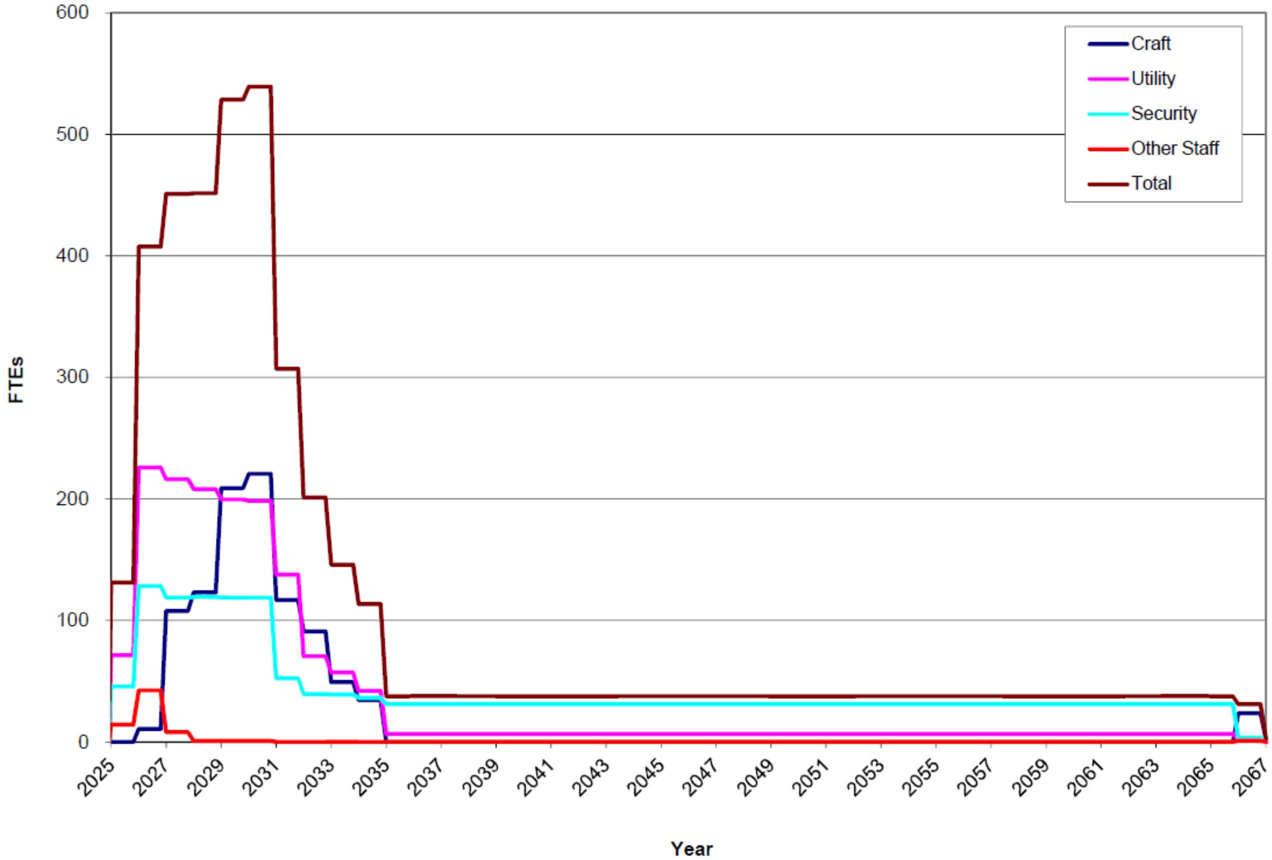
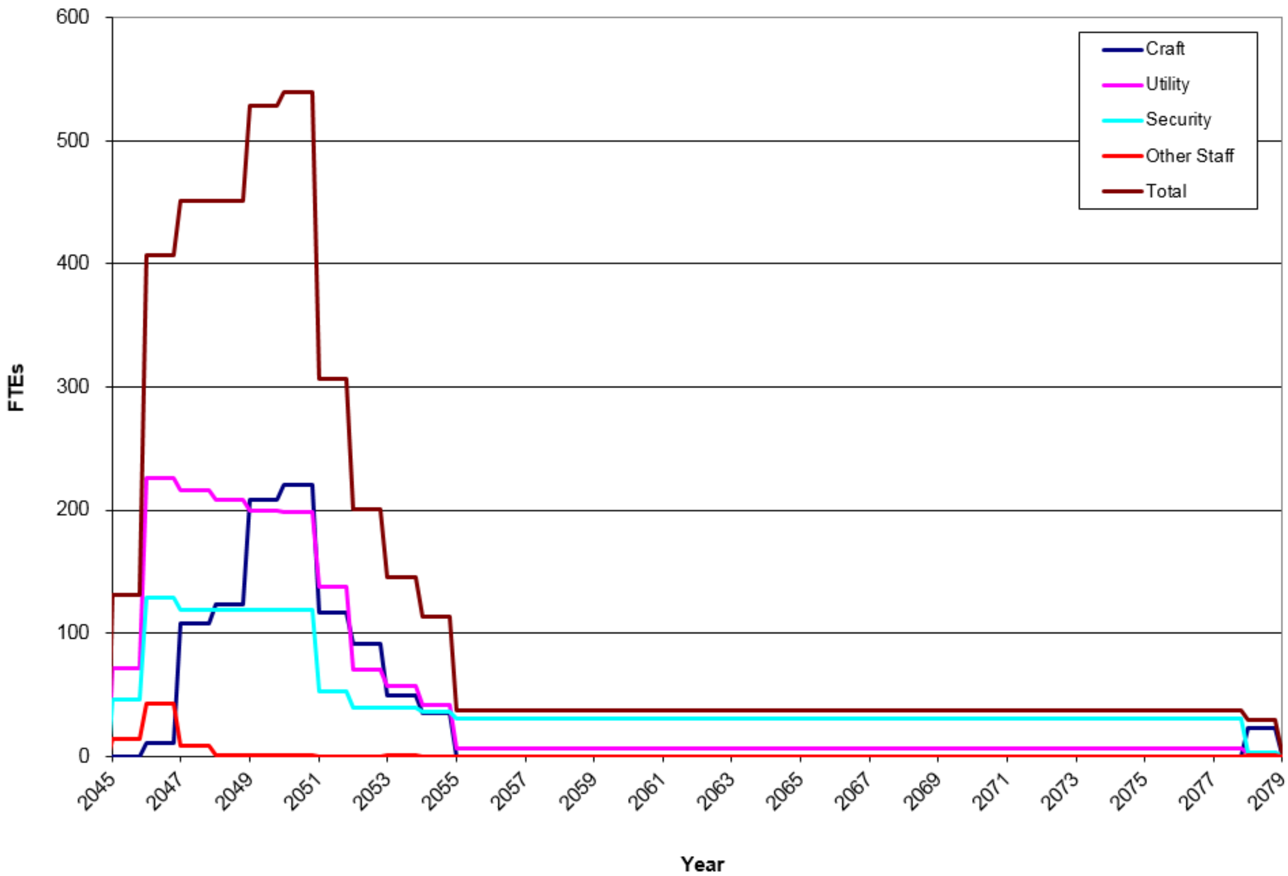
FIGURE 3.1
DECOMMISSIONING PERSONNEL LEVELS
DECON 40



Note that the labor hour basis of this chart was taken from Appendix C; however not all line items in Appendix C have labor hour values available (e.g. spent fuel canister loading estimates)

FIGURE 3.2
DECOMMISSIONING PERSONNEL LEVELS
DECON 60



Note that the labor hour basis of this chart was taken from Appendix D; however not all line items in Appendix D have labor hour values available (e.g. spent fuel canister loading estimates)

4. SCHEDULE ESTIMATE

The schedules for the decommissioning scenarios considered in this analysis follow the sequences 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 described in Section 3.4.1.

