	-	45	345	-	-	345	-	-	-	-	-	-	5,638	-
2a.1.5.20	Hypobromous Acid Feed	-	5	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	86	-
2a.1.5.21	Hypobromous Acid Feed - RCA	-	1	0	0	0	-	-	0	1	1	-	-	2	-	-	-	-	100	12	-
2a.1.5.22	Internal Circ Water & CDSR	-	20	-	-	-	-	-	3	22	-	-	22	-	-	-	-	-	-	366	-
2a.1.5.23	Main Gen/Exciter/Transformer	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2a.1.5.24	Main Steam	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	1,482	-
2a.1.5.25	Main Steam - RCA	-	302	8	28	405	-	-	141	884	884	-	-	5,166	-	-	-	-	209,799	5,146	-
2a.1.5.26	Repairable Spare Snubbers	-	5	0	0	1	-	-	1	7	7	-	-	12	-	-	-	-	490	82	-
2a.1.5.27	Steam Exclusion	-	2	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	32	-
2a.1.5.28	Steam Exclusion - RCA	-	3	0	0	2	-	-	1	7	7	-	-	24	-	-	-	-	966	47	-
2a.1.5.29	Steam Generator Blowdown	-	331	15	19	149	119	-	139	773	773	-	-	1,906	483	-	-	-	117,630	5,771	-
2a.1.5.30	Steam Generators	-	4	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	75	-
2a.1.5.31	Turbine & Moisture Separators	-	296	-	-	-	-	-	44	340	-	-	340	-	-	-	-	-	-	5,472	-

Table E-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Disposal of Plant Systems (continued)																					
2a.1.5.32	Turbine Oil Purification	-	41	-	-	-	-	-	6	47	-	-	47	-	-	-	-	-	-	757	-
2a.1.5.33	Water Treatment	-	353	-	-	-	-	-	53	406	-	-	406	-	-	-	-	-	-	6,677	-
2a.1.5.34	Water Treatment - RCA	-	16	0	1	9	-	-	6	32	32	-	-	115	-	-	-	-	4,652	252	-
2a.1.5	Totals	-	2,999	32	79	1,020	119	-	748	4,997	2,706	-	2,291	13,010	483	-	-	-	568,561	54,274	-
2a.1.6	Scaffolding in support of decommissioning	-	2,637	23	7	88	17	-	680	3,453	3,453	-	-	1,012	67	-	-	-	51,236	26,270	-
2a.1	Subtotal Period 2a Activity Costs	733	19,028	22,745	3,903	2,895	18,212	416	22,290	90,224	87,933	-	2,291	38,625	29,559	527	918	-	4,269,720	209,554	5,980
Period 2a Collateral Costs																					
2a.3.1	Process decommissioning water waste	49	-	20	74	-	119	-	67	330	330	-	-	-	314	-	-	-	18,857	61	-
2a.3.2	Process decommissioning chemical flush waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.3.3	Small tool allowance	-	210	-	-	-	-	-	31	241	217	-	24	-	-	-	-	-	-	-	-
2a.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	9,220	1,383	10,603	-	10,603	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	49	210	20	74	-	119	9,220	1,482	11,174	547	10,603	24	-	314	-	-	-	18,857	61	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	66	-	-	-	-	-	-	17	83	83	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	530	53	583	583	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	1,560	156	1,716	1,545	-	172	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,417	-	-	-	-	-	354	1,772	1,772	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	2,412	-	-	-	-	-	362	2,774	2,774	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	84	23	-	290	-	84	482	482	-	-	-	3,930	-	-	-	78,601	128	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	3,457	519	3,975	3,975	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	640	64	704	704	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	909	91	999	-	999	-	-	-	-	-	-	-	-	-
2a.4.10	Fixed Overhead	-	-	-	-	-	-	1,508	226	1,734	1,734	-	-	-	-	-	-	-	-	-	-
2a.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	497	74	571	-	571	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	58	9	67	-	67	-	-	-	-	-	-	-	-	-
2a.4.13	Railroad Track Maintenance	-	-	-	-	-	-	65	10	75	75	-	-	-	-	-	-	-	-	-	-
2a.4.14	Security Staff Cost	-	-	-	-	-	-	5,521	828	6,349	6,349	-	-	-	-	-	-	-	-	-	171,679
2a.4.15	DOC Staff Cost	-	-	-	-	-	-	13,873	2,081	15,954	15,954	-	-	-	-	-	-	-	-	-	206,286
2a.4.16	Utility Staff Cost	-	-	-	-	-	-	19,283	2,892	22,176	22,176	-	-	-	-	-	-	-	-	-	384,071
2a.4	Subtotal Period 2a Period-Dependent Costs	66	3,830	84	23	-	290	47,900	7,820	60,013	58,204	1,637	172	-	3,930	-	-	-	78,601	128	762,036
2a.0	TOTAL PERIOD 2a COST	849	23,068	22,849	4,000	2,895	18,622	57,536	31,592	161,410	146,683	12,240	2,487	38,625	33,803	527	918	-	4,367,179	209,743	768,015
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	ADT & Misc Ventilation	-	20	0	1	12	2	-	7	42	42	-	-	153	7	-	-	-	6,796	363	-
2b.1.1.2	Aux Bldg Normal Ventilation	-	55	2	4	54	7	-	25	147	147	-	-	692	29	-	-	-	30,575	1,012	-
2b.1.1.3	Aux Bldg Special Ventilation	-	11	0	0	6	1	-	4	22	22	-	-	70	4	-	-	-	3,228	197	-
2b.1.1.4	Battery Rm Special Ventilation	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	24	-
2b.1.1.5	Boron Recycle	0	3	0	0	0	2	-	1	7	7	-	-	3	7	-	-	-	684	50	-
2b.1.1.6	Chemical & Volume Control	595	748	46	39	185	374	-	616	2,603	2,603	-	-	2,356	1,557	-	-	-	221,508	23,175	-
2b.1.1.7	Cold Chemical Lab Ventilation	-	1	-	-	-	-	-	0	1	-	-	1	-	-	-	-	-	-	9	-
2b.1.1.8	Component Cooling - RCA	-	515	18	65	940	-	-	281	1,819	1,819	-	-	11,996	-	-	-	-	487,169	8,583	-
2b.1.1.9	Containment Cooling	-	27	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	-	502	-
2b.1.1.10	Containment Cooling - RCA	-	240	4	15	215	-	-	95	569	569	-	-	2,743	-	-	-	-	111,390	3,949	-
2b.1.1.11	Containment Hydrogen Control - RCA	-	29	0	1	11	-	-	9	50	50	-	-	141	-	-	-	-	5,742	494	-
2b.1.1.12	Containment Spray - RCA	-	154	2	8	114	-	-	57	335	335	-	-	1,453	-	-	-	-	59,019	2,617	-
2b.1.1.13	Containment Ventilation	-	186	18	35	370	137	-	143	890	890	-	-	4,721	541	-	-	-	237,746	3,370	-
2b.1.1.14	Control/Relay/Cmptr Rm Vent	-	25	1	2	20	4	-	11	62	62	-	-	260	15	-	-	-	11,864	454	-
2b.1.1.15	Cooling Water	-	124	-	-	-	-	-	19	143	-	-	143	-	-	-	-	-	-	2,344	-
2b.1.1.16	Cooling Water - RCA	-	380	13	45	662	-	-	202	1,302	1,302	-	-	8,442	-	-	-	-	342,822	6,311	-
2b.1.1.17	Cranes/Hoists/Elevators - RCA	-	3	0	1	8	-	-	2	13	13	-	-	103	-	-	-	-	4,184	48	-
2b.1.1.18	D3 Emergency Diesel	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	141	-
2b.1.1.19	D4 Emergency Diesel	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	141	-
2b.1.1.20	D5 Emergency Diesel	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2b.1.1.21	Electrical - Clean	-	1,341	-	-	-	-	-	201	1,542	-	-	1,542	-	-	-	-	-	-	24,276	-
2b.1.1.22	Electrical - Contaminated	-	378	4	12	157	14	-	124	689	689	-	-	1,997	56	-	-	-	85,904	6,502	-
2b.1.1.23	Electrical - Decontaminated	-	2,357	28	101	1,470	-	-	828	4,784	4,784	-	-	18,753	-	-	-	-	761,569	38,423	-

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Disposal of Plant Systems (continued)																					
2b.1.1.24	Filter Rm Ventilation	-	4	0	0	2	0	-	1	7	7	-	-	24	1	-	-	-	1,018	69	-
2b.1.1.25	Fire Protection & Detection	-	159	-	-	-	-	-	24	183	-	-	183	-	-	-	-	-	-	3,009	-
2b.1.1.26	Fire Protection & Detection - RCA	-	196	3	10	143	-	-	72	424	424	-	-	1,828	-	-	-	-	74,245	3,134	-
2b.1.1.27	Fuel Handling	-	59	1	2	16	9	-	20	106	106	-	-	200	37	-	-	-	11,280	1,101	-
2b.1.1.28	Fuel Oil	-	1	-	-	-	-	-	0	1	-	-	1	-	-	-	-	-	-	9	-
2b.1.1.29	HVAC - Clean	-	119	-	-	-	-	-	18	136	-	-	136	-	-	-	-	-	-	2,373	-
2b.1.1.30	HVAC - Contaminated	-	983	22	63	842	77	-	403	2,390	2,390	-	-	10,745	304	-	-	-	462,193	16,575	-
2b.1.1.31	Heating	-	250	-	-	-	-	-	38	288	-	-	288	-	-	-	-	-	-	4,804	-
2b.1.1.32	Heating - RCA	-	270	3	10	149	-	-	92	524	524	-	-	1,907	-	-	-	-	77,458	4,086	-
2b.1.1.33	Hot Lab & Sample Rm Ventilation	-	16	0	1	8	1	-	5	31	31	-	-	107	3	-	-	-	4,623	285	-
2b.1.1.34	Incore Instrumentation	0	24	1	1	5	11	-	10	51	51	-	-	60	43	-	-	-	6,122	457	-
2b.1.1.35	Misc Drains & Vents	-	186	9	8	36	81	-	74	394	394	-	-	458	320	-	-	-	45,786	3,175	-
2b.1.1.36	Misc Lab & Service Areas Vent	-	103	6	5	29	46	-	43	232	232	-	-	370	183	-	-	-	30,543	1,709	-
2b.1.1.37	Miscellaneous Gas	-	56	-	-	-	-	-	8	64	-	-	64	-	-	-	-	-	-	1,073	-
2b.1.1.38	Miscellaneous Gas - RCA	-	107	1	3	47	-	-	34	192	192	-	-	600	-	-	-	-	24,378	1,636	-
2b.1.1.39	Radiation Monitoring	-	6	-	-	-	-	-	1	7	-	-	7	-	-	-	-	-	-	111	-
2b.1.1.40	Radiation Monitoring - RCA	-	52	0	2	25	-	-	17	96	96	-	-	316	-	-	-	-	12,826	782	-
2b.1.1.41	Reactor Coolant	129	188	15	11	18	138	-	152	651	651	-	-	229	548	-	-	-	55,824	5,508	-
2b.1.1.42	Reactor Hot Sampling	111	101	8	4	4	59	-	97	385	385	-	-	54	234	-	-	-	22,070	3,681	-
2b.1.1.43	Reactor Makeup	-	32	-	-	-	-	-	5	37	-	-	37	-	-	-	-	-	-	583	-
2b.1.1.44	Reactor Makeup - RCA	-	3	0	0	2	-	-	1	7	7	-	-	28	-	-	-	-	1,148	47	-
2b.1.1.45	Reactor Vessel	7	14	0	0	2	3	-	8	34	34	-	-	22	11	-	-	-	1,788	385	-
2b.1.1.46	Residual Heat Removal	276	312	63	59	224	614	-	418	1,966	1,966	-	-	2,853	2,433	-	-	-	322,636	7,079	-
2b.1.1.47	Safeguards Chilled Water	-	4	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	75	-	-
2b.1.1.48	Safety Injection	-	694	32	52	523	220	-	318	1,838	1,838	-	-	6,676	902	-	-	-	345,035	12,273	-
2b.1.1.49	Sampling	-	42	2	1	3	18	-	16	82	82	-	-	37	70	-	-	-	7,443	713	-
2b.1.1.50	Service Bldg & New Cmptr Vent	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	6	-
2b.1.1.51	Shield Bldg Ventilation	-	95	10	17	159	92	-	74	448	448	-	-	2,028	363	-	-	-	113,240	1,739	-
2b.1.1.52	Station & Instrument Air	-	126	-	-	-	-	-	19	145	-	-	145	-	-	-	-	-	-	2,424	-
2b.1.1.53	Station & Instrument Air - RCA	-	240	2	9	127	-	-	81	459	459	-	-	1,625	-	-	-	-	65,986	3,638	-
2b.1.1.54	Turbine Bldg Traps & Drains	-	24	-	-	-	-	-	4	27	-	-	27	-	-	-	-	-	-	462	-
2b.1.1.55	Turbine Bldg Traps & Drains - RCA	-	24	0	1	14	-	-	8	47	47	-	-	180	-	-	-	-	7,321	344	-
2b.1.1.56	Turbine Bldg Ventilation	-	36	-	-	-	-	-	5	42	-	-	42	-	-	-	-	-	-	655	-
2b.1.1.57	Unit Coolers	-	18	-	-	-	-	-	3	20	-	-	20	-	-	-	-	-	-	332	-
2b.1.1.58	Unit Coolers - RCA	-	44	0	1	18	-	-	14	78	78	-	-	232	-	-	-	-	9,413	690	-
2b.1.1.59	Waste Gas Disposal	440	382	33	31	192	256	-	417	1,752	1,752	-	-	2,453	1,124	-	-	-	185,932	14,295	-
2b.1.1.60	Waste Liquid Disposal	1,141	1,430	84	68	286	679	-	1,159	4,847	4,847	-	-	3,655	2,811	-	-	-	377,193	44,443	-
2b.1.1.61	Waste Solid Disposal	91	116	8	7	30	74	-	100	428	428	-	-	389	304	-	-	-	40,825	3,477	-
2b.1.1	Totals	2,792	13,126	440	698	7,130	2,918	-	6,391	33,494	30,803	-	2,691	90,963	11,908	-	-	-	4,676,526	270,228	-
2b.1.2	Scaffolding in support of decommissioning	-	3,297	29	9	110	21	-	850	4,316	4,316	-	-	1,265	84	-	-	-	64,045	32,837	-
Decontamination of Site Buildings																					
2b.1.3.1	Reactor	975	829	31	140	175	1,302	-	1,071	4,523	4,523	-	-	2,230	7,732	-	-	-	661,035	30,714	-
2b.1.3.2	Auxiliary	1,039	339	10	74	83	524	-	760	2,830	2,830	-	-	1,060	3,353	-	-	-	332,478	23,808	-
2b.1.3.3	Backwash Waste Receiving Tank	-	23	1	10	-	79	-	27	141	141	-	-	-	507	-	-	-	43,896	299	-
2b.1.3.4	Drum Transfer & Truck Loading Enclosure	14	7	0	2	1	11	-	12	49	49	-	-	19	74	-	-	-	7,118	368	-
2b.1.3.5	LLRW Storage Enclosure	99	44	1	11	3	78	-	82	318	318	-	-	38	502	-	-	-	44,969	2,424	-
2b.1.3.6	Radwaste	44	19	1	5	3	35	-	37	144	144	-	-	42	225	-	-	-	21,136	1,082	-
2b.1.3.7	Resin Disposal	13	10	0	2	7	11	-	13	55	55	-	-	83	69	-	-	-	9,271	383	-
2b.1.3	Totals	2,186	1,271	45	243	272	2,041	-	2,003	8,060	8,060	-	-	3,471	12,462	-	-	-	1,119,903	59,077	-
2b.1	Subtotal Period 2b Activity Costs	4,978	17,695	514	949	7,512	4,980	-	9,244	45,870	43,180	-	2,691	95,700	24,454	-	-	-	5,860,474	362,142	-
Period 2b Collateral Costs																					
2b.3.1	Process decommissioning water waste	155	-	65	237	-	382	-	215	1,053	1,053	-	-	-	1,008	-	-	-	60,498	197	-
2b.3.2	Process decommissioning chemical flush waste	2	-	72	344	-	776	-	254	1,448	1,448	-	-	-	1,154	-	-	-	122,948	216	-
2b.3.3	Small tool allowance	-	323	-	-	-	-	-	48	371	371	-	-	-	-	-	-	-	-	-	-
2b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	4,953	743	5,696	-	5,696	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	157	323	137	581	-	1,158	4,954	1,260	8,570	2,874	5,696	-	-	2,162	-	-	-	183,446	413	-

Table E-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	845	-	-	-	-	-	-	211	1,057	1,057	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	617	62	679	679	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	1,708	171	1,879	1,879	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	2,116	-	-	-	-	-	529	2,645	2,645	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	2,786	-	-	-	-	-	418	3,204	3,204	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	110	31	-	384	-	112	637	637	-	-	-	5,197	-	-	-	103,950	170	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	3,177	477	3,654	3,654	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	745	74	819	819	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	1,058	106	1,163	-	1,163	-	-	-	-	-	-	-	-	-
2b.4.10	Fixed Overhead	-	-	-	-	-	-	1,755	263	2,019	2,019	-	-	-	-	-	-	-	-	-	-
2b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	578	87	665	-	665	-	-	-	-	-	-	-	-	-
2b.4.12	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	294	44	338	338	-	-	-	-	-	-	-	-	-	-
2b.4.13	ISFSI Operating Costs	-	-	-	-	-	-	68	10	78	-	78	-	-	-	-	-	-	-	-	-
2b.4.14	Railroad Track Maintenance	-	-	-	-	-	-	76	11	87	87	-	-	-	-	-	-	-	-	-	-
2b.4.15	Security Staff Cost	-	-	-	-	-	-	6,427	964	7,392	7,392	-	-	-	-	-	-	-	-	-	199,870
2b.4.16	DOC Staff Cost	-	-	-	-	-	-	15,618	2,343	17,961	17,961	-	-	-	-	-	-	-	-	-	230,680
2b.4.17	Utility Staff Cost	-	-	-	-	-	-	21,672	3,251	24,923	24,923	-	-	-	-	-	-	-	-	-	428,180
2b.4	Subtotal Period 2b Period-Dependent Costs	845	4,902	110	31	-	384	53,793	9,132	69,198	67,292	1,906	-	-	5,197	-	-	-	103,950	170	858,730
2b.0	TOTAL PERIOD 2b COST	5,980	22,919	761	1,561	7,512	6,521	58,747	19,637	123,638	113,345	7,602	2,691	95,700	31,814	-	-	-	6,147,870	362,724	858,730
PERIOD 2c - Spent fuel delay prior to SFP decon																					
Period 2c Direct Decommissioning Activities																					
Period 2c Collateral Costs																					
2c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	63,230	9,484	72,714	-	72,714	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	-	-	-	-	-	-	63,230	9,484	72,714	-	72,714	-	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																					
2c.4.1	Insurance	-	-	-	-	-	-	4,352	435	4,788	4,788	-	-	-	-	-	-	-	-	-	-
2c.4.2	Property taxes	-	-	-	-	-	-	8,613	861	9,474	9,474	-	-	-	-	-	-	-	-	-	-
2c.4.3	Health physics supplies	-	3,422	-	-	-	-	-	855	4,277	4,277	-	-	-	-	-	-	-	-	-	-
2c.4.4	Heavy equipment rental	-	983	-	-	-	-	-	147	1,130	1,130	-	-	-	-	-	-	-	-	-	-
2c.4.5	Disposal of DAW generated	-	-	94	26	-	326	-	95	540	540	-	-	-	4,411	-	-	-	88,213	144	-
2c.4.6	Plant energy budget	-	-	-	-	-	-	5,978	897	6,875	6,875	-	-	-	-	-	-	-	-	-	-
2c.4.7	NRC Fees	-	-	-	-	-	-	2,812	281	3,094	3,094	-	-	-	-	-	-	-	-	-	-
2c.4.8	Emergency Planning Fees	-	-	-	-	-	-	7,463	746	8,210	-	8,210	-	-	-	-	-	-	-	-	-
2c.4.9	Fixed Overhead	-	-	-	-	-	-	12,385	1,858	14,243	14,243	-	-	-	-	-	-	-	-	-	-
2c.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	4,079	612	4,691	-	4,691	-	-	-	-	-	-	-	-	-
2c.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	414	62	476	476	-	-	-	-	-	-	-	-	-	-
2c.4.12	ISFSI Operating Costs	-	-	-	-	-	-	478	72	550	-	550	-	-	-	-	-	-	-	-	-
2c.4.13	Railroad Track Maintenance	-	-	-	-	-	-	534	80	614	614	-	-	-	-	-	-	-	-	-	-
2c.4.14	Security Staff Cost	-	-	-	-	-	-	38,707	5,806	44,513	44,513	-	-	-	-	-	-	-	-	-	1,187,323
2c.4.15	Utility Staff Cost	-	-	-	-	-	-	43,730	6,559	50,289	50,289	-	-	-	-	-	-	-	-	-	880,737
2c.4	Subtotal Period 2c Period-Dependent Costs	-	4,405	94	26	-	326	129,547	19,368	153,765	140,314	13,451	-	-	4,411	-	-	-	88,213	144	2,068,060
2c.0	TOTAL PERIOD 2c COST	-	4,405	94	26	-	326	192,777	28,852	226,479	140,314	86,165	-	-	4,411	-	-	-	88,213	144	2,068,060
PERIOD 2d - Decontamination Following Wet Fuel Storage																					
Period 2d Direct Decommissioning Activities																					
2d.1.1	Remove spent fuel racks	279	28	92	28	-	396	-	259	1,082	1,082	-	-	-	1,569	-	-	-	133,386	576	-
Disposal of Plant Systems																					
2d.1.2.1	Electrical - Contaminated - Fuel Pool	-	162	2	5	68	6	-	53	296	296	-	-	864	24	-	-	-	37,174	2,783	-
2d.1.2.2	Electrical - Decontaminated - Fuel Pool	-	1,012	12	43	632	-	-	356	2,055	2,055	-	-	8,069	-	-	-	-	327,668	16,495	-
2d.1.2.3	Fire Protection & Detection - RCA Fuel P	-	30	0	2	22	-	-	11	65	65	-	-	286	-	-	-	-	11,622	476	-
2d.1.2.4	HVAC - Contaminated - Fuel Pool	-	442	10	28	378	34	-	181	1,074	1,074	-	-	4,828	136	-	-	-	207,653	7,447	-
2d.1.2.5	Safeguards Chilled Water - RCA	-	4	0	0	2	-	-	1	7	7	-	-	26	-	-	-	-	1,045	51	-
2d.1.2.6	Spent Fuel Pool Cooling	25	29	2	2	3	20	-	26	107	107	-	-	39	80	-	-	-	8,359	881	-
2d.1.2.7	Spent Fuel Pool Normal Ventilation	-	22	1	2	21	2	-	9	56	56	-	-	265	9	-	-	-	11,504	394	-
2d.1.2	Totals	25	1,699	27	82	1,127	63	-	637	3,660	3,660	-	-	14,376	250	-	-	-	605,025	28,526	-

Table E-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Decontamination of Site Buildings																					
2d.1.3.1	Fuel Handling of Aux Building	822	902	8	30	189	150	-	708	2,810	2,810	-	-	2,417	923	-	-	-	177,583	30,400	-
2d.1.3	Totals	822	902	8	30	189	150	-	708	2,810	2,810	-	-	2,417	923	-	-	-	177,583	30,400	-
2d.1.4	Scaffolding in support of decommissioning	-	659	6	2	22	4	-	170	863	863	-	-	253	17	-	-	-	12,809	6,567	-
2d.1	Subtotal Period 2d Activity Costs	1,127	3,288	132	142	1,338	613	-	1,774	8,415	8,415	-	-	17,046	2,758	-	-	-	928,804	66,070	-
Period 2d Additional Costs																					
2d.2.1	License Termination Survey Planning	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
Period 2d Collateral Costs																					
2d.3.1	Process decommissioning water waste	15	-	8	27	-	44	-	23	117	117	-	-	-	117	-	-	-	6,990	23	-
2d.3.2	Process decommissioning chemical flush waste	0	-	1	4	-	9	-	3	17	17	-	-	-	13	-	-	-	1,422	2	-
2d.3.3	Small tool allowance	-	65	-	-	-	-	-	10	75	75	-	-	-	-	-	-	-	-	-	-
2d.3.4	Decommissioning Equipment Disposition	-	-	136	51	521	100	-	124	933	933	-	-	6,000	397	-	-	-	303,726	88	-
2d.3.5	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,935	440	3,376	-	3,376	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	15	65	145	82	521	153	2,935	601	4,517	1,141	3,376	-	6,000	527	-	-	-	312,139	113	-
Period 2d Period-Dependent Costs																					
2d.4.1	Decon supplies	159	-	-	-	-	-	-	40	199	199	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	318	32	350	350	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	392	39	431	431	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	559	-	-	-	-	-	140	699	699	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,436	-	-	-	-	-	215	1,651	1,651	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	43	12	-	148	-	43	245	245	-	-	-	2,002	-	-	-	40,031	65	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	873	131	1,004	1,004	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	384	38	422	422	-	-	-	-	-	-	-	-	-	-
2d.4.9	Emergency Planning Fees	-	-	-	-	-	-	545	55	600	-	600	-	-	-	-	-	-	-	-	-
2d.4.10	Fixed Overhead	-	-	-	-	-	-	905	136	1,040	1,040	-	-	-	-	-	-	-	-	-	-
2d.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	303	45	348	348	-	-	-	-	-	-	-	-	-	-
2d.4.12	ISFSI Operating Costs	-	-	-	-	-	-	35	5	40	-	40	-	-	-	-	-	-	-	-	-
2d.4.13	Railroad Track Maintenance	-	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-	-	-	-
2d.4.14	Security Staff Cost	-	-	-	-	-	-	1,856	278	2,135	2,135	-	-	-	-	-	-	-	-	-	54,150
2d.4.15	DOC Staff Cost	-	-	-	-	-	-	4,717	708	5,424	5,424	-	-	-	-	-	-	-	-	-	70,436
2d.4.16	Utility Staff Cost	-	-	-	-	-	-	6,477	972	7,449	7,449	-	-	-	-	-	-	-	-	-	127,029
2d.4	Subtotal Period 2d Period-Dependent Costs	159	1,995	43	12	-	148	16,844	2,883	22,083	21,444	640	-	-	2,002	-	-	-	40,031	65	251,614
2d.0	TOTAL PERIOD 2d COST	1,301	5,349	320	236	1,859	914	20,306	5,415	35,700	31,685	4,015	-	23,046	5,286	-	-	-	1,280,973	66,249	257,854
PERIOD 2f - License Termination																					
Period 2f Direct Decommissioning Activities																					
2f.1.1	ORISE confirmatory survey	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
2f.1.2	Terminate license									a											
2f.1	Subtotal Period 2f Activity Costs	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
Period 2f Additional Costs																					
2f.2.1	License Termination Survey	-	-	-	-	-	-	5,526	1,658	7,184	7,184	-	-	-	-	-	-	-	-	102,642	3,120
2f.2	Subtotal Period 2f Additional Costs	-	-	-	-	-	-	5,526	1,658	7,184	7,184	-	-	-	-	-	-	-	-	102,642	3,120
Period 2f Collateral Costs																					
2f.3.1	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
2f.3	Subtotal Period 2f Collateral Costs	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
Period 2f Period-Dependent Costs																					
2f.4.1	Insurance	-	-	-	-	-	-	287	29	316	316	-	-	-	-	-	-	-	-	-	-
2f.4.2	Property taxes	-	-	-	-	-	-	348	35	383	383	-	-	-	-	-	-	-	-	-	-
2f.4.3	Health physics supplies	-	505	-	-	-	-	-	126	632	632	-	-	-	-	-	-	-	-	-	-
2f.4.4	Disposal of DAW generated	-	-	7	2	-	25	-	7	41	41	-	-	-	334	-	-	-	6,685	11	-
2f.4.5	Plant energy budget	-	-	-	-	-	-	418	63	481	481	-	-	-	-	-	-	-	-	-	-
2f.4.6	NRC Fees	-	-	-	-	-	-	384	38	423	423	-	-	-	-	-	-	-	-	-	-
2f.4.7	Emergency Planning Fees	-	-	-	-	-	-	44	4	49	-	49	-	-	-	-	-	-	-	-	-
2f.4.8	Fixed Overhead	-	-	-	-	-	-	867	130	997	997	-	-	-	-	-	-	-	-	-	-
2f.4.9	ISFSI Operating Costs	-	-	-	-	-	-	33	5	38	-	38	-	-	-	-	-	-	-	-	-

Table E-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes: Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 2f Period-Dependent Costs (continued)																					
2f.4.10	Railroad Track Maintenance	-	-	-	-	-	-	37	6	43	43	-	-	-	-	-	-	-	-	-	-
2f.4.11	Security Staff Cost	-	-	-	-	-	-	1,743	262	2,005	2,005	-	-	-	-	-	-	-	-	-	50,700
2f.4.12	DOC Staff Cost	-	-	-	-	-	-	3,198	480	3,677	3,677	-	-	-	-	-	-	-	-	-	46,410
2f.4.13	Utility Staff Cost	-	-	-	-	-	-	3,175	476	3,652	3,652	-	-	-	-	-	-	-	-	-	59,670
2f.4	Subtotal Period 2f Period-Dependent Costs	-	505	7	2	-	25	10,536	1,661	12,735	12,648	87	-	-	334	-	-	-	6,685	11	156,780
2f.0	TOTAL PERIOD 2f COST	-	505	7	2	-	25	17,245	3,519	21,303	21,216	87	-	-	334	-	-	-	6,685	102,653	159,900
PERIOD 2 TOTALS		8,130	56,246	24,031	5,824	12,266	26,408	346,610	89,015	568,530	453,242	110,110	5,178	157,372	75,648	527	918	-	11,890,920	741,512	4,112,559
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Reactor	-	5,472	-	-	-	-	-	821	6,293	-	-	6,293	-	-	-	-	-	-	66,359	-
3b.1.1.2	Auxiliary	-	3,586	-	-	-	-	-	538	4,124	-	-	4,124	-	-	-	-	-	-	44,627	-
3b.1.1.3	Condensate Storage Tank Foundation	-	14	-	-	-	-	-	2	16	-	-	16	-	-	-	-	-	-	193	-
3b.1.1.4	Construction Warehouse & Fab Shop	-	158	-	-	-	-	-	24	182	-	-	182	-	-	-	-	-	-	2,477	-
3b.1.1.5	D3/D4 Emergency Generator	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	371	-
3b.1.1.6	Drum Transfer & Truck Loading Enclosure	-	23	-	-	-	-	-	3	26	-	-	26	-	-	-	-	-	-	361	-
3b.1.1.7	Hydrogen House	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	153	-
3b.1.1.8	LLRW Storage Enclosure	-	210	-	-	-	-	-	32	242	-	-	242	-	-	-	-	-	-	2,776	-
3b.1.1.9	Radwaste	-	280	-	-	-	-	-	42	322	-	-	322	-	-	-	-	-	-	3,555	-
3b.1.1.10	Resin Disposal	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	383	-
3b.1.1.11	Sulfuric Acid Tank Enclosure	-	3	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	-	54	-
3b.1.1.12	Turbine	-	2,506	-	-	-	-	-	376	2,881	-	-	2,881	-	-	-	-	-	-	34,352	-
3b.1.1.13	Turbine Pedestal	-	754	-	-	-	-	-	113	867	-	-	867	-	-	-	-	-	-	7,580	-
3b.1.1.14	Warehouse #2	-	31	-	-	-	-	-	5	36	-	-	36	-	-	-	-	-	-	457	-
3b.1.1.15	Waste Neutralizing Tank House	-	12	-	-	-	-	-	2	14	-	-	14	-	-	-	-	-	-	165	-
3b.1.1.16	Waste Oil Storage	-	16	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	225	-
3b.1.1.17	Water Treatment	-	481	-	-	-	-	-	72	554	-	-	554	-	-	-	-	-	-	6,498	-
3b.1.1.18	Fuel Handling of Aux Building	-	1,803	-	-	-	-	-	271	2,074	-	-	2,074	-	-	-	-	-	-	21,027	-
3b.1.1	Totals	-	15,415	-	-	-	-	-	2,312	17,727	-	-	17,727	-	-	-	-	-	-	191,615	-
Site Closeout Activities																					
3b.1.2	Remove Rubble	-	1,816	-	-	-	-	-	272	2,089	-	-	2,089	-	-	-	-	-	-	10,653	-
3b.1.3	Grade & landscape site	-	490	-	-	-	-	-	74	564	-	-	564	-	-	-	-	-	-	921	-
3b.1.4	Final report to NRC	-	-	-	-	-	-	63	9	72	72	-	-	-	-	-	-	-	-	-	668
3b.1	Subtotal Period 3b Activity Costs	-	17,722	-	-	-	-	63	2,668	20,452	72	-	20,380	-	-	-	-	-	-	203,188	668
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	580	-	-	-	-	6	88	673	-	-	673	-	-	-	-	-	-	2,731	-
3b.2	Subtotal Period 3b Additional Costs	-	580	-	-	-	-	6	88	673	-	-	673	-	-	-	-	-	-	2,731	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	201	-	-	-	-	-	30	231	-	-	231	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	201	-	-	-	-	-	30	231	-	-	231	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	407	41	447	-	447	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	839	84	923	-	923	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	5,588	-	-	-	-	-	838	6,426	-	-	6,426	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	593	89	682	-	-	682	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	228	23	251	-	251	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	126	13	138	-	138	-	-	-	-	-	-	-	-	-
3b.4.7	Fixed Overhead	-	-	-	-	-	-	1,065	160	1,225	1,225	-	-	-	-	-	-	-	-	-	-
3b.4.8	ISFSI Operating Costs	-	-	-	-	-	-	95	14	109	-	109	-	-	-	-	-	-	-	-	-
3b.4.9	Railroad Track Maintenance	-	-	-	-	-	-	106	16	122	122	-	-	-	-	-	-	-	-	-	-
3b.4.10	Security Staff Cost	-	-	-	-	-	-	2,554	383	2,937	(0)	1,997	940	-	-	-	-	-	-	-	74,658
3b.4.11	DOC Staff Cost	-	-	-	-	-	-	8,197	1,229	9,426	-	-	9,426	-	-	-	-	-	-	-	117,206
3b.4.12	Utility Staff Cost	-	-	-	-	-	-	4,194	629	4,823	-	4,147	675	-	-	-	-	-	-	-	74,658
3b.4	Subtotal Period 3b Period-Dependent Costs	-	5,588	-	-	-	-	18,402	3,519	27,509	1,347	8,013	18,149	-	-	-	-	-	-	-	266,521

Table E-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
3b.0	TOTAL PERIOD 3b COST	-	24,090	-	-	-	-	18,471	6,304	48,865	1,418	8,013	39,433	-	-	-	-	-	-	205,919	267,189
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,000	450	3,450	-	3,450	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	3,000	450	3,450	-	3,450	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	26,398	2,640	29,038	-	29,038	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	49,444	4,944	54,388	-	54,388	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	14,807	1,481	16,288	-	16,288	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	8,153	815	8,968	-	8,968	-	-	-	-	-	-	-	-	-
3c.4.6	Fixed Overhead	-	-	-	-	-	-	69,114	10,367	79,481	-	79,481	-	-	-	-	-	-	-	-	-
3c.4.7	ISFSI Operating Costs	-	-	-	-	-	-	6,155	923	7,079	-	7,079	-	-	-	-	-	-	-	-	-
3c.4.8	Security Staff Cost	-	-	-	-	-	-	136,859	20,529	157,388	-	157,388	-	-	-	-	-	-	-	-	3,874,963
3c.4.9	Utility Staff Cost	-	-	-	-	-	-	48,624	7,294	55,917	-	55,917	-	-	-	-	-	-	-	-	970,176
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	359,554	48,993	408,547	-	408,547	-	-	-	-	-	-	-	-	4,845,139
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	362,554	49,443	411,997	-	411,997	-	-	-	-	-	-	-	-	4,845,139
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-
3d.1.1	Totals	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-
Period 3d Additional Costs																					
3d.2.1	ISFSI Railroad Track Refurbishment	-	-	-	-	-	-	250	38	288	-	288	-	-	-	-	-	-	-	-	-
3d.2	Subtotal Period 3d Additional Costs	-	-	-	-	-	-	250	38	288	-	288	-	-	-	-	-	-	-	-	-
Period 3d Collateral Costs																					
3d.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	14,426	2,164	16,590	-	16,590	-	-	-	-	-	-	-	-	-
3d.3	Subtotal Period 3d Collateral Costs	-	-	-	-	-	-	14,426	2,164	16,590	-	16,590	-	-	-	-	-	-	-	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	5,182	518	5,700	-	5,700	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	9,706	971	10,677	-	10,677	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	3,746	375	4,121	-	4,121	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	1,601	160	1,761	-	1,761	-	-	-	-	-	-	-	-	-
3d.4.6	Fixed Overhead	-	-	-	-	-	-	13,568	2,035	15,603	-	15,603	-	-	-	-	-	-	-	-	-
3d.4.7	ISFSI Operating Costs	-	-	-	-	-	-	1,208	181	1,390	-	1,390	-	-	-	-	-	-	-	-	-
3d.4.8	Railroad Track Maintenance	-	-	-	-	-	-	1,350	202	1,552	-	1,552	-	-	-	-	-	-	-	-	-
3d.4.9	Security Staff Cost	-	-	-	-	-	-	26,867	4,030	30,897	-	30,897	-	-	-	-	-	-	-	-	760,706
3d.4.10	Utility Staff Cost	-	-	-	-	-	-	9,545	1,432	10,977	-	10,977	-	-	-	-	-	-	-	-	190,458
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	72,774	9,904	82,678	-	82,678	-	-	-	-	-	-	-	-	951,164
3d.0	TOTAL PERIOD 3d COST	-	-	822	-	-	8,602	87,450	13,478	110,353	10,797	99,556	-	-	-	-	-	2,793	658,858	-	951,164
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI License Termination (TN-40)	-	7	1	0	-	2	665	102	776	-	776	-	-	24	-	-	-	487	2,011	1,280
3e.2	Subtotal Period 3e Additional Costs	-	7	1	0	-	2	665	102	776	-	776	-	-	24	-	-	-	487	2,011	1,280