A schedule or sequence of activities for the DECON 40 scenario is presented in Figure 4.1. The scheduling sequence is based on the fuel being removed from the spent fuel pool within five and one-half years. 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" computer software.[37]

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:

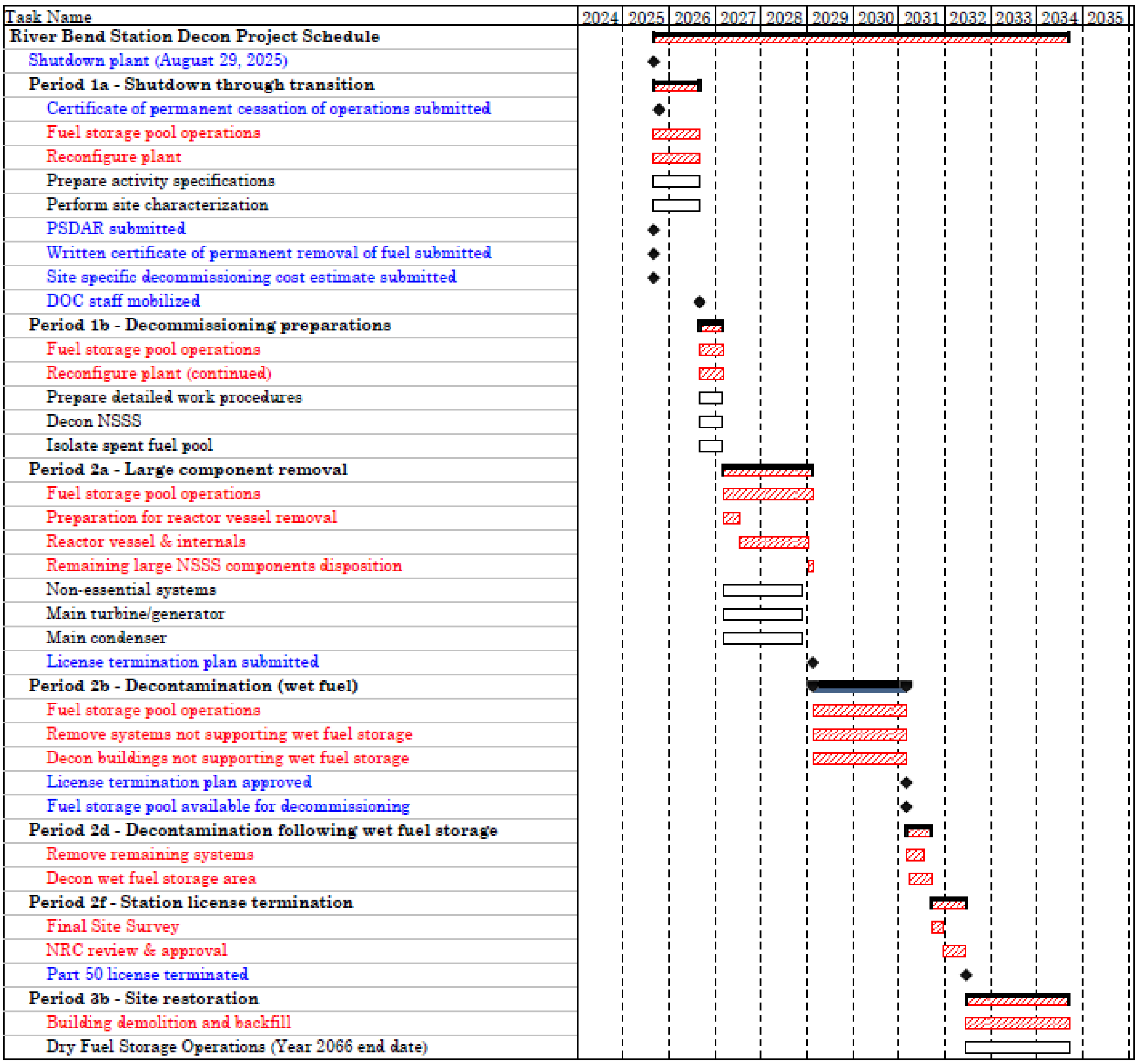
- The fuel handling building is isolated until such time that all spent fuel has been discharged from the spent fuel pool to the DOE or to the ISFSI. Decontamination and dismantling of the storage pool is initiated once the transfer of spent fuel is complete.
- All work (except reactor vessel and reactor vessel internals removal and the spent fuel loading campaigns) is performed during an 8-hour workday, 5 days per week, with no overtime.
- 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.

4.2 PROJECT SCHEDULE

The period-dependent costs presented in the detailed cost tables 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 fuel building for final decontamination.

Project timelines are provided in Figures 4.2 and 4.3, with milestone dates based on the 2025 and 2045 shutdown dates. The fuel pool is emptied approximately five and one-half years after shutdown, while ISFSI operations continue until the DOE can complete the transfer of assemblies.

FIGURE 4.1
ACTIVITY SCHEDULE



LEGEND

1. Red scheduling bars indicate critical path activities
2. Blue scheduling bars associated with major decommissioning periods, e.g., Period 1a, indicate overall duration of that period
3. Diamond symbols indicate major milestones

FIGURE 4.2
DECOMMISSIONING TIMELINE
DECON 40
(not to scale)

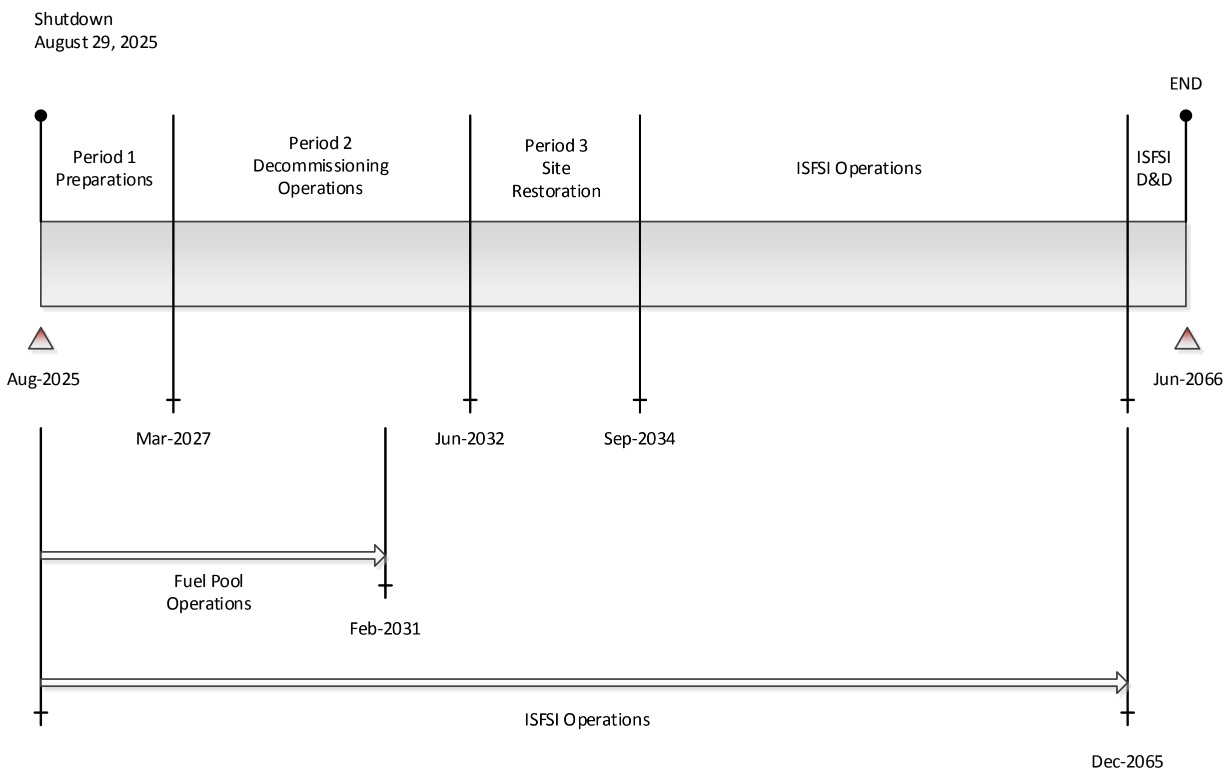
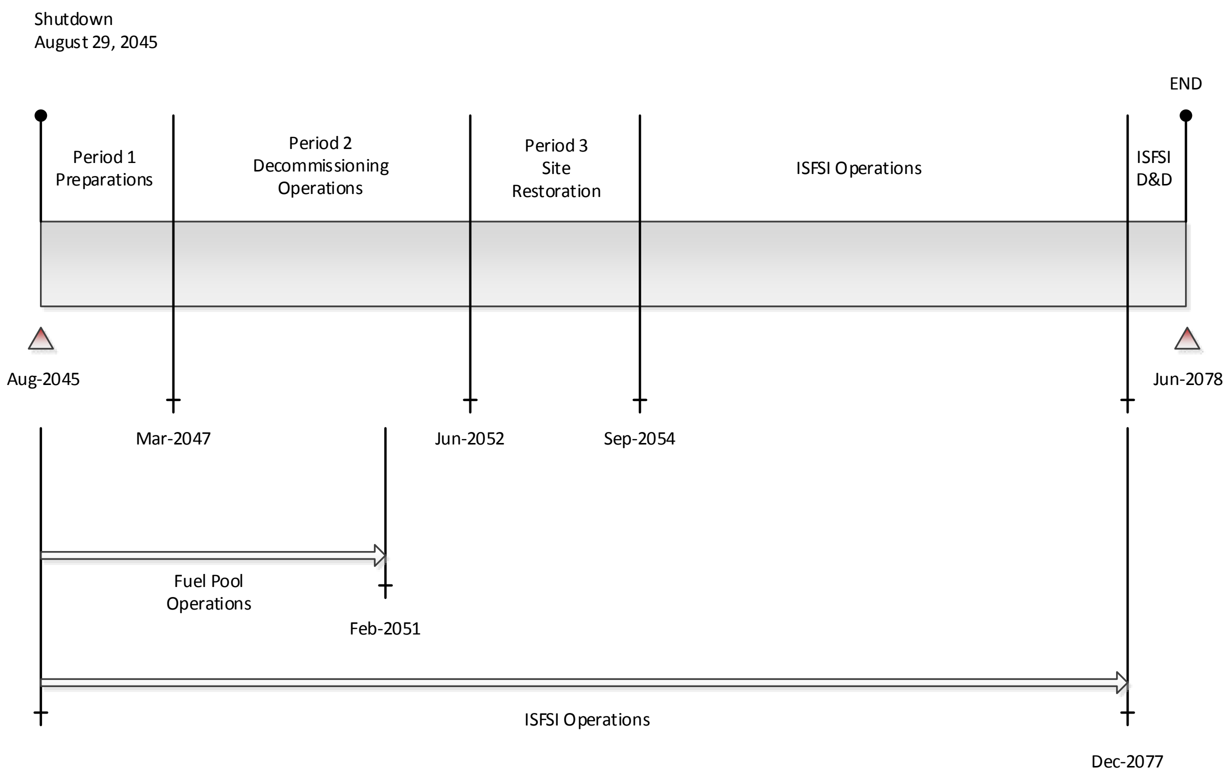


FIGURE 4.3
DECOMMISSIONING TIMELINE
DECON 60
(not to scale)



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,[38] 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 49 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 destinations for the various waste streams from decommissioning are identified in Figures 5.1 and 5.2. The volumes are shown on a line-item basis in Appendices C and D and summarized in Tables 5.1 and 5.2. 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 plant 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 current cost for disposal at Energy*Solutions* facility in Clive, Utah was used for a majority of the radioactive waste produced from the decommissioning activities. Separate rates were used for containerized waste and large components. 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 Entergy’s current agreement with WCS for the Andrews County disposal facility.

FIGURE 5.1
RADIOACTIVE WASTE DISPOSITION

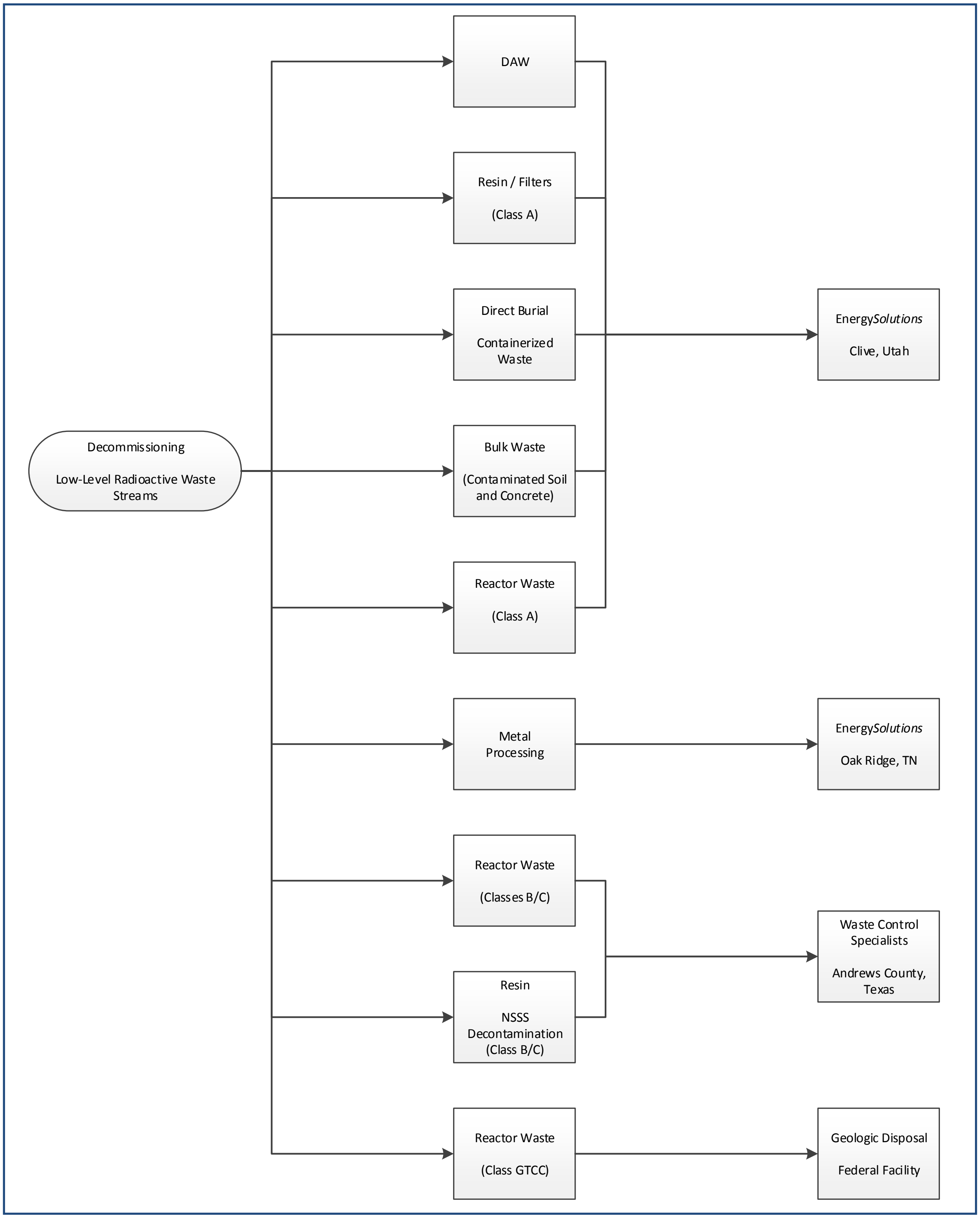


FIGURE 5.2
DECOMMISSIONING WASTE DESTINATIONS
RADIOLOGICAL

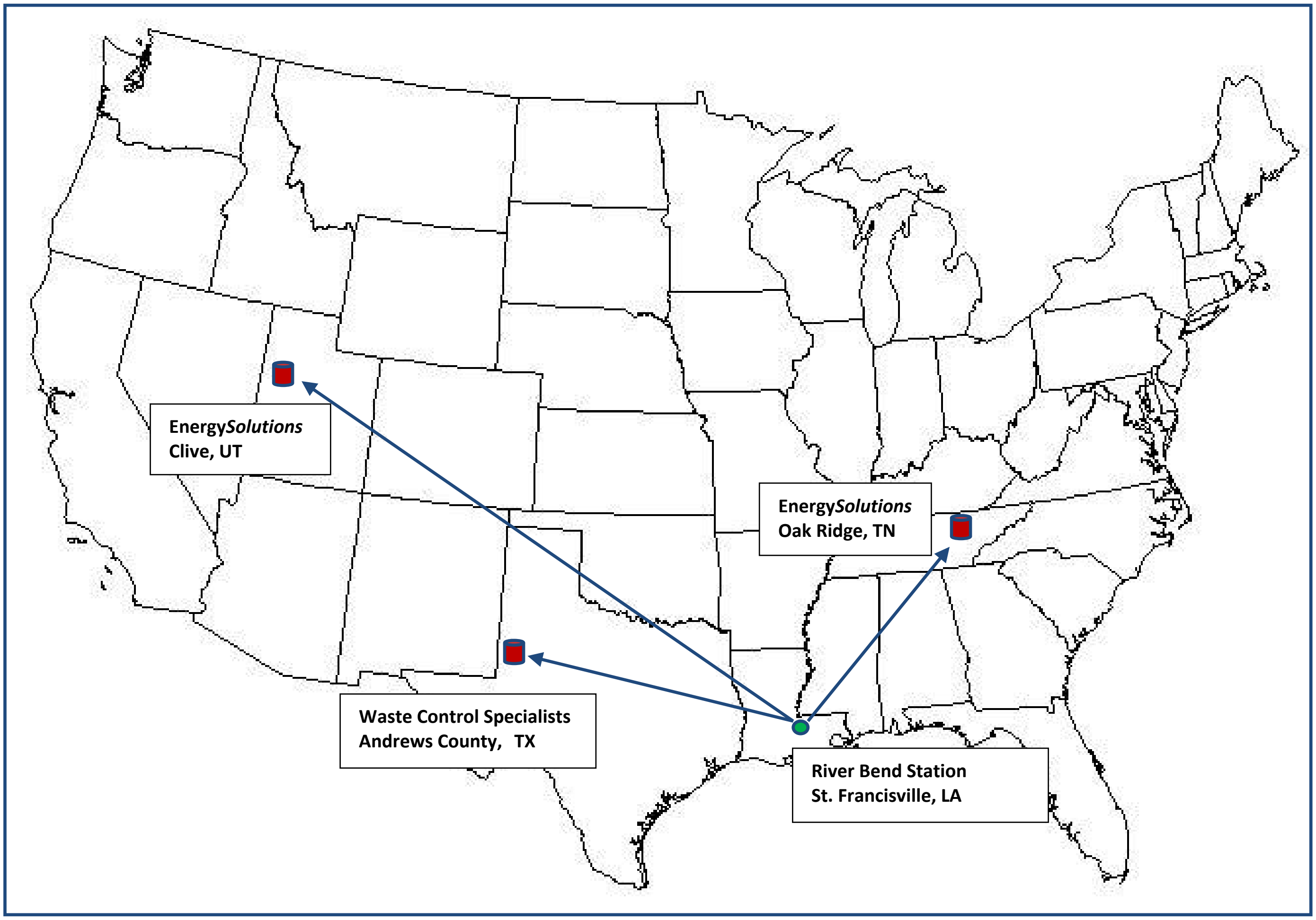


TABLE 5.1
DECON 40 ALTERNATIVE
DECOMMISSIONING WASTE SUMMARY

Waste	Cost Basis	Class [1]	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	Energy*Solutions*	A	320,718	17,266,030
	WCS	B	1,092	144,512
	WCS	C	1,010	87,596
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	1,633	331,931
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	555,980	23,336,060
Total [2]			880,434	41,166,129

[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
DECON 60 ALTERNATIVE
DECOMMISSIONING WASTE SUMMARY

Waste	Cost Basis	Class [1]	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	Energy*Solutions*	A	319,967	17,195,370
	WCS	B	1,619	187,142
	WCS	C	1,234	115,623
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	1,633	331,931
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	555,980	23,336,060
Total [2]			880,434	41,166,127

[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 analysis to estimate the costs to decommission River Bend relied upon the site-specific, technical information developed for a previous analysis prepared in 2014. While not an engineering study, the estimates provide the owner with sufficient information to assess their financial obligations, as they pertain to the eventual decommissioning of the nuclear station.