Table E-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	64	6	70	-	70	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	119	12	131	-	131	-	-	-	-	-	-	-	-	-
3e.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3e.4.4	NRC ISFSI Fees	-	-	-	-	-	-	36	4	39	-	39	-	-	-	-	-	-	-	-	-
3e.4.5	Railroad Track Maintenance	-	-	-	-	-	-	17	2	19	-	19	-	-	-	-	-	-	-	-	-
3e.4.6	Security Staff Cost	-	-	-	-	-	-	89	13	103	-	103	-	-	-	-	-	-	-	-	2,510
3e.4.7	Utility Staff Cost	-	-	-	-	-	-	98	15	113	-	113	-	-	-	-	-	-	-	-	1,901
3e.4	Subtotal Period 3e Period-Dependent Costs	-	-	-	-	-	-	422	52	475	-	475	-	-	-	-	-	-	-	-	4,411
3e.0	TOTAL PERIOD 3e COST	-	7	1	0	-	2	1,087	154	1,251	-	1,251	-	-	24	-	-	-	487	2,011	5,691
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Site Restoration (TN-40)	-	218	-	-	-	-	22	36	276	-	276	-	-	-	-	-	-	-	218	80
3f.2	Subtotal Period 3f Additional Costs	-	218	-	-	-	-	22	36	276	-	276	-	-	-	-	-	-	-	218	80
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	4	-	-	-	-	-	1	4	-	4	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	4	-	-	-	-	-	1	4	-	4	-	-	-	-	-	-	-	-	-
Period 3f Period-Dependent Costs																					
3f.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.2	Property taxes	-	-	-	-	-	-	60	6	66	-	66	-	-	-	-	-	-	-	-	-
3f.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.4	Railroad Track Maintenance	-	-	-	-	-	-	8	1	10	-	10	-	-	-	-	-	-	-	-	-
3f.4.5	Security Staff Cost	-	-	-	-	-	-	45	7	52	-	52	-	-	-	-	-	-	-	-	1,265
3f.4.6	Utility Staff Cost	-	-	-	-	-	-	39	6	44	-	44	-	-	-	-	-	-	-	-	784
3f.4	Subtotal Period 3f Period-Dependent Costs	-	-	-	-	-	-	152	20	172	-	172	-	-	-	-	-	-	-	-	2,050
3f.0	TOTAL PERIOD 3f COST	-	222	-	-	-	-	174	56	452	-	452	-	-	-	-	-	-	-	218	2,130
PERIOD 3 TOTALS		-	24,319	823	0	-	8,604	469,736	69,436	572,917	12,215	521,269	39,433	-	24	-	-	2,793	659,345	208,148	6,071,313
TOTAL COST TO DECOMMISSION		**10,961**	**85,110**	**25,202**	**6,211**	**12,413**	**38,152**	**901,143**	**173,519**	**1,252,710**	**552,230**	**655,372**	**45,108**	**163,696**	**89,559**	**1,115**	**918**	**2,793**	**13,169,790**	**982,293**	**11,038,160**

TOTAL COST TO DECOMMISSION WITH 16.08% CONTINGENCY:	**$1,252,710**	**thousands of 2011 dollars**
TOTAL NRC LICENSE TERMINATION COST IS 44.08% OR:	**$552,230**	**thousands of 2011 dollars**
SPENT FUEL MANAGEMENT COST IS 52.32% OR:	**$655,372**	**thousands of 2011 dollars**
NON-NUCLEAR DEMOLITION COST IS 3.6% OR:	**$45,108**	**thousands of 2011 dollars**
TOTAL LOW-LEVEL RADWASTE VOLUME BURIED (EXCLUDING GTCC):	**91,593**	**Cubic Feet**
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	**2,793**	**Cubic Feet**
TOTAL SCRAP METAL REMOVED:	**35,187**	**Tons**
TOTAL CRAFT LABOR REQUIREMENTS:	**982,293**	**Man-hours**

End Notes:
n/a - indicates that this activity not charged as decommissioning expense.
a - indicates that this activity performed by decommissioning staff.
0 - indicates that this value is less than 0.5 but is non-zero.
a cell containing " - " indicates a zero value

APPENDIX F

DETAILED COST TABLES

SCENARIO 4

DECON DECOMMISSIONING COST ESTIMATE

WITH 200 YEARS OF SPENT FUEL STORAGE

AND PERIODIC TN-40 REPLACEMENT

Table Page

Table F-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	122	18	140	140	-	-	-	-	-	-	-	-	-	1,300
1a.1.2	Notification of Cessation of Operations									a											
1a.1.3	Remove fuel & source material									n/a											
1a.1.4	Notification of Permanent Defueling									a											
1a.1.5	Deactivate plant systems & process waste									a											
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	187	28	215	215	-	-	-	-	-	-	-	-	-	2,000
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1a.1.10	End product description	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	122	18	140	140	-	-	-	-	-	-	-	-	-	1,300
1a.1.12	Define major work sequence	-	-	-	-	-	-	702	105	808	808	-	-	-	-	-	-	-	-	-	7,500
1a.1.13	Perform SER and EA	-	-	-	-	-	-	290	44	334	334	-	-	-	-	-	-	-	-	-	3,100
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	468	70	538	538	-	-	-	-	-	-	-	-	-	5,000
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	384	58	441	441	-	-	-	-	-	-	-	-	-	4,096
1a.1.16	Receive NRC approval of termination plan									a											
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	461	69	530	477	-	53	-	-	-	-	-	-	-	4,920
1a.1.17.2	Plant systems	-	-	-	-	-	-	390	59	449	404	-	45	-	-	-	-	-	-	-	4,167
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	47	7	54	54	-	-	-	-	-	-	-	-	-	500
1a.1.17.4	Reactor internals	-	-	-	-	-	-	665	100	765	765	-	-	-	-	-	-	-	-	-	7,100
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	609	91	700	700	-	-	-	-	-	-	-	-	-	6,500
1a.1.17.6	Biological shield	-	-	-	-	-	-	47	7	54	54	-	-	-	-	-	-	-	-	-	500
1a.1.17.7	Steam generators	-	-	-	-	-	-	292	44	336	336	-	-	-	-	-	-	-	-	-	3,120
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	150	22	172	86	-	86	-	-	-	-	-	-	-	1,600
1a.1.17.9	Main Turbine	-	-	-	-	-	-	37	6	43	-	-	43	-	-	-	-	-	-	-	400
1a.1.17.10	Main Condensers	-	-	-	-	-	-	37	6	43	-	-	43	-	-	-	-	-	-	-	400
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	292	44	336	168	-	168	-	-	-	-	-	-	-	3,120
1a.1.17.12	Waste management	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	84	13	97	48	-	48	-	-	-	-	-	-	-	900
1a.1.17	Total	-	-	-	-	-	-	3,542	531	4,073	3,587	-	487	-	-	-	-	-	-	-	37,827
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	225	34	258	258	-	-	-	-	-	-	-	-	-	2,400
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	2,800	420	3,220	3,220	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	131	20	151	151	-	-	-	-	-	-	-	-	-	1,400
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,200	330	2,530	2,530	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,230
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	11,906	1,786	13,692	13,206	-	487	-	-	-	-	-	-	-	73,753
Period 1a Additional Costs																					
1a.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
1a.2	Subtotal Period 1a Additional Costs	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	970	97	1,067	1,067	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	1,303	130	1,433	1,433	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	433	-	-	-	-	-	108	541	541	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	426	-	-	-	-	-	64	490	490	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	13	4	-	45	-	13	75	75	-	-	-	610	-	-	-	12,190	20	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	2,796	419	3,216	3,216	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	769	77	846	846	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	973	97	1,071	-	1,071	-	-	-	-	-	-	-	-	-
1a.4.9	Fixed Overhead	-	-	-	-	-	-	1,437	216	1,652	1,652	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	382	57	439	-	439	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	45	7	51	-	51	-	-	-	-	-	-	-	-	-
1a.4.12	Railroad Track Maintenance	-	-	-	-	-	-	50	7	57	57	-	-	-	-	-	-	-	-	-	-
1a.4.13	Security Staff Cost	-	-	-	-	-	-	365	55	420	420	-	-	-	-	-	-	-	-	-	12,264
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	20,432	3,065	23,497	23,497	-	-	-	-	-	-	-	-	-	423,400
1a.4	Subtotal Period 1a Period-Dependent Costs	-	859	13	4	-	45	29,522	4,413	34,855	33,294	1,561	-	-	610	-	-	-	12,190	20	435,664

Table F-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
1a.0	TOTAL PERIOD 1a COST	-	859	13	4	-	45	46,568	6,970	54,458	52,410	1,561	487	-	610	-	-	-	12,190	20	509,417
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	443	66	510	459	-	51	-	-	-	-	-	-	-	4,733
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.3	Reactor internals	-	-	-	-	-	-	234	35	269	269	-	-	-	-	-	-	-	-	-	2,500
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	126	19	145	36	-	109	-	-	-	-	-	-	-	1,350
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	94	14	108	108	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	340	51	391	391	-	-	-	-	-	-	-	-	-	3,630
1b.1.1.9	Facility closeout	-	-	-	-	-	-	112	17	129	65	-	65	-	-	-	-	-	-	-	1,200
1b.1.1.10	Missile shields	-	-	-	-	-	-	42	6	48	48	-	-	-	-	-	-	-	-	-	450
1b.1.1.11	Biological shield	-	-	-	-	-	-	112	17	129	129	-	-	-	-	-	-	-	-	-	1,200
1b.1.1.12	Steam generators	-	-	-	-	-	-	431	65	495	495	-	-	-	-	-	-	-	-	-	4,600
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	94	14	108	54	-	54	-	-	-	-	-	-	-	1,000
1b.1.1.14	Main Turbine	-	-	-	-	-	-	146	22	168	-	-	168	-	-	-	-	-	-	-	1,560
1b.1.1.15	Main Condensers	-	-	-	-	-	-	146	22	168	-	-	168	-	-	-	-	-	-	-	1,560
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	256	38	294	265	-	29	-	-	-	-	-	-	-	2,730
1b.1.1.17	Reactor building	-	-	-	-	-	-	256	38	294	265	-	29	-	-	-	-	-	-	-	2,730
1b.1.1	Total	-	-	-	-	-	-	3,113	467	3,580	2,907	-	673	-	-	-	-	-	-	-	33,243
1b.1.2	Decon primary loop	447	-	-	-	-	-	-	224	671	671	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	447	-	-	-	-	-	3,113	691	4,251	3,578	-	673	-	-	-	-	-	-	1,067	33,243
Period 1b Additional Costs																					
1b.2.1	Site Characterization	-	-	-	-	-	-	2,772	831	3,603	3,603	-	-	-	-	-	-	-	-	21,020	8,332
1b.2.2	Mixed/Hazardous Waste	-	-	274	69	142	-	-	59	544	544	-	-	6,133	-	-	-	-	351,986	2,361	-
1b.2.3	Asbestos Abatement	-	2,056	1	102	-	835	-	738	3,732	3,732	-	-	-	12,843	-	-	-	166,959	20,000	-
1b.2	Subtotal Period 1b Additional Costs	-	2,056	275	171	142	835	2,772	1,629	7,879	7,879	-	-	6,133	12,843	-	-	-	518,945	43,381	8,332
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	833	-	-	-	-	-	-	125	958	958	-	-	-	-	-	-	-	-	-	-
1b.3.2	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process decommissioning water waste	24	-	10	36	-	58	-	33	160	160	-	-	-	152	-	-	-	9,121	30	-
1b.3.4	Process decommissioning chemical flush waste	1	-	37	175	-	2,182	-	576	2,971	2,971	-	-	-	-	588	-	-	62,689	110	-
1b.3.5	Small tool allowance	-	26	-	-	-	-	-	4	30	30	-	-	-	-	-	-	-	-	-	-
1b.3.6	Pipe cutting equipment	-	1,100	-	-	-	-	-	165	1,265	1,265	-	-	-	-	-	-	-	-	-	-
1b.3.7	Decon rig	1,500	-	-	-	-	-	-	225	1,725	1,725	-	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	1,896	284	2,180	-	2,180	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	2,358	1,126	46	211	-	2,239	2,925	1,566	10,472	8,292	2,180	-	-	152	588	-	-	71,810	140	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	26	-	-	-	-	-	-	6	32	32	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	489	49	538	538	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	657	66	722	722	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	334	-	-	-	-	-	84	418	418	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	215	-	-	-	-	-	32	247	247	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	8	2	-	27	-	8	44	44	-	-	-	360	-	-	-	7,197	12	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	2,819	423	3,242	3,242	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	388	39	426	426	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	491	49	540	-	540	-	-	-	-	-	-	-	-	-
1b.4.10	Fixed Overhead	-	-	-	-	-	-	724	109	833	833	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	192	29	221	-	221	-	-	-	-	-	-	-	-	-
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	23	3	26	-	26	-	-	-	-	-	-	-	-	-
1b.4.13	Railroad Track Maintenance	-	-	-	-	-	-	25	4	29	29	-	-	-	-	-	-	-	-	-	-
1b.4.14	Security Staff Cost	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	6,182
1b.4.15	DOC Staff Cost	-	-	-	-	-	-	4,429	664	5,094	5,094	-	-	-	-	-	-	-	-	-	64,137
1b.4.16	Utility Staff Cost	-	-	-	-	-	-	10,353	1,553	11,906	11,906	-	-	-	-	-	-	-	-	-	214,491
1b.4	Subtotal Period 1b Period-Dependent Costs	26	549	8	2	-	27	20,774	3,145	24,530	23,743	787	-	-	360	-	-	-	7,197	12	284,811
1b.0	TOTAL PERIOD 1b COST	2,831	3,731	329	384	142	3,101	29,584	7,030	47,132	43,492	2,967	673	6,133	13,355	588	-	-	597,952	44,599	326,386

Table F-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 1 TOTALS		2,831	4,590	342	387	142	3,146	76,152	14,000	101,591	95,903	4,528	1,160	6,133	13,964	588	-	-	610,142	44,619	835,803
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	43	37	6	7	-	103	-	59	256	256	-	-	-	305	-	-	-	34,809	1,414	-
2a.1.1.2	Pressurizer Relief Tank	19	16	4	5	-	63	-	30	138	138	-	-	-	192	-	-	-	21,288	625	-
2a.1.1.3	Reactor Coolant Pumps & Motors	46	55	83	73	-	666	-	222	1,144	1,144	-	-	-	2,332	-	-	-	295,800	2,049	100
2a.1.1.4	Pressurizer	32	62	350	69	-	535	-	211	1,258	1,258	-	-	-	1,874	-	-	-	158,199	2,213	938
2a.1.1.5	Steam Generators	190	2,703	1,863	1,556	1,129	3,230	-	2,167	12,837	12,837	-	-	18,672	11,316	-	-	-	1,668,341	11,617	2,875
2a.1.1.6	CRDMs/ICIs/Service Structure Removal	241	98	213	44	-	403	-	274	1,274	1,274	-	-	-	4,797	-	-	-	135,744	5,671	-
2a.1.1.7	Reactor Vessel Internals	111	2,477	24,110	1,524	-	11,473	222	14,091	54,008	54,008	-	-	-	626	584	918	-	242,739	24,200	1,100
2a.1.1.8	Reactor Vessel	60	4,311	1,606	534	-	1,509	222	4,586	12,828	12,828	-	-	-	5,315	-	-	-	566,474	24,200	1,100
2a.1.1	Totals	742	9,759	28,235	3,811	1,129	17,982	443	21,640	83,742	83,742	-	-	18,672	26,757	584	918	-	3,123,395	71,988	6,113
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	262	184	50	329	282	-	211	1,319	1,319	-	-	2,131	1,187	-	-	-	271,373	4,667	-
2a.1.3	Main Condensers	-	2,222	108	44	330	300	-	698	3,702	3,702	-	-	3,800	1,190	-	-	-	272,178	39,151	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Reactor	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,415	-
2a.1.4	Totals	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,415	-
Disposal of Plant Systems																					
2a.1.5.1	Air Removal	-	24	-	-	-	-	-	4	28	-	-	28	-	-	-	-	-	-	452	-
2a.1.5.2	Auxiliary Feedwater	-	35	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	670	-
2a.1.5.3	Auxiliary Feedwater - RCA	-	37	0	1	17	-	-	12	67	67	-	-	215	-	-	-	-	8,722	601	-
2a.1.5.4	Bleed Steam	-	70	-	-	-	-	-	11	81	-	-	81	-	-	-	-	-	-	1,335	-
2a.1.5.5	Caustic Addition - RCA	-	30	0	1	18	-	-	11	61	61	-	-	233	-	-	-	-	9,453	444	-
2a.1.5.6	Chemical Feed	-	16	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	304	-
2a.1.5.7	Chemical Feed - RCA	-	1	0	0	0	-	-	0	2	2	-	-	6	-	-	-	-	243	12	-
2a.1.5.8	Circulating Water	-	33	-	-	-	-	-	5	38	-	-	38	-	-	-	-	-	-	619	-
2a.1.5.9	Condensate	-	371	-	-	-	-	-	56	426	-	-	426	-	-	-	-	-	-	6,837	-
2a.1.5.10	Condensate Polishing	-	183	-	-	-	-	-	28	211	-	-	211	-	-	-	-	-	-	3,420	-
2a.1.5.11	Condensate Polishing - RCA	-	146	3	11	163	-	-	63	386	386	-	-	2,078	-	-	-	-	84,395	2,329	-
2a.1.5.12	Electro-hydraulic	-	7	-	-	-	-	-	1	8	-	-	8	-	-	-	-	-	-	127	-
2a.1.5.13	Feedwater	-	119	-	-	-	-	-	18	137	-	-	137	-	-	-	-	-	-	2,215	-
2a.1.5.14	Feedwater - RCA	-	155	5	17	251	-	-	79	508	508	-	-	3,208	-	-	-	-	130,294	2,651	-
2a.1.5.15	Gland Seal	-	26	-	-	-	-	-	4	30	-	-	30	-	-	-	-	-	-	505	-
2a.1.5.16	Heater Drain	-	313	-	-	-	-	-	47	360	-	-	360	-	-	-	-	-	-	5,881	-
2a.1.5.17	Internal Circ Water & CDSR	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	389	-
2a.1.5.18	Main Gen/Exciter/Transformer	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2a.1.5.19	Main Steam	-	90	-	-	-	-	-	13	103	-	-	103	-	-	-	-	-	-	1,690	-
2a.1.5.20	Main Steam - RCA	-	291	8	27	395	-	-	137	858	858	-	-	5,044	-	-	-	-	204,825	4,956	-
2a.1.5.21	Steam Generator Blowdown	-	379	16	20	159	130	-	156	860	860	-	-	2,031	524	-	-	-	126,150	6,659	-
2a.1.5.22	Steam Generators	-	4	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	75	-
2a.1.5.23	Turbine & Moisture Separators	-	303	-	-	-	-	-	45	348	-	-	348	-	-	-	-	-	-	5,609	-
2a.1.5.24	Turbine Oil Purification	-	55	-	-	-	-	-	8	63	-	-	63	-	-	-	-	-	-	1,003	-
2a.1.5	Totals	-	2,710	32	78	1,004	130	-	708	4,663	2,742	-	1,921	12,815	524	-	-	-	564,082	48,787	-
2a.1.6	Scaffolding in support of decommissioning	-	831	3	1	12	2	-	210	1,059	1,059	-	-	138	9	-	-	-	6,987	6,368	-
2a.1	Subtotal Period 2a Activity Costs	742	16,729	28,563	3,984	2,804	18,697	443	23,610	95,571	93,651	-	1,921	37,556	29,667	584	918	-	4,238,014	182,376	6,113
Period 2a Collateral Costs																					
2a.3.1	Process decommissioning water waste	47	-	20	71	-	115	-	65	319	319	-	-	-	304	-	-	-	18,262	59	-
2a.3.2	Process decommissioning chemical flush waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.3.3	Small tool allowance	-	187	-	-	-	-	-	28	215	193	-	21	-	-	-	-	-	-	-	-
2a.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	17,377	2,607	19,984	-	19,984	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	47	187	20	71	-	115	17,377	2,700	20,518	512	19,984	21	-	304	-	-	-	18,262	59	-