The estimates described in this report are based on numerous fundamental assumptions, including regulatory requirements, project contingencies, low-level radioactive waste disposal practices, high-level radioactive waste management options, and site restoration requirements.

The cost projected for DECON 40, radiological remediation, dismantle the structures, and manage the spent fuel is estimated to be $1.300 billion. The majority of this cost (approximately 66.5%) is associated with the physical decontamination and dismantling of the nuclear plant so that the operating license can be terminated. Another 27.4% is associated with the management, interim storage, and eventual transfer of the spent fuel. The remaining 6.0% is for the demolition of the designated structures and limited restoration of the site.

The cost projected for DECON 60, radiological remediation, dismantle the structures, and manage the spent fuel is estimated to be $1.221 billion. The majority of this cost (approximately 71.7%) is associated with the physical decontamination and dismantling of the nuclear plant so that the operating license can be terminated. Another 21.9% is associated with the management, interim storage, and eventual transfer of the spent fuel. The remaining 6.4% is for the demolition of the designated structures and limited restoration of the site.

The primary cost contributors, identified in Tables 6.1 and 6.2, 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 Entergy Operations will oversee the decommissioning program and manage the decommissioning labor force (with the exception of the ISFSI decommissioning discussed in Section 3.4.1 above). The size and composition of the management organization varies with the decommissioning phase and associated site activities. However, once the operating license is amended or terminated, the staff is substantially reduced for the conventional demolition and restoration of the site, and the long-term care of the spent fuel.

As described in this report, the spent fuel pool will remain operational for a minimum of five and one-half years following the cessation of operations. The pool will be isolated and an independent spent fuel island created. This will allow decommissioning operations to proceed in and around the pool area. Over the five and one-half year period, the spent fuel will be packaged into canisters assumed to be loaded into a DOE-provided transport cask or relocation 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 majority of the low-level radioactive material requiring controlled disposal is at the Energy*Solutions*' facility. Highly activated components, requiring additional isolation from the environment (GTCC), 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 tables 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.

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, e.g., 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 plant.

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 status of any plant components and materials not removed in the decommissioning process will also require confirmation and will add to the expense of surveying the facilities alone.

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
DECON 40 ALTERNATIVE
DECOMMISSIONING COST ELEMENTS
(thousands of 2018 dollars)

Cost Element	Total	Percentage
Decontamination	21,368	1.6
Removal	165,811	12.8
Packaging	32,609	2.5
Transportation	18,184	1.4
Waste Disposal	109,142	8.4
Off-site Waste Processing	56,625	4.4
Program Management [1]	364,966	28.1
Site Security	194,880	15.0
Spent Fuel Pool Isolation	13,800	1.1
Spent Fuel (Direct Expenditures) [2]	169,580	13.1
Insurance and Regulatory Fees	42,604	3.3
Energy	9,876	0.8
Characterization and Licensing Surveys	29,794	2.3
Property Taxes	2,091	0.2
Site O&M (Non-Labor Overheads)	6,690	0.5
Corporate A&G	47,273	3.6
Miscellaneous Equipment / Site Services	8,328	0.6
Severance	6,000	0.5
Total [3]	1,299,619	100.0

Cost Category	Total	Percentage
License Termination	864,794	66.5
Spent Fuel Management	356,403	27.4
Site Restoration	78,422	6.0
Total [3]	1,299,619	100.0

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

TABLE 6.2
DECON 60 ALTERNATIVE
DECOMMISSIONING COST ELEMENTS
(thousands of 2018 dollars)

Cost Element	Total	Percentage
Decontamination	21,368	1.8
Removal	165,613	13.6
Packaging	32,609	2.7
Transportation	18,127	1.5
Waste Disposal	120,227	9.8
Off-site Waste Processing	56,625	4.6
Program Management [1]	354,670	29.0
Site Security	169,896	13.9
Spent Fuel Pool Isolation	13,800	1.1
Spent Fuel (Direct Expenditures) [2]	125,080	10.2
Insurance and Regulatory Fees	36,524	3.0
Energy	9,876	0.8
Characterization and Licensing Surveys	29,794	2.4
Property Taxes	1,682	0.1
Site O&M (Non-Labor Overheads)	6,690	0.6
Corporate A&G	44,515	3.6
Miscellaneous Equipment / Site Services	8,328	0.7
Severance	6,000	0.5
Total [3]	1,221,421	100.0

Cost Category	Total	Percentage
License Termination	875,743	71.7
Spent Fuel Management	267,482	21.9
Site Restoration	78,196	6.4
Total [3]	1,221,421	100.0

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

7. REFERENCES

1. "Decommissioning Cost Analysis for the River Bend Station," Document E11-1691-001 Rev. 0, TLG Services, Inc., December 2014

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, 53 Fed. Reg. 24018, June 27, 1988 [Open]

3. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," Rev. 2, October 2011 [Open]

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

5. U.S. Code of Federal Regulations, Title 10, Parts 20 and 50, "Entombment Options for Power Reactors," Advance Notice of Proposed Rulemaking, 66 Fed. Reg. 52551, October 16, 2001 [Open]

6. U.S. Code of Federal Regulations, Title 10, Parts 2, 50 and 51, "Decommissioning of Nuclear Power Reactors," Nuclear Regulatory Commission, 61 Fed. Reg. 39278, July 29, 1996 [Open]

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10. Charter of the Blue Ribbon Commission on America's Nuclear Future, "Objectives and Scope of Activities" [Open]

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12. "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste," U.S. DOE, January 11, 2013 [Open]

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14. U.S. Code of Federal Regulations, Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," Subpart 54 (bb), "Conditions of Licenses" [Open]

15. U.S. Code of Federal Regulations, Title 10, Part 72, Subpart K, "General License for Storage of Spent Fuel at Power Reactor Sites" [Open]

16. "Low-Level Radioactive Waste Policy Act," Public Law 96-573, 1980 [Open]

17. "Low-Level Radioactive Waste Policy Amendments Act of 1985," Public Law 99-240, January 15, 1986 [Open]

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

19. U.S. Code of Federal Regulations, Title 10, Part 20, Subpart E, "Final Rule, Radiological Criteria for License Termination," 62 Fed. Reg. 39058, July 21, 1997 [Open]

20. "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination," EPA Memorandum OSWER No. 9200.4-18, August 22, 1997 [Open]

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23. "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)," NUREG-1575, Rev. 1, EPA 402-R-97-016, Rev. 1, August 2000 [Open]

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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, 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% 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 hr *****

* alpha designators indicate activities that can be performed in parallel

APPENDIX A
(continued)

3. LABOR REQUIRED

Crew	Number	Duration (hours)	Rate ($/hr)	Cost
Laborers	3.00	11.217	$29.38	$988.67
Craftsmen	2.00	11.217	$47.98	$1,076.38
Foreman	1.00	11.217	$50.59	$567.47
General Foreman	0.25	11.217	$52.34	$146.77
Fire Watch	0.05	11.217	$29.38	$16.48
Health Physics Technician	1.00	11.217	$49.51	$555.35
Total Labor Cost				$3,351.12

4. EQUIPMENT & CONSUMABLES COSTS

Equipment Costs	none
Consumables/Materials Costs	
-Universal Sorbent 50 @ $0.64 sq ft {1}	$32.00
-Tarpaulins (oil resistant/fire retardant) 50 @ $0.50/sq ft {2}	$25.00
-Gas torch consumables 1 @ $21.48/hr x 1 hr {3}	$21.48
Subtotal cost of equipment and materials	$78.48
Overhead & profit on equipment and materials @ 14.00 %	$10.99
Total costs, equipment & material	$89.47

TOTAL COST:

Removal of contaminated heat exchanger <3000 pounds:	**$3,440.59**
Total labor cost:	$3,351.12
Total equipment/material costs:	$89.47
Total craft labor man-hours required per unit:	81.88

5. NOTES AND REFERENCES

- Work difficulty factors were developed in conjunction with the Atomic Industrial Forum's (now NEI) 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. www.mcmaster.com online catalog, McMaster Carr Spill Control (7193T88)
  2. R.S. Means (2018) Division 01 56, Section 13.60-0600, page 23
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- Material and consumable costs were adjusted using the regional indices for Baton Rouge, Louisiana.

APPENDIX B

UNIT COST FACTOR LISTING
(DECON: Power Block Structures Only)

Removal of clean instrument and sampling tubing, $/linear foot	0.35
Removal of clean pipe 0.25 to 2 inches diameter, $/linear foot	3.64
Removal of clean pipe >2 to 4 inches diameter, $/linear foot	5.34
Removal of clean pipe >4 to 8 inches diameter, $/linear foot	10.91
Removal of clean pipe >8 to 14 inches diameter, $/linear foot	20.53
Removal of clean pipe >14 to 20 inches diameter, $/linear foot	26.87
Removal of clean pipe >20 to 36 inches diameter, $/linear foot	39.49
Removal of clean pipe >36 inches diameter, $/linear foot	46.85
Removal of clean valve >2 to 4 inches	71.47
Removal of clean valve >4 to 8 inches	109.06
Removal of clean valve >8 to 14 inches	205.34
Removal of clean valve >14 to 20 inches	268.74
Removal of clean valve >20 to 36 inches	394.95
Removal of clean valve >36 inches	468.49
Removal of clean pipe hanger for small bore piping	26.38
Removal of clean pipe hanger for large bore piping	87.09
Removal of clean pump, <300 pound	187.65
Removal of clean pump, 300-1000 pound	527.21
Removal of clean pump, 1000-10,000 pound	2,043.88
Removal of clean pump, >10,000 pound	3,965.60
Removal of clean pump motor, 300-1000 pound	217.72
Removal of clean pump motor, 1000-10,000 pound	845.34
Removal of clean pump motor, >10,000 pound	1,902.04
Removal of clean heat exchanger <3000 pound	1,104.47
Removal of clean heat exchanger >3000 pound	2,798.00
Removal of clean feedwater heater/deaerator	7,838.44
Removal of clean moisture separator/reheater	16,048.45
Removal of clean tank, <300 gallons	240.94
Removal of clean tank, 300-3000 gallon	752.73
Removal of clean tank, >3000 gallons, $/square foot surface area	6.52

Removal of clean electrical equipment, <300 pound	99.36
Removal of clean electrical equipment, 300-1000 pound	354.45
Removal of clean electrical equipment, 1000-10,000 pound	708.92
Removal of clean electrical equipment, >10,000 pound	1,703.48
Removal of clean electrical transformer < 30 tons	1,183.05
Removal of clean electrical transformer > 30 tons	3,406.97
Removal of clean standby diesel generator, <100 kW	1,208.38
Removal of clean standby diesel generator, 100 kW to 1 MW	2,697.19
Removal of clean standby diesel generator, >1 MW	5,583.70
Removal of clean electrical cable tray, $/linear foot	9.51
Removal of clean electrical conduit, $/linear foot	4.17
Removal of clean mechanical equipment, <300 pound	99.36
Removal of clean mechanical equipment, 300-1000 pound	354.45
Removal of clean mechanical equipment, 1000-10,000 pound	708.92
Removal of clean mechanical equipment, >10,000 pound	1,703.48
Removal of clean HVAC equipment, <300 pound	120.14
Removal of clean HVAC equipment, 300-1000 pound	425.92
Removal of clean HVAC equipment, 1000-10,000 pound	848.84
Removal of clean HVAC equipment, >10,000 pound	1,703.48
Removal of clean HVAC ductwork, $/pound	0.37
Removal of contaminated instrument and sampling tubing, $/linear foot	1.20
Removal of contaminated pipe 0.25 to 2 inches diameter, $/linear foot	18.69
Removal of contaminated pipe >2 to 4 inches diameter, $/linear foot	30.37
Removal of contaminated pipe >4 to 8 inches diameter, $/linear foot	49.47
Removal of contaminated pipe >8 to 14 inches diameter, $/linear foot	93.48
Removal of contaminated pipe >14 to 20 inches diameter, $/linear foot	111.41
Removal of contaminated pipe >20 to 36 inches diameter, $/linear foot	152.11
Removal of contaminated pipe >36 inches diameter, $/linear foot	178.74
Removal of contaminated valve >2 to 4 inches	363.19
Removal of contaminated valve >4 to 8 inches	435.41

Removal of contaminated valve >8 to 14 inches	869.85
Removal of contaminated valve >14 to 20 inches	1,100.11
Removal of contaminated valve >20 to 36 inches	1,456.15
Removal of contaminated valve >36 inches	1,722.38
Removal of contaminated pipe hanger for small bore piping	120.17
Removal of contaminated pipe hanger for large bore piping	387.08
Removal of contaminated pump, <300 pound	782.80
Removal of contaminated pump, 300-1000 pound	1,813.10
Removal of contaminated pump, 1000-10,000 pound	5,633.29
Removal of contaminated pump, >10,000 pound	13,717.92
Removal of contaminated pump motor, 300-1000 pound	798.73
Removal of contaminated pump motor, 1000-10,000 pound	2,321.63
Removal of contaminated pump motor, >10,000 pound	5,212.62
Removal of contaminated heat exchanger <3000 pound	3,440.59
Removal of contaminated heat exchanger >3000 pound	10,067.99
Removal of contaminated feedwater heater/deaerator	24,454.23
Removal of contaminated moisture separator/reheater	52,770.78
Removal of contaminated tank, <300 gallons	1,307.97
Removal of contaminated tank, >300 gallons, $/square foot	24.94
Removal of contaminated electrical equipment, <300 pound	591.12
Removal of contaminated electrical equipment, 300-1000 pound	1,457.59
Removal of contaminated electrical equipment, 1000-10,000 pound	2,809.19
Removal of contaminated electrical equipment, >10,000 pound	5,553.88
Removal of contaminated electrical cable tray, $/linear foot	28.65
Removal of contaminated electrical conduit, $/linear foot	15.05
Removal of contaminated mechanical equipment, <300 pound	656.95
Removal of contaminated mechanical equipment, 300-1000 pound	1,607.25
Removal of contaminated mechanical equipment, 1000-10,000 pound	3,092.47
Removal of contaminated mechanical equipment, >10,000 pound	5,553.88
Removal of contaminated HVAC equipment, <300 pound	656.95

Removal of contaminated HVAC equipment, 300-1000 pound	1,607.25
Removal of contaminated HVAC equipment, 1000-10,000 pound	3,092.47
Removal of contaminated HVAC equipment, >10,000 pound	5,553.88
Removal of contaminated HVAC ductwork, $/pound	1.82
Removal/plasma arc cut of contaminated thin metal components, $/linear in.	3.13
Additional decontamination of surface by washing, $/square foot	6.38
Additional decontamination of surfaces by hydrolasing, $/square foot	29.73
Decontamination rig hook up and flush, $/ 250 foot length	5,488.95
Chemical flush of components/systems, $/gallon	21.34
Removal of clean standard reinforced concrete, $/cubic yard	68.02
Removal of grade slab concrete, $/cubic yard	77.32
Removal of clean concrete floors, $/cubic yard	337.06
Removal of sections of clean concrete floors, $/cubic yard	986.05
Removal of clean heavily rein concrete w/#9 rebar, $/cubic yard	98.03
Removal of contaminated heavily rein concrete w/#9 rebar, $/cubic yard	1,833.00
Removal of clean heavily rein concrete w/#18 rebar, $/cubic yard	132.81
Removal of contaminated heavily rein concrete w/#18 rebar, $/cubic yard	2,421.41
Removal heavily rein concrete w/#18 rebar & steel embedments, $/cubic yard	397.95
Removal of below-grade suspended floors, $/cubic yard	186.11
Removal of clean monolithic concrete structures, $/cubic yard	773.38
Removal of contaminated monolithic concrete structures, $/cubic yard	1,815.40
Removal of clean foundation concrete, $/cubic yard	611.50
Removal of contaminated foundation concrete, $/cubic yard	1,692.20
Explosive demolition of bulk concrete, $/cubic yard	43.77
Removal of clean hollow masonry block wall, $/cubic yard	23.58
Removal of contaminated hollow masonry block wall, $/cubic yard	61.67
Removal of clean solid masonry block wall, $/cubic yard	23.58
Removal of contaminated solid masonry block wall, $/cubic yard	61.67
Backfill of below-grade voids, $/cubic yard	30.87
Removal of subterranean tunnels/voids, $/linear foot	93.62