Table F-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	69	-	-	-	-	-	-	17	86	86	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	553	55	609	609	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	1,711	171	1,882	1,693	-	188	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,320	-	-	-	-	-	330	1,650	1,650	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	2,519	-	-	-	-	-	378	2,897	2,897	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	71	20	-	246	-	71	408	408	-	-	-	3,327	-	-	-	66,530	108	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	3,610	541	4,151	4,151	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	975	97	1,072	1,072	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	949	95	1,044	-	1,044	-	-	-	-	-	-	-	-	-
2a.4.10	Fixed Overhead	-	-	-	-	-	-	1,574	236	1,811	1,811	-	-	-	-	-	-	-	-	-	-
2a.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	519	78	596	-	596	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	61	9	70	-	70	-	-	-	-	-	-	-	-	-
2a.4.13	Railroad Track Maintenance	-	-	-	-	-	-	68	10	78	78	-	-	-	-	-	-	-	-	-	-
2a.4.14	Security Staff Cost	-	-	-	-	-	-	465	70	534	534	-	-	-	-	-	-	-	-	-	15,589
2a.4.15	DOC Staff Cost	-	-	-	-	-	-	13,583	2,037	15,620	15,620	-	-	-	-	-	-	-	-	-	201,461
2a.4.16	Utility Staff Cost	-	-	-	-	-	-	18,849	2,827	21,676	21,676	-	-	-	-	-	-	-	-	-	374,041
2a.4	Subtotal Period 2a Period-Dependent Costs	69	3,839	71	20	-	246	42,915	7,024	54,183	52,286	1,710	188	-	3,327	-	-	-	66,530	108	591,090
2a.0	TOTAL PERIOD 2a COST	858	20,755	28,653	4,075	2,804	19,058	60,735	33,334	170,272	146,448	21,694	2,130	37,556	33,298	584	918	-	4,322,806	182,543	597,203
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	Aux Bldg Normal Ventilation	-	2	0	0	0	-	-	0	2	2	-	-	3	-	-	-	-	140	29	-
2b.1.1.2	Battery Rm Special Ventilation	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	6	-
2b.1.1.3	Buildings Maintenance	-	4	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	-	65	-
2b.1.1.4	Chemical & Volume Control	891	1,103	67	63	353	538	-	924	3,937	3,937	-	-	4,498	2,304	-	-	-	363,693	34,506	-
2b.1.1.5	Component Cooling - RCA	-	682	19	67	974	-	-	329	2,070	2,070	-	-	12,427	-	-	-	-	504,675	11,242	-
2b.1.1.6	Containment Cooling	-	58	-	-	-	-	-	9	67	-	-	67	-	-	-	-	-	-	1,086	-
2b.1.1.7	Containment Cooling - RCA	-	242	5	18	267	-	-	104	636	636	-	-	3,400	-	-	-	-	138,090	3,971	-
2b.1.1.8	Containment Hydrogen Control - RCA	-	24	0	1	8	-	-	7	40	40	-	-	105	-	-	-	-	4,278	401	-
2b.1.1.9	Containment Spray - RCA	-	74	1	5	68	-	-	30	178	178	-	-	868	-	-	-	-	35,249	1,217	-
2b.1.1.10	Containment Ventilation	-	203	19	37	388	140	-	151	937	937	-	-	4,951	553	-	-	-	248,044	3,662	-
2b.1.1.11	Cooling Water	-	126	-	-	-	-	-	19	145	-	-	145	-	-	-	-	-	-	2,396	-
2b.1.1.12	Cooling Water - RCA	-	524	12	42	606	-	-	229	1,412	1,412	-	-	7,728	-	-	-	-	313,832	8,594	-
2b.1.1.13	D1 Emergency Diesel	-	39	-	-	-	-	-	6	45	-	-	45	-	-	-	-	-	-	730	-
2b.1.1.14	D2 Emergency Diesel	-	28	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	-	522	-
2b.1.1.15	Diesel Rooms Ventilation	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	135	-
2b.1.1.16	Electrical - Clean	-	1,491	-	-	-	-	-	224	1,715	-	-	1,715	-	-	-	-	-	-	26,981	-
2b.1.1.17	Electrical - Contaminated	-	486	5	15	198	18	-	159	881	881	-	-	2,527	71	-	-	-	108,711	8,376	-
2b.1.1.18	Electrical - Decontaminated	-	3,021	35	127	1,846	-	-	1,055	6,083	6,083	-	-	23,551	-	-	-	-	956,401	49,378	-
2b.1.1.19	Fuel Handling	-	96	5	8	71	41	-	47	267	267	-	-	908	164	-	-	-	50,768	1,782	-
2b.1.1.20	Fuel Oil	-	95	-	-	-	-	-	14	109	-	-	109	-	-	-	-	-	-	1,697	-
2b.1.1.21	HVAC - Clean	-	95	-	-	-	-	-	14	109	-	-	109	-	-	-	-	-	-	1,891	-
2b.1.1.22	HVAC - Contaminated	-	298	7	19	256	23	-	122	725	725	-	-	3,261	92	-	-	-	140,285	5,031	-
2b.1.1.23	Incore Instrumentation	0	22	1	1	5	11	-	9	49	49	-	-	60	42	-	-	-	6,039	424	-
2b.1.1.24	Misc Drains & Vents	-	186	11	9	31	97	-	78	411	411	-	-	390	385	-	-	-	48,594	3,085	-
2b.1.1.25	Reactor Coolant	121	246	16	12	27	147	-	166	736	736	-	-	344	582	-	-	-	63,452	6,461	-
2b.1.1.26	Reactor Hot Sampling	118	109	8	5	5	65	-	105	415	415	-	-	66	256	-	-	-	24,422	3,941	-
2b.1.1.27	Reactor Makeup	-	57	-	-	-	-	-	9	66	-	-	66	-	-	-	-	-	-	1,042	-
2b.1.1.28	Reactor Vessel	7	16	0	0	2	3	-	9	38	38	-	-	26	11	-	-	-	1,971	425	-
2b.1.1.29	Residual Heat Removal	283	332	63	59	227	615	-	428	2,008	2,008	-	-	2,895	2,439	-	-	-	324,815	7,588	-
2b.1.1.30	Safeguards Chilled Water	-	14	-	-	-	-	-	2	16	-	-	16	-	-	-	-	-	-	259	-
2b.1.1.31	Safety Injection	-	709	32	52	532	219	-	323	1,866	1,866	-	-	6,788	899	-	-	-	349,249	12,550	-
2b.1.1.32	Sampling	-	48	3	2	5	20	-	18	95	95	-	-	59	80	-	-	-	9,214	809	-
2b.1.1.33	Shield Bldg Ventilation	-	111	11	18	169	93	-	80	481	481	-	-	2,152	368	-	-	-	118,685	2,026	-
2b.1.1.34	Station & Instrument Air	-	15	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	300	-
2b.1.1.35	Station & Instrument Air - RCA	-	65	0	2	26	-	-	21	114	114	-	-	332	-	-	-	-	13,496	1,053	-
2b.1.1.36	Turbine Bldg Traps & Drains	-	39	-	-	-	-	-	6	45	-	-	45	-	-	-	-	-	-	767	-
2b.1.1.37	Unit Coolers	-	32	-	-	-	-	-	5	37	-	-	37	-	-	-	-	-	-	611	-
2b.1.1.38	Unit Coolers - RCA	-	43	0	1	18	-	-	14	77	77	-	-	230	-	-	-	-	9,348	683	-
2b.1.1	Totals	1,421	10,743	319	562	6,080	2,029	-	4,722	25,876	23,459	-	2,417	77,571	8,248	-	-	-	3,833,452	205,722	-

Table F-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
2b.1.2	Scaffolding in support of decommissioning	-	1,038	4	1	15	3	-	263	1,324	1,324	-	-	173	11	-	-	-	8,734	7,960	-
Decontamination of Site Buildings																					
2b.1.3.1	Reactor	975	828	31	140	175	1,301	-	1,070	4,521	4,521	-	-	2,230	7,728	-	-	-	660,682	30,703	-
2b.1.3.2	Backwash Waste Receiving Tank	-	23	1	10	-	79	-	27	141	141	-	-	-	507	-	-	-	43,896	299	-
2b.1.3	Totals	975	852	32	150	175	1,380	-	1,098	4,662	4,662	-	-	2,230	8,235	-	-	-	704,578	31,001	-
2b.1	Subtotal Period 2b Activity Costs	2,397	12,633	355	714	6,270	3,412	-	6,082	31,862	29,445	-	2,417	79,974	16,494	-	-	-	4,546,764	244,683	-
Period 2b Collateral Costs																					
2b.3.1	Process decommissioning water waste	104	-	43	158	-	255	-	143	703	703	-	-	-	672	-	-	-	40,348	131	-
2b.3.2	Process decommissioning chemical flush waste	2	-	54	261	-	588	-	193	1,098	1,098	-	-	-	875	-	-	-	93,252	164	-
2b.3.3	Small tool allowance	-	221	-	-	-	-	-	33	254	254	-	-	-	-	-	-	-	-	-	-
2b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	9,442	1,416	10,858	-	10,858	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	105	221	98	419	-	843	9,442	1,785	12,913	2,055	10,858	-	-	1,548	-	-	-	133,600	295	-
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	353	-	-	-	-	-	-	88	441	441	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	499	50	548	548	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	1,463	146	1,610	1,610	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	1,472	-	-	-	-	-	368	1,840	1,840	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	2,252	-	-	-	-	-	338	2,590	2,590	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	71	20	-	245	-	71	407	407	-	-	-	3,322	-	-	-	66,436	108	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	2,568	385	2,954	2,954	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	878	88	966	966	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	855	85	940	-	940	-	-	-	-	-	-	-	-	-
2b.4.10	Fixed Overhead	-	-	-	-	-	-	1,419	213	1,632	1,632	-	-	-	-	-	-	-	-	-	-
2b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	467	70	537	-	537	-	-	-	-	-	-	-	-	-
2b.4.12	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	237	36	273	273	-	-	-	-	-	-	-	-	-	-
2b.4.13	ISFSI Operating Costs	-	-	-	-	-	-	55	8	63	-	63	-	-	-	-	-	-	-	-	-
2b.4.14	Railroad Track Maintenance	-	-	-	-	-	-	61	9	70	70	-	-	-	-	-	-	-	-	-	-
2b.4.15	Security Staff Cost	-	-	-	-	-	-	419	63	482	482	-	-	-	-	-	-	-	-	-	14,049
2b.4.16	DOC Staff Cost	-	-	-	-	-	-	8,816	1,322	10,139	10,139	-	-	-	-	-	-	-	-	-	137,931
2b.4.17	Utility Staff Cost	-	-	-	-	-	-	12,247	1,837	14,084	14,084	-	-	-	-	-	-	-	-	-	256,706
2b.4	Subtotal Period 2b Period-Dependent Costs	353	3,724	71	20	-	245	29,985	5,178	39,575	38,034	1,541	-	-	3,322	-	-	-	66,436	108	408,686
2b.0	TOTAL PERIOD 2b COST	2,855	16,577	523	1,152	6,270	4,501	39,426	13,046	84,350	69,534	12,399	2,417	79,974	21,363	-	-	-	4,746,800	245,087	408,686
PERIOD 2c - Spent fuel delay prior to SFP decon																					
Period 2c Direct Decommissioning Activities																					
Period 2c Collateral Costs																					
2c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	67,510	10,127	77,637	-	77,637	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	-	-	-	-	-	-	67,510	10,127	77,637	-	77,637	-	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																					
2c.4.1	Insurance	-	-	-	-	-	-	4,945	494	5,439	5,439	-	-	-	-	-	-	-	-	-	-
2c.4.2	Property taxes	-	-	-	-	-	-	10,250	1,025	11,275	11,275	-	-	-	-	-	-	-	-	-	-
2c.4.3	Health physics supplies	-	3,619	-	-	-	-	-	905	4,524	4,524	-	-	-	-	-	-	-	-	-	-
2c.4.4	Heavy equipment rental	-	1,117	-	-	-	-	-	167	1,284	1,284	-	-	-	-	-	-	-	-	-	-
2c.4.5	Disposal of DAW generated	-	-	97	27	-	336	-	98	557	557	-	-	-	4,543	-	-	-	90,854	148	-
2c.4.6	Plant energy budget	-	-	-	-	-	-	6,792	1,019	7,811	7,811	-	-	-	-	-	-	-	-	-	-
2c.4.7	NRC Fees	-	-	-	-	-	-	3,399	340	3,739	3,739	-	-	-	-	-	-	-	-	-	-
2c.4.8	Emergency Planning Fees	-	-	-	-	-	-	8,479	848	9,327	-	9,327	-	-	-	-	-	-	-	-	-
2c.4.9	Fixed Overhead	-	-	-	-	-	-	14,071	2,111	16,181	16,181	-	-	-	-	-	-	-	-	-	-
2c.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	4,634	695	5,329	-	5,329	-	-	-	-	-	-	-	-	-
2c.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	471	71	541	541	-	-	-	-	-	-	-	-	-	-
2c.4.12	ISFSI Operating Costs	-	-	-	-	-	-	543	81	625	-	625	-	-	-	-	-	-	-	-	-
2c.4.13	Railroad Track Maintenance	-	-	-	-	-	-	607	91	698	698	-	-	-	-	-	-	-	-	-	-
2c.4.14	Utility Staff Cost	-	-	-	-	-	-	8,498	1,275	9,773	9,773	-	-	-	-	-	-	-	-	-	189,986
2c.4	Subtotal Period 2c Period-Dependent Costs	-	4,736	97	27	-	336	62,689	9,220	77,104	61,823	15,281	-	-	4,543	-	-	-	90,854	148	189,986
2c.0	TOTAL PERIOD 2c COST	-	4,736	97	27	-	336	130,200	19,346	154,741	61,823	92,918	-	-	4,543	-	-	-	90,854	148	189,986

Table F-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 2d - Decontamination Following Wet Fuel Storage																					
Period 2d Direct Decommissioning Activities																					
2d.1.1	Remove spent fuel racks	279	28	92	28	-	396	-	259	1,082	1,082	-	-	-	1,569	-	-	-	133,386	576	-
Disposal of Plant Systems																					
2d.1.2.1	Electrical - Contaminated - Fuel Pool	-	121	1	4	48	4	-	39	217	217	-	-	615	17	-	-	-	26,454	2,077	-
2d.1.2.2	Electrical - Decontaminated - Fuel Pool	-	755	9	32	462	-	-	264	1,521	1,521	-	-	5,893	-	-	-	-	239,327	12,340	-
2d.1.2.3	HVAC - Contaminated - Fuel Pool	-	128	3	8	110	10	-	52	311	311	-	-	1,398	40	-	-	-	60,122	2,156	-
2d.1.2.4	Safeguards Chilled Water - RCA	-	68	1	3	39	-	-	23	134	134	-	-	495	-	-	-	-	20,100	1,019	-
2d.1.2.5	Spent Fuel Pool Cooling	240	284	25	22	63	251	-	269	1,155	1,155	-	-	806	994	-	-	-	117,167	7,600	-
2d.1.2.6	Station & Instrument Air - RCA Fuel Pool	-	16	0	0	7	-	-	5	29	29	-	-	83	-	-	-	-	3,374	263	-
2d.1.2	Totals	240	1,372	39	69	728	265	-	653	3,367	3,367	-	-	9,290	1,050	-	-	-	466,544	25,454	-
2d.1.4	Scaffolding in support of decommissioning	-	208	1	0	3	1	-	53	265	265	-	-	35	2	-	-	-	1,747	1,592	-
2d.1	Subtotal Period 2d Activity Costs	519	1,608	132	97	731	662	-	964	4,713	4,713	-	-	9,325	2,622	-	-	-	601,676	27,623	-
Period 2d Additional Costs																					
2d.2.1	License Termination Survey Planning	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
Period 2d Collateral Costs																					
2d.3.1	Process decommissioning water waste	10	-	5	20	-	32	-	16	83	83	-	-	-	83	-	-	-	4,994	16	-
2d.3.2	Process decommissioning chemical flush waste	1	-	20	97	-	218	-	71	407	407	-	-	-	324	-	-	-	34,576	61	-
2d.3.3	Small tool allowance	-	29	-	-	-	-	-	4	33	33	-	-	-	-	-	-	-	-	-	-
2d.3.4	Decommissioning Equipment Disposition	-	-	136	51	521	100	-	124	933	933	-	-	6,000	397	-	-	-	303,726	88	-
2d.3.5	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,935	440	3,376	-	3,376	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	11	29	162	167	521	350	2,935	657	4,832	1,457	3,376	-	6,000	804	-	-	-	343,296	165	-
Period 2d Period-Dependent Costs																					
2d.4.1	Decon supplies	40	-	-	-	-	-	-	10	50	50	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	318	32	350	350	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	392	39	431	431	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	405	-	-	-	-	-	101	507	507	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,436	-	-	-	-	-	215	1,651	1,651	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	18	5	-	61	-	18	102	102	-	-	-	830	-	-	-	16,609	27	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	873	131	1,004	1,004	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	560	56	616	616	-	-	-	-	-	-	-	-	-	-
2d.4.9	Emergency Planning Fees	-	-	-	-	-	-	545	55	600	-	600	-	-	-	-	-	-	-	-	-
2d.4.10	Fixed Overhead	-	-	-	-	-	-	905	136	1,040	1,040	-	-	-	-	-	-	-	-	-	-
2d.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	303	45	348	348	-	-	-	-	-	-	-	-	-	-
2d.4.12	ISFSI Operating Costs	-	-	-	-	-	-	35	5	40	-	40	-	-	-	-	-	-	-	-	-
2d.4.13	Railroad Track Maintenance	-	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-	-	-	-
2d.4.14	Security Staff Cost	-	-	-	-	-	-	146	22	167	167	-	-	-	-	-	-	-	-	-	4,886
2d.4.15	DOC Staff Cost	-	-	-	-	-	-	4,717	708	5,424	5,424	-	-	-	-	-	-	-	-	-	70,436
2d.4.16	Utility Staff Cost	-	-	-	-	-	-	6,477	972	7,449	7,449	-	-	-	-	-	-	-	-	-	127,029
2d.4	Subtotal Period 2d Period-Dependent Costs	40	1,841	18	5	-	61	15,310	2,550	19,824	19,185	640	-	-	830	-	-	-	16,609	27	202,350
2d.0	TOTAL PERIOD 2d COST	570	3,478	311	269	1,252	1,073	18,771	4,330	30,054	26,039	4,015	-	15,325	4,257	-	-	-	961,582	27,815	208,590

Table F-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 2f - License Termination																					
Period 2f Direct Decommissioning Activities																					
2f.1.1	ORISE confirmatory survey	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
2f.1.2	Terminate license									a											
2f.1	Subtotal Period 2f Activity Costs	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
Period 2f Additional Costs																					
2f.2.1	License Termination Survey	-	-	-	-	-	-	2,363	709	3,071	3,071	-	-	-	-	-	-	-	-	40,172	3,120
2f.2	Subtotal Period 2f Additional Costs	-	-	-	-	-	-	2,363	709	3,071	3,071	-	-	-	-	-	-	-	-	40,172	3,120
Period 2f Collateral Costs																					
2f.3.1	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
2f.3	Subtotal Period 2f Collateral Costs	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
Period 2f Period-Dependent Costs																					
2f.4.1	Insurance	-	-	-	-	-	-	287	29	316	316	-	-	-	-	-	-	-	-	-	-
2f.4.2	Property taxes	-	-	-	-	-	-	348	35	383	383	-	-	-	-	-	-	-	-	-	-
2f.4.3	Health physics supplies	-	352	-	-	-	-	-	88	441	441	-	-	-	-	-	-	-	-	-	-
2f.4.4	Disposal of DAW generated	-	-	7	2	-	25	-	7	41	41	-	-	-	334	-	-	-	6,685	11	-
2f.4.5	Plant energy budget	-	-	-	-	-	-	418	63	481	481	-	-	-	-	-	-	-	-	-	-
2f.4.6	NRC Fees	-	-	-	-	-	-	575	58	633	633	-	-	-	-	-	-	-	-	-	-
2f.4.7	Emergency Planning Fees	-	-	-	-	-	-	44	4	49	-	49	-	-	-	-	-	-	-	-	-
2f.4.8	Fixed Overhead	-	-	-	-	-	-	867	130	997	997	-	-	-	-	-	-	-	-	-	-
2f.4.9	ISFSI Operating Costs	-	-	-	-	-	-	33	5	38	-	38	-	-	-	-	-	-	-	-	-
2f.4.10	Railroad Track Maintenance	-	-	-	-	-	-	37	6	43	43	-	-	-	-	-	-	-	-	-	-
2f.4.11	Security Staff Cost	-	-	-	-	-	-	139	21	160	160	-	-	-	-	-	-	-	-	-	4,680
2f.4.12	DOC Staff Cost	-	-	-	-	-	-	3,198	480	3,677	3,677	-	-	-	-	-	-	-	-	-	46,410
2f.4.13	Utility Staff Cost	-	-	-	-	-	-	3,175	476	3,652	3,652	-	-	-	-	-	-	-	-	-	59,670
2f.4	Subtotal Period 2f Period-Dependent Costs	-	352	7	2	-	25	9,123	1,401	10,910	10,823	87	-	-	334	-	-	-	6,685	11	110,760
2f.0	TOTAL PERIOD 2f COST	-	352	7	2	-	25	12,668	2,310	15,365	15,278	87	-	-	334	-	-	-	6,685	40,183	113,880
PERIOD 2 TOTALS		4,283	45,898	29,591	5,526	10,326	24,992	261,801	72,366	454,782	319,122	131,113	4,547	132,854	63,795	584	918	-	10,128,730	495,776	1,518,345
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Reactor	-	5,471	-	-	-	-	-	821	6,292	-	-	6,292	-	-	-	-	-	-	66,349	-
3b.1.1.2	Condensate Storage Tank Foundation	-	7	-	-	-	-	-	1	8	-	-	8	-	-	-	-	-	-	95	-
3b.1.1.3	Turbine	-	2,505	-	-	-	-	-	376	2,881	-	-	2,881	-	-	-	-	-	-	34,340	-
3b.1.1.4	Turbine Pedestal	-	754	-	-	-	-	-	113	867	-	-	867	-	-	-	-	-	-	7,580	-
3b.1.1	Totals	-	8,737	-	-	-	-	-	1,311	10,048	-	-	10,048	-	-	-	-	-	-	108,365	-
Site Closeout Activities																					
3b.1.2	Grade & landscape site	-	490	-	-	-	-	-	74	564	-	-	564	-	-	-	-	-	-	921	-
3b.1.3	Final report to NRC	-	-	-	-	-	-	146	22	168	168	-	-	-	-	-	-	-	-	-	1,560
3b.1	Subtotal Period 3b Activity Costs	-	9,228	-	-	-	-	146	1,406	10,780	168	-	10,612	-	-	-	-	-	-	109,285	1,560
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	239	-	-	-	-	2	36	278	-	-	278	-	-	-	-	-	-	1,126	-
3b.2	Subtotal Period 3b Additional Costs	-	239	-	-	-	-	2	36	278	-	-	278	-	-	-	-	-	-	1,126	-

Table F-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	108	-	-	-	-	-	16	124	-	-	124	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	108	-	-	-	-	-	16	124	-	-	124	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	407	41	447	-	447	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	839	84	923	-	923	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	5,588	-	-	-	-	-	838	6,426	-	-	6,426	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	593	89	682	-	-	682	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	228	23	251	-	251	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	126	13	138	-	138	-	-	-	-	-	-	-	-	-
3b.4.7	Fixed Overhead	-	-	-	-	-	-	1,065	160	1,225	1,225	-	-	-	-	-	-	-	-	-	-
3b.4.8	ISFSI Operating Costs	-	-	-	-	-	-	95	14	109	-	109	-	-	-	-	-	-	-	-	-
3b.4.9	Railroad Track Maintenance	-	-	-	-	-	-	106	16	122	122	-	-	-	-	-	-	-	-	-	-
3b.4.10	Security Staff Cost	-	-	-	-	-	-	2,554	383	2,937	(0)	1,997	940	-	-	-	-	-	-	-	74,658
3b.4.11	DOC Staff Cost	-	-	-	-	-	-	8,197	1,229	9,426	-	-	9,426	-	-	-	-	-	-	-	117,206
3b.4.12	Utility Staff Cost	-	-	-	-	-	-	4,194	629	4,823	-	4,147	675	-	-	-	-	-	-	-	74,658
3b.4	Subtotal Period 3b Period-Dependent Costs	-	5,588	-	-	-	-	18,402	3,519	27,509	1,347	8,013	18,149	-	-	-	-	-	-	-	266,521
3b.0	TOTAL PERIOD 3b COST	-	15,163	-	-	-	-	18,551	4,977	38,690	1,515	8,013	29,163	-	-	-	-	-	-	110,411	268,081
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Additional Costs																					
3c.2.1	ISFSI Disposition of Original Casks	-	-	-	1,810	-	16,677	-	4,441	22,927	-	22,927	-	-	58,431	-	-	-	9,261,000	-	-
3c.2	Subtotal Period 3c Additional Costs	-	-	-	1,810	-	16,677	-	4,441	22,927	-	22,927	-	-	58,431	-	-	-	9,261,000	-	-
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	294,962	44,244	339,206	-	339,206	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	294,962	44,244	339,206	-	339,206	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	26,398	2,640	29,038	-	29,038	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	49,444	4,944	54,388	-	54,388	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	14,807	1,481	16,288	-	16,288	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	8,153	815	8,968	-	8,968	-	-	-	-	-	-	-	-	-
3c.4.6	Fixed Overhead	-	-	-	-	-	-	69,114	10,367	79,481	-	79,481	-	-	-	-	-	-	-	-	-
3c.4.7	ISFSI Operating Costs	-	-	-	-	-	-	6,155	923	7,079	-	7,079	-	-	-	-	-	-	-	-	-
3c.4.8	Security Staff Cost	-	-	-	-	-	-	136,859	20,529	157,388	-	157,388	-	-	-	-	-	-	-	-	3,874,963
3c.4.9	Utility Staff Cost	-	-	-	-	-	-	48,624	7,294	55,917	-	55,917	-	-	-	-	-	-	-	-	970,176
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	359,554	48,993	408,547	-	408,547	-	-	-	-	-	-	-	-	4,845,139
3c.0	TOTAL PERIOD 3c COST	-	-	-	1,810	-	16,677	654,515	97,678	770,679	-	770,679	-	-	58,431	-	-	-	9,261,000	-	4,845,139

Table F-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
3d.1.1	Totals	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	1,096	-	-	9,588	-	1,548	12,232	12,232	-	-	-	-	-	-	3,724	857,261	-	-
Period 3d Additional Costs																					
3d.2.1	ISFSI Railroad Track Refurbishment	-	-	-	-	-	-	250	38	288	-	288	-	-	-	-	-	-	-	-	-
3d.2	Subtotal Period 3d Additional Costs	-	-	-	-	-	-	250	38	288	-	288	-	-	-	-	-	-	-	-	-
Period 3d Collateral Costs																					
3d.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	14,426	2,164	16,590	-	16,590	-	-	-	-	-	-	-	-	-
3d.3	Subtotal Period 3d Collateral Costs	-	-	-	-	-	-	14,426	2,164	16,590	-	16,590	-	-	-	-	-	-	-	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	5,182	518	5,700	-	5,700	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	9,706	971	10,677	-	10,677	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	3,746	375	4,121	-	4,121	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	1,601	160	1,761	-	1,761	-	-	-	-	-	-	-	-	-
3d.4.6	Fixed Overhead	-	-	-	-	-	-	13,568	2,035	15,603	-	15,603	-	-	-	-	-	-	-	-	-
3d.4.7	ISFSI Operating Costs	-	-	-	-	-	-	1,208	181	1,390	-	1,390	-	-	-	-	-	-	-	-	-
3d.4.8	Railroad Track Maintenance	-	-	-	-	-	-	1,350	202	1,552	-	1,552	-	-	-	-	-	-	-	-	-
3d.4.9	Security Staff Cost	-	-	-	-	-	-	26,867	4,030	30,897	-	30,897	-	-	-	-	-	-	-	-	760,706
3d.4.10	Utility Staff Cost	-	-	-	-	-	-	9,545	1,432	10,977	-	10,977	-	-	-	-	-	-	-	-	190,458
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	72,774	9,904	82,678	-	82,678	-	-	-	-	-	-	-	-	951,164
3d.0	TOTAL PERIOD 3d COST	-	-	1,096	-	-	9,588	87,450	13,654	111,788	12,232	99,556	-	-	-	-	-	3,724	857,261	-	951,164
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI License Termination (TN-40)	11	7	1	0	-	2	665	108	793	-	793	-	-	24	-	-	-	487	2,191	1,280
3e.2	Subtotal Period 3e Additional Costs	11	7	1	0	-	2	665	108	793	-	793	-	-	24	-	-	-	487	2,191	1,280
Period 3e Collateral Costs																					
3e.3.1	Small tool allowance	-	0	-	-	-	-	-	0	0	-	0	-	-	-	-	-	-	-	-	-
3e.3	Subtotal Period 3e Collateral Costs	-	0	-	-	-	-	-	0	0	-	0	-	-	-	-	-	-	-	-	-
Period 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	64	6	70	-	70	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	119	12	131	-	131	-	-	-	-	-	-	-	-	-
3e.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3e.4.4	NRC ISFSI Fees	-	-	-	-	-	-	36	4	39	-	39	-	-	-	-	-	-	-	-	-
3e.4.5	Railroad Track Maintenance	-	-	-	-	-	-	17	2	19	-	19	-	-	-	-	-	-	-	-	-
3e.4.6	Security Staff Cost	-	-	-	-	-	-	89	13	103	-	103	-	-	-	-	-	-	-	-	2,510
3e.4.7	Utility Staff Cost	-	-	-	-	-	-	98	15	113	-	113	-	-	-	-	-	-	-	-	1,901
3e.4	Subtotal Period 3e Period-Dependent Costs	-	-	-	-	-	-	422	52	475	-	475	-	-	-	-	-	-	-	-	4,411
3e.0	TOTAL PERIOD 3e COST	11	7	1	0	-	2	1,087	160	1,268	-	1,268	-	-	24	-	-	-	487	2,191	5,691

Table F-1
Prairie Island DECON Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Site Restoration (TN-40)	-	351	-	-	-	-	22	56	429	-	429	-	-	-	-	-	-	2,986	80	
3f.2	Subtotal Period 3f Additional Costs	-	351	-	-	-	-	22	56	429	-	429	-	-	-	-	-	-	2,986	80	
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	3	-	-	-	-	-	0	3	-	3	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	3	-	-	-	-	-	0	3	-	3	-	-	-	-	-	-	-	-	-
Period 3f Period-Dependent Costs																					
3f.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.2	Property taxes	-	-	-	-	-	-	60	6	66	-	66	-	-	-	-	-	-	-	-	-
3f.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.4	Railroad Track Maintenance	-	-	-	-	-	-	8	1	10	-	10	-	-	-	-	-	-	-	-	-
3f.4.5	Security Staff Cost	-	-	-	-	-	-	45	7	52	-	52	-	-	-	-	-	-	-	-	1,265
3f.4.6	Utility Staff Cost	-	-	-	-	-	-	39	6	44	-	44	-	-	-	-	-	-	-	-	784
3f.4	Subtotal Period 3f Period-Dependent Costs	-	-	-	-	-	-	152	20	172	-	172	-	-	-	-	-	-	-	-	2,050
3f.0	TOTAL PERIOD 3f COST	-	354	-	-	-	-	174	76	604	-	604	-	-	-	-	-	-	-	2,986	2,130
PERIOD 3 TOTALS		11	15,523	1,097	1,810	-	26,267	761,777	116,545	923,030	13,747	880,121	29,163	-	58,455	-	-	3,724	10,118,750	115,588	6,072,205
TOTAL COST TO DECOMMISSION		**7,125**	**66,011**	**31,030**	**7,723**	**10,468**	**54,405**	**1,099,730**	**202,911**	**1,479,403**	**428,772**	**1,015,761**	**34,870**	**138,987**	**136,215**	**1,173**	**918**	**3,724**	**20,857,620**	**655,982**	**8,426,352**

TOTAL COST TO DECOMMISSION WITH 15.9% CONTINGENCY:	**$1,479,403**	**thousands of 2011 dollars**
TOTAL NRC LICENSE TERMINATION COST IS 28.98% OR:	**$428,772**	**thousands of 2011 dollars**
SPENT FUEL MANAGEMENT COST IS 68.66% OR:	**$1,015,761**	**thousands of 2011 dollars**
NON-NUCLEAR DEMOLITION COST IS 2.36% OR:	**$34,870**	**thousands of 2011 dollars**
TOTAL LOW-LEVEL RADWASTE VOLUME BURIED (EXCLUDING GTCC):	**138,306**	**Cubic Feet**
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	**3,724**	**Cubic Feet**
TOTAL SCRAP METAL REMOVED:	**28,060**	**Tons**
TOTAL CRAFT LABOR REQUIREMENTS:	**655,982**	**Man-hours**

End Notes:
n/a - indicates that this activity not charged as decommissioning expense.
a - indicates that this activity performed by decommissioning staff.
0 - indicates that this value is less than 0.5 but is non-zero.
a cell containing " - " indicates a zero value

Table F-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	52	8	60	60	-	-	-	-	-	-	-	-	-	556
1a.1.2	Notification of Cessation of Operations									a											
1a.1.3	Remove fuel & source material									n/a											
1a.1.4	Notification of Permanent Defueling									a											
1a.1.5	Deactivate plant systems & process waste									a											
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	80	12	92	92	-	-	-	-	-	-	-	-	-	856
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1a.1.10	End product description	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	52	8	60	60	-	-	-	-	-	-	-	-	-	556
1a.1.12	Define major work sequence	-	-	-	-	-	-	301	45	346	346	-	-	-	-	-	-	-	-	-	3,210
1a.1.13	Perform SER and EA	-	-	-	-	-	-	124	19	143	143	-	-	-	-	-	-	-	-	-	1,327
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	200	30	230	230	-	-	-	-	-	-	-	-	-	2,140
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	164	25	189	189	-	-	-	-	-	-	-	-	-	1,753
1a.1.16	Receive NRC approval of termination plan									a											
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	197	30	227	204	-	23	-	-	-	-	-	-	-	2,106
1a.1.17.2	Plant systems	-	-	-	-	-	-	167	25	192	173	-	19	-	-	-	-	-	-	-	1,783
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	20	3	23	23	-	-	-	-	-	-	-	-	-	214
1a.1.17.4	Reactor internals	-	-	-	-	-	-	285	43	327	327	-	-	-	-	-	-	-	-	-	3,039
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	261	39	300	300	-	-	-	-	-	-	-	-	-	2,782
1a.1.17.6	Biological shield	-	-	-	-	-	-	20	3	23	23	-	-	-	-	-	-	-	-	-	214
1a.1.17.7	Steam generators	-	-	-	-	-	-	125	19	144	144	-	-	-	-	-	-	-	-	-	1,335
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	64	10	74	37	-	37	-	-	-	-	-	-	-	685
1a.1.17.9	Main Turbine	-	-	-	-	-	-	16	2	18	-	-	18	-	-	-	-	-	-	-	171
1a.1.17.10	Main Condensers	-	-	-	-	-	-	16	2	18	-	-	18	-	-	-	-	-	-	-	171
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	125	19	144	72	-	72	-	-	-	-	-	-	-	1,335
1a.1.17.12	Waste management	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	36	5	41	21	-	21	-	-	-	-	-	-	-	385
1a.1.17	Total	-	-	-	-	-	-	1,516	227	1,743	1,535	-	208	-	-	-	-	-	-	-	16,190
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	96	14	111	111	-	-	-	-	-	-	-	-	-	1,027
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	2,800	420	3,220	3,220	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	56	8	65	65	-	-	-	-	-	-	-	-	-	599
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,200	330	2,530	2,530	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	49	7	57	57	-	-	-	-	-	-	-	-	-	526
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	7,956	1,193	9,149	8,941	-	208	-	-	-	-	-	-	-	31,566
Period 1a Additional Costs																					
1a.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
1a.2	Subtotal Period 1a Additional Costs	-	-	-	-	-	-	5,140	771	5,911	5,911	-	-	-	-	-	-	-	-	-	-
Period 1a Collateral Costs																					
1a.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	14,629	2,194	16,824	-	16,824	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	-	-	-	-	-	14,629	2,194	16,824	-	16,824	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	970	97	1,067	1,067	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	1,303	130	1,433	1,433	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	407	-	-	-	-	-	102	509	509	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	426	-	-	-	-	-	64	490	490	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	12	3	-	42	-	12	69	69	-	-	-	565	-	-	-	11,299	18	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	2,796	419	3,216	3,216	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	514	51	565	565	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	973	97	1,071	-	1,071	-	-	-	-	-	-	-	-	-
1a.4.9	Fixed Overhead	-	-	-	-	-	-	1,437	216	1,652	1,652	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	382	57	439	-	439	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	45	7	51	-	51	-	-	-	-	-	-	-	-	-
1a.4.12	Railroad Track Maintenance	-	-	-	-	-	-	50	7	57	57	-	-	-	-	-	-	-	-	-	-