Placement of concrete for below-grade voids, $/cubic yard	150.32
Excavation of clean material, $/cubic yard	2.79
Excavation of contaminated material, $/cubic yard	37.84
Removal of clean concrete rubble (tipping fee included), $/cubic yard	24.20
Removal of contaminated concrete rubble, $/cubic yard	23.48
Removal of building by volume, $/cubic foot	0.27
Removal of clean building metal siding, $/square foot	1.11
Removal of contaminated building metal siding, $/square foot	3.89
Removal of standard asphalt roofing, $/square foot	1.63
Removal of transite panels, $/square foot	1.74
Scarifying contaminated concrete surfaces (drill & spall), $/square foot	11.20
Scabbling contaminated concrete floors, $/square foot	6.45
Scabbling contaminated concrete walls, $/square foot	16.69
Scabbling contaminated ceilings, $/square foot	56.96
Scabbling structural steel, $/square foot	5.39
Removal of clean overhead crane/monorail < 10 ton capacity	510.82
Removal of contaminated overhead crane/monorail < 10 ton capacity	1,508.81
Removal of clean overhead crane/monorail >10-50 ton capacity	1,225.98
Removal of contaminated overhead crane/monorail >10-50 ton capacity	3,620.54
Removal of polar crane > 50 ton capacity	5,160.11
Removal of gantry crane > 50 ton capacity	21,293.52
Removal of structural steel, $/pound	0.16
Removal of clean steel floor grating, $/square foot	4.04
Removal of contaminated steel floor grating, $/square foot	11.91
Removal of clean free standing steel liner, $/square foot	9.78
Removal of contaminated free standing steel liner, $/square foot	29.03
Removal of clean concrete-anchored steel liner, $/square foot	4.89
Removal of contaminated concrete-anchored steel liner, $/square foot	33.87
Placement of scaffolding in clean areas, $/square foot	15.97
Placement of scaffolding in contaminated areas, $/square foot	24.06

Landscaping with topsoil, $/acre	23,830.34
Cost of CPC B-88 LSA box & preparation for use	2,078.92
Cost of CPC B-25 LSA box & preparation for use	1,944.81
Cost of CPC B-12V 12 gauge LSA box & preparation for use	1,652.74
Cost of CPC B-144 LSA box & preparation for use	10,881.26
Cost of LSA drum & preparation for use	203.11
Cost of cask liner for CNSI 8 120A cask (resins)	12,174.20
Cost of cask liner for CNSI 8 120A cask (filters)	8,665.05
Decontamination of surfaces with vacuuming, $/square foot	0.68

APPENDIX C

DETAILED COST ANALYSIS

DECON 40

Table C
River Bend Station
DECON 40 Decommissioning Cost Estimate
(thousands of 2018 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 0a - Pre-Shutdown Early Planning																					
Period 0a Direct Decommissioning Activities																					
Period 0a Additional Costs																					
0a.2.1	Pre-Shutdown Contractor	-	-	-	-	-	-	8,624	-	8,624	8,624	-	-	-	-	-	-	-	-	-	-
0a.2.2	IT Support and Projects	-	-	-	-	-	-	683	-	683	683	-	-	-	-	-	-	-	-	-	-
0a.2	Subtotal Period 0a Additional Costs	-	-	-	-	-	-	9,307	-	9,307	9,307	-	-	-	-	-	-	-	-	-	-
Period 0a Period-Dependent Costs																					
0a.4.4	NRC Fees	-	-	-	-	-	-	484	48	532	532	-	-	-	-	-	-	-	-	-	-
0a.4.5	NDO	-	-	-	-	-	-	3,222	483	3,705	3,705	-	-	-	-	-	-	-	-	-	-
0a.4.6	Utility Staff Cost	-	-	-	-	-	-	3,923	588	4,512	4,512	-	-	-	-	-	-	-	-	-	-
0a.4	Subtotal Period 0a Period-Dependent Costs	-	-	-	-	-	-	7,629	1,120	8,749	8,749	-	-	-	-	-	-	-	-	-	-
0a.0	TOTAL PERIOD 0a COST	-	-	-	-	-	-	16,935	1,120	18,055	18,055	-	-	-	-	-	-	-	-	-	-
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	149	22	171	171	-	-	-	-	-	-	-	-	-	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	-	-	-	-	-	-	229	34	264	264	-	-	-	-	-	-	-	-	-	2,000
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	527	79	607	607	-	-	-	-	-	-	-	-	-	4,600
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1a.1.10	End product description	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	149	22	171	171	-	-	-	-	-	-	-	-	-	1,300
1a.1.12	Define major work sequence	-	-	-	-	-	-	860	129	989	989	-	-	-	-	-	-	-	-	-	7,500
1a.1.13	Perform SER and EA	-	-	-	-	-	-	355	53	409	409	-	-	-	-	-	-	-	-	-	3,100
1a.1.14	Prepare/submit Defueled Technical Specifications	-	-	-	-	-	-	860	129	989	989	-	-	-	-	-	-	-	-	-	7,500
1a.1.15	Perform Site-Specific Cost Study	-	-	-	-	-	-	573	86	659	659	-	-	-	-	-	-	-	-	-	5,000
1a.1.16	Prepare/submit Irradiated Fuel Management Plan	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	564	85	649	584	-	65	-	-	-	-	-	-	-	4,920
1a.1.17.2	Plant systems	-	-	-	-	-	-	478	72	549	494	-	55	-	-	-	-	-	-	-	4,167
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	57	9	66	66	-	-	-	-	-	-	-	-	-	500
1a.1.17.4	Reactor internals	-	-	-	-	-	-	814	122	936	936	-	-	-	-	-	-	-	-	-	7,100
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	745	112	857	857	-	-	-	-	-	-	-	-	-	6,500
1a.1.17.6	Sacrificial shield	-	-	-	-	-	-	57	9	66	66	-	-	-	-	-	-	-	-	-	500
1a.1.17.7	Moisture separators/reheaters	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	183	28	211	105	-	105	-	-	-	-	-	-	-	1,600
1a.1.17.9	Main Turbine	-	-	-	-	-	-	239	36	275	275	-	-	-	-	-	-	-	-	-	2,088
1a.1.17.10	Main Condensers	-	-	-	-	-	-	239	36	275	275	-	-	-	-	-	-	-	-	-	2,088
1a.1.17.11	Pressure suppression structure	-	-	-	-	-	-	229	34	264	264	-	-	-	-	-	-	-	-	-	2,000
1a.1.17.12	Drywell	-	-	-	-	-	-	183	28	211	211	-	-	-	-	-	-	-	-	-	1,600
1a.1.17.13	Plant structures & buildings	-	-	-	-	-	-	358	54	411	206	-	206	-	-	-	-	-	-	-	3,120
1a.1.17.14	Waste management	-	-	-	-	-	-	527	79	607	607	-	-	-	-	-	-	-	-	-	4,600
1a.1.17.15	Facility & site closeout	-	-	-	-	-	-	103	15	119	59	-	59	-	-	-	-	-	-	-	900
1a.1.17	Total	-	-	-	-	-	-	4,894	734	5,628	5,138	-	490	-	-	-	-	-	-	-	42,683
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	275	41	316	316	-	-	-	-	-	-	-	-	-	2,400
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	3,300	495	3,795	3,795	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	161	24	185	185	-	-	-	-	-	-	-	-	-	1,400
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,300	345	2,645	2,645	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	141	21	162	162	-	-	-	-	-	-	-	-	-	1,230
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	15,118	2,268	17,386	16,896	-	490	-	-	-	-	-	-	-	83,013
Period 1a Additional Costs																					
1a.2.1	IT Support and Projects	-	-	-	-	-	-	533	-	533	533	-	-	-	-	-	-	-	-	-	-
1a.2.2	Fees Paid by Headquarters	-	-	-	-	-	-	95	-	95	95	-	-	-	-	-	-	-	-	-	-
1a.2.3	Communication Plan	-	-	-	-	-	-	333	-	333	333	-	-	-	-	-	-	-	-	-	-
1a.2.4	Post-Shutdown Contractor	-	-	-	-	-	-	794	-	794	794	-	-	-	-	-	-	-	-	-	-