Table F-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1a Period-Dependent Costs (continued)																					
1a.4.13	Security Staff Cost	-	-	-	-	-	-	5,004	751	5,754	5,754	-	-	-	-	-	-	-	-	-	157,471
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	16,333	2,450	18,783	18,783	-	-	-	-	-	-	-	-	-	346,229
1a.4	Subtotal Period 1a Period-Dependent Costs	-	833	12	3	-	42	29,806	4,461	35,157	33,596	1,561	-	-	565	-	-	-	11,299	18	503,700
1a.0	TOTAL PERIOD 1a COST	-	833	12	3	-	42	57,531	8,620	67,041	48,448	18,385	208	-	565	-	-	-	11,299	18	535,266
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	190	28	218	196	-	22	-	-	-	-	-	-	-	2,026
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.3	Reactor internals	-	-	-	-	-	-	100	15	115	115	-	-	-	-	-	-	-	-	-	1,070
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	54	8	62	16	-	47	-	-	-	-	-	-	-	578
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	40	6	46	46	-	-	-	-	-	-	-	-	-	428
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	145	22	167	167	-	-	-	-	-	-	-	-	-	1,554
1b.1.1.9	Facility closeout	-	-	-	-	-	-	48	7	55	28	-	28	-	-	-	-	-	-	-	514
1b.1.1.10	Missile shields	-	-	-	-	-	-	18	3	21	21	-	-	-	-	-	-	-	-	-	193
1b.1.1.11	Biological shield	-	-	-	-	-	-	48	7	55	55	-	-	-	-	-	-	-	-	-	514
1b.1.1.12	Steam generators	-	-	-	-	-	-	184	28	212	212	-	-	-	-	-	-	-	-	-	1,969
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	40	6	46	23	-	23	-	-	-	-	-	-	-	428
1b.1.1.14	Main Turbine	-	-	-	-	-	-	63	9	72	-	-	72	-	-	-	-	-	-	-	668
1b.1.1.15	Main Condensers	-	-	-	-	-	-	63	9	72	-	-	72	-	-	-	-	-	-	-	668
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	109	16	126	113	-	13	-	-	-	-	-	-	-	1,168
1b.1.1.17	Reactor building	-	-	-	-	-	-	109	16	126	113	-	13	-	-	-	-	-	-	-	1,168
1b.1.1	Total	-	-	-	-	-	-	1,332	200	1,532	1,244	-	288	-	-	-	-	-	-	-	14,228
1b.1.2	Decon primary loop	447	-	-	-	-	-	-	224	671	671	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	447	-	-	-	-	-	1,332	424	2,203	1,915	-	288	-	-	-	-	-	-	1,067	14,228
Period 1b Additional Costs																					
1b.2.1	Site Characterization	-	-	-	-	-	-	1,185	356	1,541	1,541	-	-	-	-	-	-	-	-	8,988	3,563
1b.2.2	Mixed/Hazardous Waste	-	-	281	69	146	-	-	60	557	557	-	-	6,324	-	-	-	-	362,914	2,410	-
1b.2.3	Asbestos Abatement	-	2,056	1	102	-	835	-	738	3,732	3,732	-	-	-	12,843	-	-	-	166,959	20,000	-
1b.2	Subtotal Period 1b Additional Costs	-	2,056	283	171	146	835	1,185	1,154	5,830	5,830	-	-	6,324	12,843	-	-	-	529,873	31,398	3,563
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	833	-	-	-	-	-	-	125	958	958	-	-	-	-	-	-	-	-	-	-
1b.3.2	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process decommissioning water waste	24	-	10	36	-	58	-	33	160	160	-	-	-	152	-	-	-	9,121	30	-
1b.3.4	Process decommissioning chemical flush waste	1	-	37	175	-	2,182	-	576	2,971	2,971	-	-	-	-	588	-	-	62,689	110	-
1b.3.5	Small tool allowance	-	26	-	-	-	-	-	4	30	30	-	-	-	-	-	-	-	-	-	-
1b.3.6	Pipe cutting equipment	-	1,100	-	-	-	-	-	165	1,265	1,265	-	-	-	-	-	-	-	-	-	-
1b.3.7	Decon rig	1,500	-	-	-	-	-	-	225	1,725	1,725	-	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	4,193	629	4,821	-	4,821	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	2,358	1,126	46	211	-	2,239	5,222	1,911	13,113	8,292	4,821	-	-	152	588	-	-	71,810	140	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	26	-	-	-	-	-	-	6	32	32	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	489	49	538	538	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	657	66	722	722	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	316	-	-	-	-	-	79	395	395	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	215	-	-	-	-	-	32	247	247	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	7	2	-	24	-	7	40	40	-	-	-	327	-	-	-	6,541	11	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	2,819	423	3,242	3,242	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	259	26	285	285	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	491	49	540	-	540	-	-	-	-	-	-	-	-	-
1b.4.10	Fixed Overhead	-	-	-	-	-	-	724	109	833	833	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	192	29	221	-	221	-	-	-	-	-	-	-	-	-
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	23	3	26	-	26	-	-	-	-	-	-	-	-	-
1b.4.13	Railroad Track Maintenance	-	-	-	-	-	-	25	4	29	29	-	-	-	-	-	-	-	-	-	-
1b.4.14	Security Staff Cost	-	-	-	-	-	-	2,522	378	2,901	2,901	-	-	-	-	-	-	-	-	-	79,383

Table F-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1b Period-Dependent Costs (continued)																					
1b.4.15	DOC Staff Cost	-	-	-	-	-	-	3,092	464	3,556	3,556	-	-	-	-	-	-	-	-	-	47,314
1b.4.16	Utility Staff Cost	-	-	-	-	-	-	8,234	1,235	9,469	9,469	-	-	-	-	-	-	-	-	-	174,537
1b.4	Subtotal Period 1b Period-Dependent Costs	26	531	7	2	-	24	19,527	2,959	23,075	22,288	787	-	-	327	-	-	-	6,541	11	301,234
1b.0	TOTAL PERIOD 1b COST	2,831	3,712	336	384	146	3,098	27,267	6,447	44,222	38,325	5,608	288	6,324	13,322	588	-	-	608,224	32,615	319,025
PERIOD 1 TOTALS		2,831	4,546	348	387	146	3,140	84,798	15,067	111,263	86,773	23,993	496	6,324	13,887	588	-	-	619,523	32,633	854,291
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	43	37	6	7	-	103	-	59	256	256	-	-	-	305	-	-	-	34,809	1,414	-
2a.1.1.2	Pressurizer Relief Tank	19	16	4	5	-	63	-	30	138	138	-	-	-	192	-	-	-	21,288	625	-
2a.1.1.3	Reactor Coolant Pumps & Motors	46	55	83	73	-	666	-	222	1,144	1,144	-	-	-	2,332	-	-	-	295,800	2,049	100
2a.1.1.4	Pressurizer	32	62	350	69	-	535	-	211	1,258	1,258	-	-	-	1,874	-	-	-	158,199	2,213	938
2a.1.1.5	Steam Generators	190	2,703	1,863	1,556	1,129	3,230	-	2,167	12,837	12,837	-	-	18,672	11,316	-	-	-	1,668,341	11,617	2,875
2a.1.1.6	CRDMs/ICIs/Service Structure Removal	241	98	213	44	-	403	-	274	1,274	1,274	-	-	-	4,797	-	-	-	135,744	5,671	-
2a.1.1.7	Reactor Vessel Internals	103	2,373	18,389	1,435	-	10,984	208	12,310	45,802	45,802	-	-	-	501	527	918	-	225,717	22,533	1,033
2a.1.1.8	Reactor Vessel	60	4,206	1,491	534	-	1,509	208	4,477	12,485	12,485	-	-	-	5,315	-	-	-	566,474	22,533	1,033
2a.1.1	Totals	733	9,550	22,399	3,723	1,129	17,493	416	19,749	75,193	75,193	-	-	18,672	26,632	527	918	-	3,106,373	68,655	5,980
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	262	184	50	329	282	-	211	1,319	1,319	-	-	2,131	1,187	-	-	-	271,373	4,667	-
2a.1.3	Main Condensers	-	2,222	108	44	330	300	-	698	3,702	3,702	-	-	3,800	1,190	-	-	-	272,178	39,151	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Reactor	-	945	-	-	-	-	-	142	1,087	1,087	-	-	-	-	-	-	-	-	11,414	-
2a.1.4.2	Auxiliary	-	398	-	-	-	-	-	60	457	457	-	-	-	-	-	-	-	-	4,945	-
2a.1.4.3	Radwaste	-	14	-	-	-	-	-	2	16	16	-	-	-	-	-	-	-	-	179	-
2a.1.4	Totals	-	1,357	-	-	-	-	-	204	1,560	1,560	-	-	-	-	-	-	-	-	16,538	-
Disposal of Plant Systems																					
2a.1.5.1	Admin Bldg Ventilation	-	5	-	-	-	-	-	1	6	-	-	6	-	-	-	-	-	-	90	-
2a.1.5.2	Air Removal	-	23	-	-	-	-	-	3	26	-	-	26	-	-	-	-	-	-	422	-
2a.1.5.3	Auxiliary Feedwater	-	36	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	676	-
2a.1.5.4	Auxiliary Feedwater - RCA	-	30	0	1	14	-	-	10	55	55	-	-	178	-	-	-	-	7,214	486	-
2a.1.5.5	Bleed Steam	-	70	-	-	-	-	-	11	81	-	-	81	-	-	-	-	-	-	1,331	-
2a.1.5.6	Caustic Addition - RCA	-	32	0	1	19	-	-	11	63	63	-	-	240	-	-	-	-	9,761	468	-
2a.1.5.7	Chemical Feed	-	13	-	-	-	-	-	2	15	-	-	15	-	-	-	-	-	-	261	-
2a.1.5.8	Chemical Feed - RCA	-	2	0	0	1	-	-	1	4	4	-	-	16	-	-	-	-	634	31	-
2a.1.5.9	Circulating Water	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	401	-
2a.1.5.10	Condensate	-	411	-	-	-	-	-	62	472	-	-	472	-	-	-	-	-	-	7,537	-
2a.1.5.11	Condensate Polishing	-	162	-	-	-	-	-	24	186	-	-	186	-	-	-	-	-	-	2,987	-
2a.1.5.12	Condensate Polishing - RCA	-	30	1	3	38	-	-	14	85	85	-	-	483	-	-	-	-	19,616	493	-
2a.1.5.13	Electro-Hydraulic	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	143	-
2a.1.5.14	External Circulating Water	-	21	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	385	-
2a.1.5.15	External Circulating Water - RCA	-	58	1	4	57	-	-	24	143	143	-	-	721	-	-	-	-	29,284	938	-
2a.1.5.16	Feedwater	-	99	-	-	-	-	-	15	114	-	-	114	-	-	-	-	-	-	1,840	-
2a.1.5.17	Feedwater - RCA	-	197	6	22	325	-	-	102	652	652	-	-	4,147	-	-	-	-	168,414	3,377	-
2a.1.5.18	Gland Seal	-	26	-	-	-	-	-	4	30	-	-	30	-	-	-	-	-	-	504	-
2a.1.5.19	Heater Drain	-	300	-	-	-	-	-	45	345	-	-	345	-	-	-	-	-	-	5,638	-
2a.1.5.20	Hypobromous Acid Feed	-	5	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	86	-
2a.1.5.21	Hypobromous Acid Feed - RCA	-	1	0	0	0	-	-	0	1	1	-	-	2	-	-	-	-	100	12	-
2a.1.5.22	Internal Circ Water & CDSR	-	20	-	-	-	-	-	3	22	-	-	22	-	-	-	-	-	-	366	-
2a.1.5.23	Main Gen/Exciter/Transformer	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2a.1.5.24	Main Steam	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	1,482	-
2a.1.5.25	Main Steam - RCA	-	302	8	28	405	-	-	141	884	884	-	-	5,166	-	-	-	-	209,799	5,146	-
2a.1.5.26	Repairable Spare Snubbers	-	5	0	0	1	-	-	1	7	7	-	-	12	-	-	-	-	490	82	-
2a.1.5.27	Steam Exclusion	-	2	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	32	-
2a.1.5.28	Steam Exclusion - RCA	-	3	0	0	2	-	-	1	7	7	-	-	24	-	-	-	-	966	47	-
2a.1.5.29	Steam Generator Blowdown	-	331	15	19	149	119	-	139	773	773	-	-	1,906	483	-	-	-	117,630	5,771	-
2a.1.5.30	Steam Generators	-	4	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	75	-
2a.1.5.31	Turbine & Moisture Separators	-	296	-	-	-	-	-	44	340	-	-	340	-	-	-	-	-	-	5,472	-

Table F-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Disposal of Plant Systems (continued)																					
2a.1.5.32	Turbine Oil Purification	-	41	-	-	-	-	-	6	47	-	-	47	-	-	-	-	-	-	757	-
2a.1.5.33	Water Treatment	-	353	-	-	-	-	-	53	406	-	-	406	-	-	-	-	-	-	6,677	-
2a.1.5.34	Water Treatment - RCA	-	16	0	1	9	-	-	6	32	32	-	-	115	-	-	-	-	4,652	252	-
2a.1.5	Totals	-	2,999	32	79	1,020	119	-	748	4,997	2,706	-	2,291	13,010	483	-	-	-	568,561	54,274	-
2a.1.6	Scaffolding in support of decommissioning	-	2,637	23	7	88	17	-	680	3,453	3,453	-	-	1,012	67	-	-	-	51,236	26,270	-
2a.1	Subtotal Period 2a Activity Costs	733	19,028	22,745	3,903	2,895	18,212	416	22,290	90,224	87,933	-	2,291	38,625	29,559	527	918	-	4,269,720	209,554	5,980
Period 2a Collateral Costs																					
2a.3.1	Process decommissioning water waste	49	-	20	74	-	119	-	67	330	330	-	-	-	314	-	-	-	18,857	61	-
2a.3.2	Process decommissioning chemical flush waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.3.3	Small tool allowance	-	210	-	-	-	-	-	31	241	217	-	24	-	-	-	-	-	-	-	-
2a.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	9,220	1,383	10,603	-	10,603	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	49	210	20	74	-	119	9,220	1,482	11,174	547	10,603	24	-	314	-	-	-	18,857	61	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	66	-	-	-	-	-	-	17	83	83	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	530	53	583	583	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	1,560	156	1,716	1,545	-	172	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,417	-	-	-	-	-	354	1,772	1,772	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	2,412	-	-	-	-	-	362	2,774	2,774	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	84	23	-	290	-	84	482	482	-	-	-	3,930	-	-	-	78,601	128	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	3,457	519	3,975	3,975	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	640	64	704	704	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	909	91	999	-	999	-	-	-	-	-	-	-	-	-
2a.4.10	Fixed Overhead	-	-	-	-	-	-	1,508	226	1,734	1,734	-	-	-	-	-	-	-	-	-	-
2a.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	497	74	571	-	571	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	58	9	67	-	67	-	-	-	-	-	-	-	-	-
2a.4.13	Railroad Track Maintenance	-	-	-	-	-	-	65	10	75	75	-	-	-	-	-	-	-	-	-	-
2a.4.14	Security Staff Cost	-	-	-	-	-	-	5,521	828	6,349	6,349	-	-	-	-	-	-	-	-	-	171,679
2a.4.15	DOC Staff Cost	-	-	-	-	-	-	13,873	2,081	15,954	15,954	-	-	-	-	-	-	-	-	-	206,286
2a.4.16	Utility Staff Cost	-	-	-	-	-	-	19,283	2,892	22,176	22,176	-	-	-	-	-	-	-	-	-	384,071
2a.4	Subtotal Period 2a Period-Dependent Costs	66	3,830	84	23	-	290	47,900	7,820	60,013	58,204	1,637	172	-	3,930	-	-	-	78,601	128	762,036
2a.0	TOTAL PERIOD 2a COST	849	23,068	22,849	4,000	2,895	18,622	57,536	31,592	161,410	146,683	12,240	2,487	38,625	33,803	527	918	-	4,367,179	209,743	768,015
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	ADT & Misc Ventilation	-	20	0	1	12	2	-	7	42	42	-	-	153	7	-	-	-	6,796	363	-
2b.1.1.2	Aux Bldg Normal Ventilation	-	55	2	4	54	7	-	25	147	147	-	-	692	29	-	-	-	30,575	1,012	-
2b.1.1.3	Aux Bldg Special Ventilation	-	11	0	0	6	1	-	4	22	22	-	-	70	4	-	-	-	3,228	197	-
2b.1.1.4	Battery Rm Special Ventilation	-	1	-	-	-	-	-	0	2	-	-	2	-	-	-	-	-	-	24	-
2b.1.1.5	Boron Recycle	0	3	0	0	0	2	-	1	7	7	-	-	3	7	-	-	-	684	50	-
2b.1.1.6	Chemical & Volume Control	595	748	46	39	185	374	-	616	2,603	2,603	-	-	2,356	1,557	-	-	-	221,508	23,175	-
2b.1.1.7	Cold Chemical Lab Ventilation	-	1	-	-	-	-	-	0	1	-	-	1	-	-	-	-	-	-	9	-
2b.1.1.8	Component Cooling - RCA	-	515	18	65	940	-	-	281	1,819	1,819	-	-	11,996	-	-	-	-	487,169	8,583	-
2b.1.1.9	Containment Cooling	-	27	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	-	502	-
2b.1.1.10	Containment Cooling - RCA	-	240	4	15	215	-	-	95	569	569	-	-	2,743	-	-	-	-	111,390	3,949	-
2b.1.1.11	Containment Hydrogen Control - RCA	-	29	0	1	11	-	-	9	50	50	-	-	141	-	-	-	-	5,742	494	-
2b.1.1.12	Containment Spray - RCA	-	154	2	8	114	-	-	57	335	335	-	-	1,453	-	-	-	-	59,019	2,617	-
2b.1.1.13	Containment Ventilation	-	186	18	35	370	137	-	143	890	890	-	-	4,721	541	-	-	-	237,746	3,370	-
2b.1.1.14	Control/Relay/Cmptr Rm Vent	-	25	1	2	20	4	-	11	62	62	-	-	260	15	-	-	-	11,864	454	-
2b.1.1.15	Cooling Water	-	124	-	-	-	-	-	19	143	-	-	143	-	-	-	-	-	-	2,344	-
2b.1.1.16	Cooling Water - RCA	-	380	13	45	662	-	-	202	1,302	1,302	-	-	8,442	-	-	-	-	342,822	6,311	-
2b.1.1.17	Cranes/Hoists/Elevators - RCA	-	3	0	1	8	-	-	2	13	13	-	-	103	-	-	-	-	4,184	48	-
2b.1.1.18	D3 Emergency Diesel	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	141	-
2b.1.1.19	D4 Emergency Diesel	-	8	-	-	-	-	-	1	9	-	-	9	-	-	-	-	-	-	141	-
2b.1.1.20	D5 Emergency Diesel	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	5	-
2b.1.1.21	Electrical - Clean	-	1,341	-	-	-	-	-	201	1,542	-	-	1,542	-	-	-	-	-	-	24,276	-
2b.1.1.22	Electrical - Contaminated	-	378	4	12	157	14	-	124	689	689	-	-	1,997	56	-	-	-	85,904	6,502	-
2b.1.1.23	Electrical - Decontaminated	-	2,357	28	101	1,470	-	-	828	4,784	4,784	-	-	18,753	-	-	-	-	761,569	38,423	-