Table C
River Bend Station
DECON 40 Decommissioning Cost Estimate
(thousands of 2018 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
1a.2	Subtotal Period 1a Additional Costs	-	-	-	-	-	-	1,755	-	1,755	1,755	-	-	-	-	-	-	-	-	-	-
	Period 1a Collateral Costs																				
1a.3.1	Legal (License Termination)	-	-	-	-	-	-	866	130	996	996	-	-	-	-	-	-	-	-	-	-
1a.3.2	Annual Fee	-	-	-	-	-	-	86	13	99	99	-	-	-	-	-	-	-	-	-	-
1a.3.3	Corporate A&G	-	-	-	-	-	-	9,235	1,385	10,621	10,621	-	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	-	-	-	-	-	10,188	1,528	11,716	11,716	-	-	-	-	-	-	-	-	-	-
	Period 1a Period-Dependent Costs																				
1a.4.1	Insurance	-	-	-	-	-	-	2,948	295	3,243	3,243	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	46	5	51	51	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	525	-	-	-	-	-	131	656	656	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	546	-	-	-	-	-	82	628	628	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	13	3	-	34	-	10	61	61	-	-	-	616	-	-	-	12,311	20	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	1,419	213	1,632	1,632	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	1,718	172	1,890	1,890	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	1,293	129	1,422	-	1,422	-	-	-	-	-	-	-	-	-
1a.4.9	Non-Labor Overhead	-	-	-	-	-	-	2,081	312	2,393	2,393	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	810	121	931	-	931	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	106	16	122	-	122	-	-	-	-	-	-	-	-	-
1a.4.12	NDO	-	-	-	-	-	-	3,222	483	3,705	3,705	-	-	-	-	-	-	-	-	-	-
1a.4.13	Security Staff Cost	-	-	-	-	-	-	14,307	2,146	16,453	16,453	-	-	-	-	-	-	-	-	-	277,511
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	32,774	4,916	37,690	37,690	-	-	-	-	-	-	-	-	-	432,640
1a.4	Subtotal Period 1a Period-Dependent Costs	-	1,071	13	3	-	34	60,725	9,032	70,878	68,403	2,475	-	-	616	-	-	-	12,311	20	710,151
1a.0	TOTAL PERIOD 1a COST	-	1,071	13	3	-	34	87,785	12,828	101,735	98,769	2,475	490	-	616	-	-	-	12,311	20	793,163
	PERIOD 1b - Decommissioning Preparations																				
	Period 1b Direct Decommissioning Activities																				
	Detailed Work Procedures																				
1b.1.1.1	Plant systems	-	-	-	-	-	-	543	81	624	562	-	62	-	-	-	-	-	-	-	4,733
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.3	Reactor internals	-	-	-	-	-	-	459	69	527	527	-	-	-	-	-	-	-	-	-	4,000
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	155	23	178	45	-	134	-	-	-	-	-	-	-	1,350
1b.1.1.5	CRD housings & NIs	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.6	Incore instrumentation	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.7	Removal primary containment	-	-	-	-	-	-	229	34	264	264	-	-	-	-	-	-	-	-	-	2,000
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	416	62	479	479	-	-	-	-	-	-	-	-	-	3,630
1b.1.1.9	Facility closeout	-	-	-	-	-	-	138	21	158	79	-	79	-	-	-	-	-	-	-	1,200
1b.1.1.10	Sacrificial shield	-	-	-	-	-	-	138	21	158	158	-	-	-	-	-	-	-	-	-	1,200
1b.1.1.11	Reinforced concrete	-	-	-	-	-	-	115	17	132	66	-	66	-	-	-	-	-	-	-	1,000
1b.1.1.12	Main Turbine	-	-	-	-	-	-	238	36	274	274	-	-	-	-	-	-	-	-	-	2,080
1b.1.1.13	Main Condensers	-	-	-	-	-	-	239	36	275	275	-	-	-	-	-	-	-	-	-	2,088
1b.1.1.14	Moisture separators & reheaters	-	-	-	-	-	-	229	34	264	264	-	-	-	-	-	-	-	-	-	2,000
1b.1.1.15	Radwaste building	-	-	-	-	-	-	313	47	360	324	-	36	-	-	-	-	-	-	-	2,730
1b.1.1.16	Reactor building	-	-	-	-	-	-	313	47	360	324	-	36	-	-	-	-	-	-	-	2,730
1b.1.1	Total	-	-	-	-	-	-	3,869	580	4,449	4,036	-	413	-	-	-	-	-	-	-	33,741
1b.1.2	Decon NSSS	212	-	-	-	-	-	-	106	317	317	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	212	-	-	-	-	-	3,869	686	4,767	4,354	-	413	-	-	-	-	-	-	1,067	33,741
	Period 1b Additional Costs																				
1b.2.1	Spent fuel pool isolation	-	-	-	-	-	-	12,000	1,800	13,800	13,800	-	-	-	-	-	-	-	-	-	-
1b.2.2	Site Characterization	-	-	-	-	-	-	5,325	1,598	6,923	6,923	-	-	-	-	-	-	-	-	30,500	10,852
1b.2.3	IT Support and Projects	-	-	-	-	-	-	236	-	236	236	-	-	-	-	-	-	-	-	-	-
1b.2.4	Fees Paid by Headquarters	-	-	-	-	-	-	48	-	48	48	-	-	-	-	-	-	-	-	-	-
1b.2.5	Communication Plan	-	-	-	-	-	-	17	-	17	17	-	-	-	-	-	-	-	-	-	-
1b.2.6	Post-Shutdown Contractor	-	-	-	-	-	-	197	-	197	197	-	-	-	-	-	-	-	-	-	-
1b.2	Subtotal Period 1b Additional Costs	-	-	-	-	-	-	17,822	3,398	21,220	21,220	-	-	-	-	-	-	-	-	30,500	10,852
	Period 1b Collateral Costs																				
1b.3.1	Decon equipment	999	-	-	-	-	-	-	150	1,148	1,148	-	-	-	-	-	-	-	-	-	-
1b.3.2	Staff relocation expenses	-	-	-	-	-	-	1,373	206	1,579	1,579	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process decommissioning water waste	114	-	72	168	-	301	-	165	819	819	-	-	-	706	-	-	-	42,331	138	-
1b.3.4	Process decommissioning chemical flush waste	0	-	13	48	-	1,060	-	274	1,395	1,395	-	-	-	-	139	-	-	14,770	26	-
1b.3.5	Small tool allowance	-	2	-	-	-	-	-	0	2	2	-	-	-	-	-	-	-	-	-	-

Table C
River Bend Station
DECON 40 Decommissioning Cost Estimate
(thousands of 2018 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 1b Collateral Costs (continued)																					
1b.3.6	Pipe cutting equipment	-	1,200	-	-	-	-	-	180	1,380	1,380	-	-	-	-	-	-	-	-	-	-
1b.3.7	Decon rig	1,938	-	-	-	-	-	-	291	2,229	2,229	-	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	1,479	222	1,701	-	1,701	-	-	-	-	-	-	-	-	-
1b.3.9	Legal (License Termination)	-	-	-	-	-	-	439	66	505	505	-	-	-	-	-	-	-	-	-	-
1b.3.10	Annual Fee	-	-	-	-	-	-	44	7	50	50	-	-	-	-	-	-	-	-	-	-
1b.3.11	Corporate A&G	-	-	-	-	-	-	3,984	598	4,581	4,581	-	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	3,051	1,202	85	215	-	1,360	7,319	2,157	15,390	13,688	1,701	-	-	706	139	-	-	57,101	163	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	35	-	-	-	-	-	-	9	44	44	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	1,494	149	1,644	1,644	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	24	2	26	26	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	294	-	-	-	-	-	73	367	367	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	277	-	-	-	-	-	42	318	318	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	8	2	-	20	-	6	36	36	-	-	-	359	-	-	-	7,173	12	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	1,439	216	1,654	1,654	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	600	60	660	660	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	109	11	120	-	120	-	-	-	-	-	-	-	-	-
1b.4.10	Non-Labor Overhead	-	-	-	-	-	-	1,055	158	1,213	1,213	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	410	62	472	-	472	-	-	-	-	-	-	-	-	-
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	54	8	62	-	62	-	-	-	-	-	-	-	-	-
1b.4.13	NDO	-	-	-	-	-	-	1,633	245	1,878	1,878	-	-	-	-	-	-	-	-	-	-
1b.4.14	Security Staff Cost	-	-	-	-	-	-	6,474	971	7,445	7,445	-	-	-	-	-	-	-	-	-	125,370
1b.4.15	Utility Staff Cost	-	-	-	-	-	-	21,156	3,173	24,329	24,329	-	-	-	-	-	-	-	-	-	274,104
1b.4	Subtotal Period 1b Period-Dependent Costs	35	571	8	2	-	20	34,446	5,185	40,267	39,614	653	-	-	359	-	-	-	7,173	12	399,474
1b.0	TOTAL PERIOD 1b COST	3,298	1,772	93	217	-	1,380	63,456	11,426	81,643	78,875	2,355	413	-	1,064	139	-	-	64,274	31,742	444,067
PERIOD 1 TOTALS		3,298	2,843	106	221	-	1,414	151,241	24,254	183,378	177,645	4,830	903	-	1,680	139	-	-	76,585	31,762	1,237,230
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Recirculation System Piping & Valves	49	43	19	37	-	254	-	106	508	508	-	-	-	935	-	-	-	65,220	2,005	-
2a.1.1.2	Recirculation Pumps & Motors	48	53	93	54	-	305	-	131	682	682	-	-	-	1,691	-	-	-	165,200	2,252	100
2a.1.1.3	CRDMs & NIs Removal	152	789	498	179	-	996	-	599	3,215	3,215	-	-	-	4,396	-	-	-	255,500	21,130	-
2a.1.1.4	Reactor Vessel Internals	141	7,288	13,741	2,341	-	19,457	494	19,360	62,823	62,823	-	-	-	1,502	954	898	-	349,619	42,957	1,877
2a.1.1.5	Reactor Vessel	95	9,522	3,799	1,876	-	7,804	494	12,584	36,174	36,174	-	-	-	24,324	-	-	-	1,641,321	42,957	1,877
2a.1.1	Totals	485	17,695	18,150	4,487	-	28,817	987	32,780	103,402	103,402	-	-	-	32,848	954	898	-	2,476,860	111,301	3,853
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	306	1,913	378	4,072	419	-	1,040	8,128	8,128	-	-	32,163	1,791	-	-	-	2,043,586	7,043	-
2a.1.3	Main Condensers	-	1,382	1,413	406	5,951	649	-	1,603	11,404	11,404	-	-	62,678	2,618	-	-	-	2,986,796	32,258	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	*Reactor Building	-	379	-	-	-	-	-	57	436	436	-	-	-	-	-	-	-	-	4,960	-
2a.1.4.2	Auxiliary Building	-	139	-	-	-	-	-	21	160	160	-	-	-	-	-	-	-	-	1,112	-
2a.1.4.3	Auxiliary Control Building	-	13	-	-	-	-	-	2	15	15	-	-	-	-	-	-	-	-	140	-
2a.1.4.4	Condensate Demin Regen & Off Gas Bldg	-	69	-	-	-	-	-	10	79	79	-	-	-	-	-	-	-	-	519	-
2a.1.4.5	Radwaste Building	-	164	-	-	-	-	-	25	189	189	-	-	-	-	-	-	-	-	1,497	-
2a.1.4.6	Services Building	-	36	-	-	-	-	-	5	41	41	-	-	-	-	-	-	-	-	425	-
2a.1.4.7	Turbine Building	-	345	-	-	-	-	-	52	397	397	-	-	-	-	-	-	-	-	3,766	-
2a.1.4.8	Fuel Handling Building	-	90	-	-	-	-	-	13	103	103	-	-	-	-	-	-	-	-	740	-
2a.1.4	Totals	-	1,236	-	-	-	-	-	185	1,422	1,422	-	-	-	-	-	-	-	-	13,160	-
Disposal of Plant Systems																					
2a.1.5.1	Air Removal - Condenser	-	250	39	61	553	312	-	236	1,451	1,451	-	-	6,456	1,251	-	-	-	342,103	5,752	-
2a.1.5.2	Bearing Cooling Water	-	17	0	1	11	-	-	6	34	34	-	-	124	-	-	-	-	5,051	315	-
2a.1.5.3	Berm Drain System	-	6	-	-	-	-	-	1	7	-	-	7	-	-	-	-	-	-	164	-
2a.1.5.4	Chemical Feed & Corrosion Monitoring	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	285	-
2a.1.5.5	Circ Water	-	101	-	-	-	-	-	15	116	-	-	116	-	-	-	-	-	-	2,618	-
2a.1.5.6	Circ Water - RCA	-	278	27	77	1,321	-	-	282	1,985	1,985	-	-	15,415	-	-	-	-	626,003	6,069	-
2a.1.5.7	Closed Cooling Water - Turbine Plant	-	446	32	92	1,580	-	-	365	2,515	2,515	-	-	18,434	-	-	-	-	748,628	9,713	-
2a.1.5.8	Condensate	-	874	285	335	1,085	2,992	-	1,208	6,780	6,780	-	-	12,668	12,032	-	-	-	1,281,614	20,678	-
2a.1.5.9	Condensate Demineralizer	-	849	87	98	458	784	-	500	2,776	2,776	-	-	5,350	3,132	-	-	-	418,319	18,837	-