Table F-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Disposal of Plant Systems (continued)																					
2b.1.1.24	Filter Rm Ventilation	-	4	0	0	2	0	-	1	7	7	-	-	24	1	-	-	-	1,018	69	-
2b.1.1.25	Fire Protection & Detection	-	159	-	-	-	-	-	24	183	-	-	183	-	-	-	-	-	-	3,009	-
2b.1.1.26	Fire Protection & Detection - RCA	-	196	3	10	143	-	-	72	424	424	-	-	1,828	-	-	-	-	74,245	3,134	-
2b.1.1.27	Fuel Handling	-	59	1	2	16	9	-	20	106	106	-	-	200	37	-	-	-	11,280	1,101	-
2b.1.1.28	Fuel Oil	-	1	-	-	-	-	-	0	1	-	-	1	-	-	-	-	-	-	9	-
2b.1.1.29	HVAC - Clean	-	119	-	-	-	-	-	18	136	-	-	136	-	-	-	-	-	-	2,373	-
2b.1.1.30	HVAC - Contaminated	-	983	22	63	842	77	-	403	2,390	2,390	-	-	10,745	304	-	-	-	462,193	16,575	-
2b.1.1.31	Heating	-	250	-	-	-	-	-	38	288	-	-	288	-	-	-	-	-	-	4,804	-
2b.1.1.32	Heating - RCA	-	270	3	10	149	-	-	92	524	524	-	-	1,907	-	-	-	-	77,458	4,086	-
2b.1.1.33	Hot Lab & Sample Rm Ventilation	-	16	0	1	8	1	-	5	31	31	-	-	107	3	-	-	-	4,623	285	-
2b.1.1.34	Incore Instrumentation	0	24	1	1	5	11	-	10	51	51	-	-	60	43	-	-	-	6,122	457	-
2b.1.1.35	Misc Drains & Vents	-	186	9	8	36	81	-	74	394	394	-	-	458	320	-	-	-	45,786	3,175	-
2b.1.1.36	Misc Lab & Service Areas Vent	-	103	6	5	29	46	-	43	232	232	-	-	370	183	-	-	-	30,543	1,709	-
2b.1.1.37	Miscellaneous Gas	-	56	-	-	-	-	-	8	64	-	-	64	-	-	-	-	-	-	1,073	-
2b.1.1.38	Miscellaneous Gas - RCA	-	107	1	3	47	-	-	34	192	192	-	-	600	-	-	-	-	24,378	1,636	-
2b.1.1.39	Radiation Monitoring	-	6	-	-	-	-	-	1	7	-	-	7	-	-	-	-	-	-	111	-
2b.1.1.40	Radiation Monitoring - RCA	-	52	0	2	25	-	-	17	96	96	-	-	316	-	-	-	-	12,826	782	-
2b.1.1.41	Reactor Coolant	129	188	15	11	18	138	-	152	651	651	-	-	229	548	-	-	-	55,824	5,508	-
2b.1.1.42	Reactor Hot Sampling	111	101	8	4	4	59	-	97	385	385	-	-	54	234	-	-	-	22,070	3,681	-
2b.1.1.43	Reactor Makeup	-	32	-	-	-	-	-	5	37	-	-	37	-	-	-	-	-	-	583	-
2b.1.1.44	Reactor Makeup - RCA	-	3	0	0	2	-	-	1	7	7	-	-	28	-	-	-	-	1,148	47	-
2b.1.1.45	Reactor Vessel	7	14	0	0	2	3	-	8	34	34	-	-	22	11	-	-	-	1,788	385	-
2b.1.1.46	Residual Heat Removal	276	312	63	59	224	614	-	418	1,966	1,966	-	-	2,853	2,433	-	-	-	322,636	7,079	-
2b.1.1.47	Safeguards Chilled Water	-	4	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	-	75	-
2b.1.1.48	Safety Injection	-	694	32	52	523	220	-	318	1,838	1,838	-	-	6,676	902	-	-	-	345,035	12,273	-
2b.1.1.49	Sampling	-	42	2	1	3	18	-	16	82	82	-	-	37	70	-	-	-	7,443	713	-
2b.1.1.50	Service Bldg & New Cmptr Vent	-	0	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	-	6	-
2b.1.1.51	Shield Bldg Ventilation	-	95	10	17	159	92	-	74	448	448	-	-	2,028	363	-	-	-	113,240	1,739	-
2b.1.1.52	Station & Instrument Air	-	126	-	-	-	-	-	19	145	-	-	145	-	-	-	-	-	-	2,424	-
2b.1.1.53	Station & Instrument Air - RCA	-	240	2	9	127	-	-	81	459	459	-	-	1,625	-	-	-	-	65,986	3,638	-
2b.1.1.54	Turbine Bldg Traps & Drains	-	24	-	-	-	-	-	4	27	-	-	27	-	-	-	-	-	-	462	-
2b.1.1.55	Turbine Bldg Traps & Drains - RCA	-	24	0	1	14	-	-	8	47	47	-	-	180	-	-	-	-	7,321	344	-
2b.1.1.56	Turbine Bldg Ventilation	-	36	-	-	-	-	-	5	42	-	-	42	-	-	-	-	-	-	655	-
2b.1.1.57	Unit Coolers	-	18	-	-	-	-	-	3	20	-	-	20	-	-	-	-	-	-	332	-
2b.1.1.58	Unit Coolers - RCA	-	44	0	1	18	-	-	14	78	78	-	-	232	-	-	-	-	9,413	690	-
2b.1.1.59	Waste Gas Disposal	440	382	33	31	192	256	-	417	1,752	1,752	-	-	2,453	1,124	-	-	-	185,932	14,295	-
2b.1.1.60	Waste Liquid Disposal	1,141	1,430	84	68	286	679	-	1,159	4,847	4,847	-	-	3,655	2,811	-	-	-	377,193	44,443	-
2b.1.1.61	Waste Solid Disposal	91	116	8	7	30	74	-	100	428	428	-	-	389	304	-	-	-	40,825	3,477	-
2b.1.1	Totals	2,792	13,126	440	698	7,130	2,918	-	6,391	33,494	30,803	-	2,691	90,963	11,908	-	-	-	4,676,526	270,228	-
2b.1.2	Scaffolding in support of decommissioning	-	3,297	29	9	110	21	-	850	4,316	4,316	-	-	1,265	84	-	-	-	64,045	32,837	-
Decontamination of Site Buildings																					
2b.1.3.1	Reactor	975	829	31	140	175	1,302	-	1,071	4,523	4,523	-	-	2,230	7,732	-	-	-	661,035	30,714	-
2b.1.3.2	Auxiliary	1,039	339	10	74	83	524	-	760	2,830	2,830	-	-	1,060	3,353	-	-	-	332,478	23,808	-
2b.1.3.3	Backwash Waste Receiving Tank	-	23	1	10	-	79	-	27	141	141	-	-	-	507	-	-	-	43,896	299	-
2b.1.3.4	Drum Transfer & Truck Loading Enclosure	14	7	0	2	1	11	-	12	49	49	-	-	19	74	-	-	-	7,118	368	-
2b.1.3.5	LLRW Storage Enclosure	99	44	1	11	3	78	-	82	318	318	-	-	38	502	-	-	-	44,969	2,424	-
2b.1.3.6	Radwaste	44	19	1	5	3	35	-	37	144	144	-	-	42	225	-	-	-	21,136	1,082	-
2b.1.3.7	Resin Disposal	13	10	0	2	7	11	-	13	55	55	-	-	83	69	-	-	-	9,271	383	-
2b.1.3	Totals	2,186	1,271	45	243	272	2,041	-	2,003	8,060	8,060	-	-	3,471	12,462	-	-	-	1,119,903	59,077	-
2b.1	Subtotal Period 2b Activity Costs	4,978	17,695	514	949	7,512	4,980	-	9,244	45,870	43,180	-	2,691	95,700	24,454	-	-	-	5,860,474	362,142	-
Period 2b Collateral Costs																					
2b.3.1	Process decommissioning water waste	155	-	65	237	-	382	-	215	1,053	1,053	-	-	-	1,008	-	-	-	60,498	197	-
2b.3.2	Process decommissioning chemical flush waste	2	-	72	344	-	776	-	254	1,448	1,448	-	-	-	1,154	-	-	-	122,948	216	-
2b.3.3	Small tool allowance	-	323	-	-	-	-	-	48	371	371	-	-	-	-	-	-	-	-	-	-
2b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	4,953	743	5,696	-	5,696	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	157	323	137	581	-	1,158	4,954	1,260	8,570	2,874	5,696	-	-	2,162	-	-	-	183,446	413	-

Table F-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	845	-	-	-	-	-	-	211	1,057	1,057	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	617	62	679	679	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	1,708	171	1,879	1,879	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	2,116	-	-	-	-	-	529	2,645	2,645	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	2,786	-	-	-	-	-	418	3,204	3,204	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	110	31	-	384	-	112	637	637	-	-	-	5,197	-	-	-	103,950	170	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	3,177	477	3,654	3,654	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	745	74	819	819	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	1,058	106	1,163	-	1,163	-	-	-	-	-	-	-	-	-
2b.4.10	Fixed Overhead	-	-	-	-	-	-	1,755	263	2,019	2,019	-	-	-	-	-	-	-	-	-	-
2b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	578	87	665	-	665	-	-	-	-	-	-	-	-	-
2b.4.12	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	294	44	338	338	-	-	-	-	-	-	-	-	-	-
2b.4.13	ISFSI Operating Costs	-	-	-	-	-	-	68	10	78	-	78	-	-	-	-	-	-	-	-	-
2b.4.14	Railroad Track Maintenance	-	-	-	-	-	-	76	11	87	87	-	-	-	-	-	-	-	-	-	-
2b.4.15	Security Staff Cost	-	-	-	-	-	-	6,427	964	7,392	7,392	-	-	-	-	-	-	-	-	-	199,870
2b.4.16	DOC Staff Cost	-	-	-	-	-	-	15,618	2,343	17,961	17,961	-	-	-	-	-	-	-	-	-	230,680
2b.4.17	Utility Staff Cost	-	-	-	-	-	-	21,672	3,251	24,923	24,923	-	-	-	-	-	-	-	-	-	428,180
2b.4	Subtotal Period 2b Period-Dependent Costs	845	4,902	110	31	-	384	53,793	9,132	69,198	67,292	1,906	-	-	5,197	-	-	-	103,950	170	858,730
2b.0	TOTAL PERIOD 2b COST	5,980	22,919	761	1,561	7,512	6,521	58,747	19,637	123,638	113,345	7,602	2,691	95,700	31,814	-	-	-	6,147,870	362,724	858,730
PERIOD 2c - Spent fuel delay prior to SFP decon																					
Period 2c Direct Decommissioning Activities																					
Period 2c Collateral Costs																					
2c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	63,230	9,484	72,714	-	72,714	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	-	-	-	-	-	-	63,230	9,484	72,714	-	72,714	-	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																					
2c.4.1	Insurance	-	-	-	-	-	-	4,352	435	4,788	4,788	-	-	-	-	-	-	-	-	-	-
2c.4.2	Property taxes	-	-	-	-	-	-	8,613	861	9,474	9,474	-	-	-	-	-	-	-	-	-	-
2c.4.3	Health physics supplies	-	3,422	-	-	-	-	-	855	4,277	4,277	-	-	-	-	-	-	-	-	-	-
2c.4.4	Heavy equipment rental	-	983	-	-	-	-	-	147	1,130	1,130	-	-	-	-	-	-	-	-	-	-
2c.4.5	Disposal of DAW generated	-	-	94	26	-	326	-	95	540	540	-	-	-	4,411	-	-	-	88,213	144	-
2c.4.6	Plant energy budget	-	-	-	-	-	-	5,978	897	6,875	6,875	-	-	-	-	-	-	-	-	-	-
2c.4.7	NRC Fees	-	-	-	-	-	-	2,812	281	3,094	3,094	-	-	-	-	-	-	-	-	-	-
2c.4.8	Emergency Planning Fees	-	-	-	-	-	-	7,463	746	8,210	-	8,210	-	-	-	-	-	-	-	-	-
2c.4.9	Fixed Overhead	-	-	-	-	-	-	12,385	1,858	14,243	14,243	-	-	-	-	-	-	-	-	-	-
2c.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	4,079	612	4,691	-	4,691	-	-	-	-	-	-	-	-	-
2c.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	414	62	476	476	-	-	-	-	-	-	-	-	-	-
2c.4.12	ISFSI Operating Costs	-	-	-	-	-	-	478	72	550	-	550	-	-	-	-	-	-	-	-	-
2c.4.13	Railroad Track Maintenance	-	-	-	-	-	-	534	80	614	614	-	-	-	-	-	-	-	-	-	-
2c.4.14	Security Staff Cost	-	-	-	-	-	-	38,707	5,806	44,513	44,513	-	-	-	-	-	-	-	-	-	1,187,323
2c.4.15	Utility Staff Cost	-	-	-	-	-	-	43,730	6,559	50,289	50,289	-	-	-	-	-	-	-	-	-	880,737
2c.4	Subtotal Period 2c Period-Dependent Costs	-	4,405	94	26	-	326	129,547	19,368	153,765	140,314	13,451	-	-	4,411	-	-	-	88,213	144	2,068,060
2c.0	TOTAL PERIOD 2c COST	-	4,405	94	26	-	326	192,777	28,852	226,479	140,314	86,165	-	-	4,411	-	-	-	88,213	144	2,068,060
PERIOD 2d - Decontamination Following Wet Fuel Storage																					
Period 2d Direct Decommissioning Activities																					
2d.1.1	Remove spent fuel racks	279	28	92	28	-	396	-	259	1,082	1,082	-	-	-	1,569	-	-	-	133,386	576	-
Disposal of Plant Systems																					
2d.1.2.1	Electrical - Contaminated - Fuel Pool	-	162	2	5	68	6	-	53	296	296	-	-	864	24	-	-	-	37,174	2,783	-
2d.1.2.2	Electrical - Decontaminated - Fuel Pool	-	1,012	12	43	632	-	-	356	2,055	2,055	-	-	8,069	-	-	-	-	327,668	16,495	-
2d.1.2.3	Fire Protection & Detection - RCA Fuel P	-	30	0	2	22	-	-	11	65	65	-	-	286	-	-	-	-	11,622	476	-
2d.1.2.4	HVAC - Contaminated - Fuel Pool	-	442	10	28	378	34	-	181	1,074	1,074	-	-	4,828	136	-	-	-	207,653	7,447	-
2d.1.2.5	Safeguards Chilled Water - RCA	-	4	0	0	2	-	-	1	7	7	-	-	26	-	-	-	-	1,045	51	-
2d.1.2.6	Spent Fuel Pool Cooling	25	29	2	2	3	20	-	26	107	107	-	-	39	80	-	-	-	8,359	881	-
2d.1.2.7	Spent Fuel Pool Normal Ventilation	-	22	1	2	21	2	-	9	56	56	-	-	265	9	-	-	-	11,504	394	-
2d.1.2	Totals	25	1,699	27	82	1,127	63	-	637	3,660	3,660	-	-	14,376	250	-	-	-	605,025	28,526	-

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Prairie Island DECON Unit 2
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(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Decontamination of Site Buildings																					
2d.1.3.1	Fuel Handling of Aux Building	822	902	8	30	189	150	-	708	2,810	2,810	-	-	2,417	923	-	-	-	177,583	30,400	-
2d.1.3	Totals	822	902	8	30	189	150	-	708	2,810	2,810	-	-	2,417	923	-	-	-	177,583	30,400	-
2d.1.4	Scaffolding in support of decommissioning	-	659	6	2	22	4	-	170	863	863	-	-	253	17	-	-	-	12,809	6,567	-
2d.1	Subtotal Period 2d Activity Costs	1,127	3,288	132	142	1,338	613	-	1,774	8,415	8,415	-	-	17,046	2,758	-	-	-	928,804	66,070	-
Period 2d Additional Costs																					
2d.2.1	License Termination Survey Planning	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	527	158	685	685	-	-	-	-	-	-	-	-	-	6,240
Period 2d Collateral Costs																					
2d.3.1	Process decommissioning water waste	15	-	8	27	-	44	-	23	117	117	-	-	-	117	-	-	-	6,990	23	-
2d.3.2	Process decommissioning chemical flush waste	0	-	1	4	-	9	-	3	17	17	-	-	-	13	-	-	-	1,422	2	-
2d.3.3	Small tool allowance	-	65	-	-	-	-	-	10	75	75	-	-	-	-	-	-	-	-	-	-
2d.3.4	Decommissioning Equipment Disposition	-	-	136	51	521	100	-	124	933	933	-	-	6,000	397	-	-	-	303,726	88	-
2d.3.5	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,935	440	3,376	-	3,376	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	15	65	145	82	521	153	2,935	601	4,517	1,141	3,376	-	6,000	527	-	-	-	312,139	113	-
Period 2d Period-Dependent Costs																					
2d.4.1	Decon supplies	159	-	-	-	-	-	-	40	199	199	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	318	32	350	350	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	392	39	431	431	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	559	-	-	-	-	-	140	699	699	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,436	-	-	-	-	-	215	1,651	1,651	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	43	12	-	148	-	43	245	245	-	-	-	2,002	-	-	-	40,031	65	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	873	131	1,004	1,004	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	384	38	422	422	-	-	-	-	-	-	-	-	-	-
2d.4.9	Emergency Planning Fees	-	-	-	-	-	-	545	55	600	-	600	-	-	-	-	-	-	-	-	-
2d.4.10	Fixed Overhead	-	-	-	-	-	-	905	136	1,040	1,040	-	-	-	-	-	-	-	-	-	-
2d.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	303	45	348	348	-	-	-	-	-	-	-	-	-	-
2d.4.12	ISFSI Operating Costs	-	-	-	-	-	-	35	5	40	-	40	-	-	-	-	-	-	-	-	-
2d.4.13	Railroad Track Maintenance	-	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-	-	-	-
2d.4.14	Security Staff Cost	-	-	-	-	-	-	1,856	278	2,135	2,135	-	-	-	-	-	-	-	-	-	54,150
2d.4.15	DOC Staff Cost	-	-	-	-	-	-	4,717	708	5,424	5,424	-	-	-	-	-	-	-	-	-	70,436
2d.4.16	Utility Staff Cost	-	-	-	-	-	-	6,477	972	7,449	7,449	-	-	-	-	-	-	-	-	-	127,029
2d.4	Subtotal Period 2d Period-Dependent Costs	159	1,995	43	12	-	148	16,844	2,883	22,083	21,444	640	-	-	2,002	-	-	-	40,031	65	251,614
2d.0	TOTAL PERIOD 2d COST	1,301	5,349	320	236	1,859	914	20,306	5,415	35,700	31,685	4,015	-	23,046	5,286	-	-	-	1,280,973	66,249	257,854
PERIOD 2f - License Termination																					
Period 2f Direct Decommissioning Activities																					
2f.1.1	ORISE confirmatory survey	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
2f.1.2	Terminate license									a											
2f.1	Subtotal Period 2f Activity Costs	-	-	-	-	-	-	154	46	200	200	-	-	-	-	-	-	-	-	-	-
Period 2f Additional Costs																					
2f.2.1	License Termination Survey	-	-	-	-	-	-	5,526	1,658	7,184	7,184	-	-	-	-	-	-	-	-	102,642	3,120
2f.2	Subtotal Period 2f Additional Costs	-	-	-	-	-	-	5,526	1,658	7,184	7,184	-	-	-	-	-	-	-	-	102,642	3,120
Period 2f Collateral Costs																					
2f.3.1	DOC staff relocation expenses	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
2f.3	Subtotal Period 2f Collateral Costs	-	-	-	-	-	-	1,030	154	1,184	1,184	-	-	-	-	-	-	-	-	-	-
Period 2f Period-Dependent Costs																					
2f.4.1	Insurance	-	-	-	-	-	-	287	29	316	316	-	-	-	-	-	-	-	-	-	-
2f.4.2	Property taxes	-	-	-	-	-	-	348	35	383	383	-	-	-	-	-	-	-	-	-	-
2f.4.3	Health physics supplies	-	505	-	-	-	-	-	126	632	632	-	-	-	-	-	-	-	-	-	-
2f.4.4	Disposal of DAW generated	-	-	7	2	-	25	-	7	41	41	-	-	-	334	-	-	-	6,685	11	-
2f.4.5	Plant energy budget	-	-	-	-	-	-	418	63	481	481	-	-	-	-	-	-	-	-	-	-
2f.4.6	NRC Fees	-	-	-	-	-	-	384	38	423	423	-	-	-	-	-	-	-	-	-	-
2f.4.7	Emergency Planning Fees	-	-	-	-	-	-	44	4	49	-	49	-	-	-	-	-	-	-	-	-
2f.4.8	Fixed Overhead	-	-	-	-	-	-	867	130	997	997	-	-	-	-	-	-	-	-	-	-
2f.4.9	ISFSI Operating Costs	-	-	-	-	-	-	33	5	38	-	38	-	-	-	-	-	-	-	-	-

Table F-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 2f Period-Dependent Costs (continued)																					
2f.4.10	Railroad Track Maintenance	-	-	-	-	-	-	37	6	43	43	-	-	-	-	-	-	-	-	-	-
2f.4.11	Security Staff Cost	-	-	-	-	-	-	1,743	262	2,005	2,005	-	-	-	-	-	-	-	-	-	50,700
2f.4.12	DOC Staff Cost	-	-	-	-	-	-	3,198	480	3,677	3,677	-	-	-	-	-	-	-	-	-	46,410
2f.4.13	Utility Staff Cost	-	-	-	-	-	-	3,175	476	3,652	3,652	-	-	-	-	-	-	-	-	-	59,670
2f.4	Subtotal Period 2f Period-Dependent Costs	-	505	7	2	-	25	10,536	1,661	12,735	12,648	87	-	-	334	-	-	-	6,685	11	156,780
2f.0	TOTAL PERIOD 2f COST	-	505	7	2	-	25	17,245	3,519	21,303	21,216	87	-	-	334	-	-	-	6,685	102,653	159,900
PERIOD 2 TOTALS		8,130	56,246	24,031	5,824	12,266	26,408	346,610	89,015	568,530	453,242	110,110	5,178	157,372	75,648	527	918	-	11,890,920	741,512	4,112,559
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Reactor	-	5,472	-	-	-	-	-	821	6,293	-	-	6,293	-	-	-	-	-	-	66,359	-
3b.1.1.2	Auxiliary	-	3,586	-	-	-	-	-	538	4,124	-	-	4,124	-	-	-	-	-	-	44,627	-
3b.1.1.3	Condensate Storage Tank Foundation	-	14	-	-	-	-	-	2	16	-	-	16	-	-	-	-	-	-	193	-
3b.1.1.4	Construction Warehouse & Fab Shop	-	158	-	-	-	-	-	24	182	-	-	182	-	-	-	-	-	-	2,477	-
3b.1.1.5	D3/D4 Emergency Generator	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	371	-
3b.1.1.6	Drum Transfer & Truck Loading Enclosure	-	23	-	-	-	-	-	3	26	-	-	26	-	-	-	-	-	-	361	-
3b.1.1.7	Hydrogen House	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	153	-
3b.1.1.8	LLRW Storage Enclosure	-	210	-	-	-	-	-	32	242	-	-	242	-	-	-	-	-	-	2,776	-
3b.1.1.9	Radwaste	-	280	-	-	-	-	-	42	322	-	-	322	-	-	-	-	-	-	3,555	-
3b.1.1.10	Resin Disposal	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	383	-
3b.1.1.11	Sulfuric Acid Tank Enclosure	-	3	-	-	-	-	-	1	4	-	-	4	-	-	-	-	-	-	54	-
3b.1.1.12	Turbine	-	2,506	-	-	-	-	-	376	2,881	-	-	2,881	-	-	-	-	-	-	34,352	-
3b.1.1.13	Turbine Pedestal	-	754	-	-	-	-	-	113	867	-	-	867	-	-	-	-	-	-	7,580	-
3b.1.1.14	Warehouse #2	-	31	-	-	-	-	-	5	36	-	-	36	-	-	-	-	-	-	457	-
3b.1.1.15	Waste Neutralizing Tank House	-	12	-	-	-	-	-	2	14	-	-	14	-	-	-	-	-	-	165	-
3b.1.1.16	Waste Oil Storage	-	16	-	-	-	-	-	2	18	-	-	18	-	-	-	-	-	-	225	-
3b.1.1.17	Water Treatment	-	481	-	-	-	-	-	72	554	-	-	554	-	-	-	-	-	-	6,498	-
3b.1.1.18	Fuel Handling of Aux Building	-	1,803	-	-	-	-	-	271	2,074	-	-	2,074	-	-	-	-	-	-	21,027	-
3b.1.1	Totals	-	15,415	-	-	-	-	-	2,312	17,727	-	-	17,727	-	-	-	-	-	-	191,615	-
Site Closeout Activities																					
3b.1.2	Remove Rubble	-	1,816	-	-	-	-	-	272	2,089	-	-	2,089	-	-	-	-	-	-	10,653	-
3b.1.3	Grade & landscape site	-	490	-	-	-	-	-	74	564	-	-	564	-	-	-	-	-	-	921	-
3b.1.4	Final report to NRC	-	-	-	-	-	-	63	9	72	72	-	-	-	-	-	-	-	-	-	668
3b.1	Subtotal Period 3b Activity Costs	-	17,722	-	-	-	-	63	2,668	20,452	72	-	20,380	-	-	-	-	-	-	203,188	668
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	580	-	-	-	-	6	88	673	-	-	673	-	-	-	-	-	-	2,731	-
3b.2	Subtotal Period 3b Additional Costs	-	580	-	-	-	-	6	88	673	-	-	673	-	-	-	-	-	-	2,731	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	201	-	-	-	-	-	30	231	-	-	231	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	201	-	-	-	-	-	30	231	-	-	231	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	407	41	447	-	447	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	839	84	923	-	923	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	5,588	-	-	-	-	-	838	6,426	-	-	6,426	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	593	89	682	-	-	682	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	228	23	251	-	251	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	126	13	138	-	138	-	-	-	-	-	-	-	-	-
3b.4.7	Fixed Overhead	-	-	-	-	-	-	1,065	160	1,225	1,225	-	-	-	-	-	-	-	-	-	-
3b.4.8	ISFSI Operating Costs	-	-	-	-	-	-	95	14	109	-	109	-	-	-	-	-	-	-	-	-
3b.4.9	Railroad Track Maintenance	-	-	-	-	-	-	106	16	122	122	-	-	-	-	-	-	-	-	-	-
3b.4.10	Security Staff Cost	-	-	-	-	-	-	2,554	383	2,937	(0)	1,997	940	-	-	-	-	-	-	-	74,658
3b.4.11	DOC Staff Cost	-	-	-	-	-	-	8,197	1,229	9,426	-	-	9,426	-	-	-	-	-	-	-	117,206
3b.4.12	Utility Staff Cost	-	-	-	-	-	-	4,194	629	4,823	-	4,147	675	-	-	-	-	-	-	-	74,658
3b.4	Subtotal Period 3b Period-Dependent Costs	-	5,588	-	-	-	-	18,402	3,519	27,509	1,347	8,013	18,149	-	-	-	-	-	-	-	266,521
3b.0	TOTAL PERIOD 3b COST	-	24,090	-	-	-	-	18,471	6,304	48,865	1,418	8,013	39,433	-	-	-	-	-	-	205,919	267,189

Table F-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Additional Costs																					
3c.2.1	ISFSI Disposition of Original Casks	-	-	-	1,810	-	16,677	-	4,441	22,927	-	22,927	-	-	58,431	-	-	-	9,261,000	-	-
3c.2	Subtotal Period 3c Additional Costs	-	-	-	1,810	-	16,677	-	4,441	22,927	-	22,927	-	-	58,431	-	-	-	9,261,000	-	-
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	294,962	44,244	339,206	-	339,206	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	294,962	44,244	339,206	-	339,206	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	26,398	2,640	29,038	-	29,038	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	49,444	4,944	54,388	-	54,388	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	14,807	1,481	16,288	-	16,288	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	8,153	815	8,968	-	8,968	-	-	-	-	-	-	-	-	-
3c.4.6	Fixed Overhead	-	-	-	-	-	-	69,114	10,367	79,481	-	79,481	-	-	-	-	-	-	-	-	-
3c.4.7	ISFSI Operating Costs	-	-	-	-	-	-	6,155	923	7,079	-	7,079	-	-	-	-	-	-	-	-	-
3c.4.8	Security Staff Cost	-	-	-	-	-	-	136,859	20,529	157,388	-	157,388	-	-	-	-	-	-	-	-	3,874,963
3c.4.9	Utility Staff Cost	-	-	-	-	-	-	48,624	7,294	55,917	-	55,917	-	-	-	-	-	-	-	-	970,176
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	359,554	48,993	408,547	-	408,547	-	-	-	-	-	-	-	-	4,845,139
3c.0	TOTAL PERIOD 3c COST	-	-	-	1,810	-	16,677	654,515	97,678	770,679	-	770,679	-	-	58,431	-	-	-	9,261,000	-	4,845,139
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-
3d.1.1	Totals	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	822	-	-	8,602	-	1,373	10,797	10,797	-	-	-	-	-	-	2,793	658,858	-	-
Period 3d Additional Costs																					
3d.2.1	ISFSI Railroad Track Refurbishment	-	-	-	-	-	-	250	38	288	-	288	-	-	-	-	-	-	-	-	-
3d.2	Subtotal Period 3d Additional Costs	-	-	-	-	-	-	250	38	288	-	288	-	-	-	-	-	-	-	-	-
Period 3d Collateral Costs																					
3d.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	14,426	2,164	16,590	-	16,590	-	-	-	-	-	-	-	-	-
3d.3	Subtotal Period 3d Collateral Costs	-	-	-	-	-	-	14,426	2,164	16,590	-	16,590	-	-	-	-	-	-	-	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	5,182	518	5,700	-	5,700	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	9,706	971	10,677	-	10,677	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	3,746	375	4,121	-	4,121	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	1,601	160	1,761	-	1,761	-	-	-	-	-	-	-	-	-
3d.4.6	Fixed Overhead	-	-	-	-	-	-	13,568	2,035	15,603	-	15,603	-	-	-	-	-	-	-	-	-
3d.4.7	ISFSI Operating Costs	-	-	-	-	-	-	1,208	181	1,390	-	1,390	-	-	-	-	-	-	-	-	-
3d.4.8	Railroad Track Maintenance	-	-	-	-	-	-	1,350	202	1,552	-	1,552	-	-	-	-	-	-	-	-	-
3d.4.9	Security Staff Cost	-	-	-	-	-	-	26,867	4,030	30,897	-	30,897	-	-	-	-	-	-	-	-	760,706
3d.4.10	Utility Staff Cost	-	-	-	-	-	-	9,545	1,432	10,977	-	10,977	-	-	-	-	-	-	-	-	190,458
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	72,774	9,904	82,678	-	82,678	-	-	-	-	-	-	-	-	951,164
3d.0	TOTAL PERIOD 3d COST	-	-	822	-	-	8,602	87,450	13,478	110,353	10,797	99,556	-	-	-	-	-	2,793	658,858	-	951,164
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI License Termination (TN-40)	11	7	1	0	-	2	665	108	793	-	793	-	-	24	-	-	-	487	2,191	1,280
3e.2	Subtotal Period 3e Additional Costs	11	7	1	0	-	2	665	108	793	-	793	-	-	24	-	-	-	487	2,191	1,280

Table F-2
Prairie Island DECON Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(Thousands of 2011 Dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3e Collateral Costs																					
3e.3.1	Small tool allowance	-	0	-	-	-	-	-	0	0	-	0	-	-	-	-	-	-	-	-	-
3e.3	Subtotal Period 3e Collateral Costs	-	0	-	-	-	-	-	0	0	-	0	-	-	-	-	-	-	-	-	-
Period 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	64	6	70	-	70	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	119	12	131	-	131	-	-	-	-	-	-	-	-	-
3e.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3e.4.4	NRC ISFSI Fees	-	-	-	-	-	-	36	4	39	-	39	-	-	-	-	-	-	-	-	-
3e.4.5	Railroad Track Maintenance	-	-	-	-	-	-	17	2	19	-	19	-	-	-	-	-	-	-	-	-
3e.4.6	Security Staff Cost	-	-	-	-	-	-	89	13	103	-	103	-	-	-	-	-	-	-	-	2,510
3e.4.7	Utility Staff Cost	-	-	-	-	-	-	98	15	113	-	113	-	-	-	-	-	-	-	-	1,901
3e.4	Subtotal Period 3e Period-Dependent Costs	-	-	-	-	-	-	422	52	475	-	475	-	-	-	-	-	-	-	-	4,411
3e.0	TOTAL PERIOD 3e COST	11	7	1	0	-	2	1,087	160	1,268	-	1,268	-	-	24	-	-	-	487	2,191	5,691
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Site Restoration (TN-40)	-	351	-	-	-	-	22	56	429	-	429	-	-	-	-	-	-	-	2,986	80
3f.2	Subtotal Period 3f Additional Costs	-	351	-	-	-	-	22	56	429	-	429	-	-	-	-	-	-	-	2,986	80
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	3	-	-	-	-	-	0	3	-	3	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	3	-	-	-	-	-	0	3	-	3	-	-	-	-	-	-	-	-	-
Period 3f Period-Dependent Costs																					
3f.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.2	Property taxes	-	-	-	-	-	-	60	6	66	-	66	-	-	-	-	-	-	-	-	-
3f.4.3	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3f.4.4	Railroad Track Maintenance	-	-	-	-	-	-	8	1	10	-	10	-	-	-	-	-	-	-	-	-
3f.4.5	Security Staff Cost	-	-	-	-	-	-	45	7	52	-	52	-	-	-	-	-	-	-	-	1,265
3f.4.6	Utility Staff Cost	-	-	-	-	-	-	39	6	44	-	44	-	-	-	-	-	-	-	-	784
3f.4	Subtotal Period 3f Period-Dependent Costs	-	-	-	-	-	-	152	20	172	-	172	-	-	-	-	-	-	-	-	2,050
3f.0	TOTAL PERIOD 3f COST	-	354	-	-	-	-	174	76	604	-	604	-	-	-	-	-	-	-	2,986	2,130
PERIOD 3 TOTALS		11	24,451	823	1,810	-	25,281	761,697	117,697	931,769	12,215	880,121	39,433	-	58,455	-	-	2,793	9,920,345	211,095	6,071,313
TOTAL COST TO DECOMMISSION		**10,972**	**85,242**	**25,202**	**8,021**	**12,413**	**54,829**	**1,193,105**	**221,779**	**1,611,562**	**552,230**	**1,014,224**	**45,108**	**163,696**	**147,990**	**1,115**	**918**	**2,793**	**22,430,790**	**985,241**	**11,038,160**

TOTAL COST TO DECOMMISSION WITH 15.96% CONTINGENCY:	**$1,611,562**	**thousands of 2011 dollars**
TOTAL NRC LICENSE TERMINATION COST IS 34.27% OR:	**$552,230**	**thousands of 2011 dollars**
SPENT FUEL MANAGEMENT COST IS 62.93% OR:	**$1,014,224**	**thousands of 2011 dollars**
NON-NUCLEAR DEMOLITION COST IS 2.8% OR:	**$45,108**	**thousands of 2011 dollars**
TOTAL LOW-LEVEL RADWASTE VOLUME BURIED (EXCLUDING GTCC):	**150,024**	**Cubic Feet**
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	**2,793**	**Cubic Feet**
TOTAL SCRAP METAL REMOVED:	**35,187**	**Tons**
TOTAL CRAFT LABOR REQUIREMENTS:	**985,241**	**Man-hours**

End Notes:
n/a - indicates that this activity not charged as decommissioning expense.
a - indicates that this activity performed by decommissioning staff.
0 - indicates that this value is less than 0.5 but is non-zero.
a cell containing " - " indicates a zero value