Table C
River Bend Station
DECON 40 Decommissioning Cost Estimate
(thousands of 2018 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.1.5.10	Condensate Makeup Storage & Transfer	-	707	69	86	453	660	-	430	2,406	2,406	-	-	5,291	2,648	-	-	-	384,085	15,871	-
2a.1.5.11	Condenser Tube Cleaning	-	102	10	9	29	79	-	52	280	280	-	-	340	311	-	-	-	34,050	2,144	-
2a.1.5.12	Control Rod Drive Hydraulic	-	291	33	37	57	370	-	182	970	970	-	-	665	1,488	-	-	-	121,787	6,629	-
2a.1.5.13	Cooling Tower Makeup Water	-	239	-	-	-	-	-	36	274	-	-	274	-	-	-	-	-	-	6,254	-
2a.1.5.14	EHC Hydraulic Oil	-	24	0	1	14	-	-	8	48	48	-	-	166	-	-	-	-	6,750	491	-
2a.1.5.15	Electrohydraulic Control	-	7	0	1	11	-	-	3	21	21	-	-	126	-	-	-	-	5,099	158	-
2a.1.5.16	Feed Water	-	648	189	217	794	1,877	-	802	4,526	4,526	-	-	9,264	7,529	-	-	-	857,490	15,116	-
2a.1.5.17	Gland Seal & Exhaust	-	169	13	36	614	-	-	141	973	973	-	-	7,169	-	-	-	-	291,129	3,576	-
2a.1.5.18	H2 & CO2 Generator	-	4	0	0	3	-	-	1	9	9	-	-	38	-	-	-	-	1,541	76	-
2a.1.5.19	H2 Mixing Purge & Recombiner	-	3	-	-	-	-	-	0	4	-	-	4	-	-	-	-	-	-	85	-
2a.1.5.20	H2 Mixing Purge & Recombiner - RCA	-	81	1	4	70	-	-	31	188	188	-	-	819	-	-	-	-	33,256	1,594	-
2a.1.5.21	HVAC - Turbine Bldg	-	525	19	44	644	70	-	254	1,556	1,556	-	-	7,516	284	-	-	-	323,293	10,956	-
2a.1.5.22	Heater Feedwater	-	1,928	421	481	1,733	4,181	-	1,901	10,645	10,645	-	-	20,220	16,769	-	-	-	1,893,210	44,189	-
2a.1.5.23	Hypochlorination & Chemical Feed	-	47	-	-	-	-	-	7	54	-	-	54	-	-	-	-	-	-	1,131	-
2a.1.5.24	Isolated Phase Bus Cooling	-	3	0	0	4	-	-	1	9	9	-	-	47	-	-	-	-	1,929	76	-
2a.1.5.25	Low Pressure Core Spray	-	122	44	47	159	413	-	169	952	952	-	-	1,854	1,649	-	-	-	181,090	2,831	-
2a.1.5.26	Main Steam	-	1,098	254	314	1,136	2,724	-	1,198	6,725	6,725	-	-	13,254	10,975	-	-	-	1,236,700	25,662	-
2a.1.5.27	Reactor Recirculation	0	37	2	3	4	27	-	17	90	90	-	-	43	108	-	-	-	8,598	878	-
2a.1.5.28	Residual Heat Removal - LPCI	1,084	908	254	254	394	2,539	-	1,526	6,959	6,959	-	-	4,600	10,156	-	-	-	837,839	26,018	-
2a.1.5.29	SVV Compressors/Dryers	-	6	0	0	4	3	-	3	17	17	-	-	47	11	-	-	-	2,640	148	-
2a.1.5.30	Sampling Turbine	-	52	3	3	20	25	-	23	126	126	-	-	237	99	-	-	-	15,962	1,311	-
2a.1.5.31	Seal Oil - Hydrogen	-	33	-	-	-	-	-	5	38	-	-	38	-	-	-	-	-	-	823	-
2a.1.5.32	Stator Cooling	-	86	2	6	100	-	-	38	232	232	-	-	1,164	-	-	-	-	47,286	1,742	-
2a.1.5.33	Steam Aux Blowdown	-	368	8	24	405	-	-	157	963	963	-	-	4,730	-	-	-	-	192,089	7,482	-
2a.1.5.34	Turbine Lube Oil	-	111	3	8	129	-	-	48	298	298	-	-	1,503	-	-	-	-	61,038	2,244	-
2a.1.5.35	Waste Oil Disposal	-	11	0	1	11	-	-	5	28	28	-	-	127	-	-	-	-	5,169	224	-
2a.1.5	Totals	1,084	10,440	1,797	2,238	11,797	17,055	-	9,657	54,068	53,562	-	505	137,668	68,443	-	-	-	9,963,748	242,142	-
2a.1.6	Scaffolding in support of decommissioning	-	1,158	33	10	131	30	-	321	1,683	1,683	-	-	1,377	121	-	-	-	69,681	31,789	-
2a.1	Subtotal Period 2a Activity Costs	1,569	32,218	23,305	7,519	21,950	46,969	987	45,586	180,106	179,600	-	505	233,886	105,822	954	898	-	17,540,670	437,691	3,853
Period 2a Additional Costs																					
2a.2.1	Remedial Action Surveys	-	-	-	-	-	-	2,016	605	2,621	2,621	-	-	-	-	-	-	-	-	40,718	-
2a.2.2	IT Support and Projects	-	-	-	-	-	-	247	-	247	247	-	-	-	-	-	-	-	-	-	-
2a.2.3	Fees Paid by Headquarters	-	-	-	-	-	-	143	-	143	143	-	-	-	-	-	-	-	-	-	-
2a.2.4	Communication Plan	-	-	-	-	-	-	72	-	72	72	-	-	-	-	-	-	-	-	-	-
2a.2.5	Post-Shutdown Contractor	-	-	-	-	-	-	308	-	308	308	-	-	-	-	-	-	-	-	-	-
2a.2.6	131 Irradiated Fuel Channels	-	-	-	200	-	1,800	2,000	-	4,000	4,000	-	-	-	-	-	112	-	9,576	-	-
2a.2	Subtotal Period 2a Additional Costs	-	-	-	200	-	1,800	4,786	605	7,391	7,391	-	-	-	-	-	112	-	9,576	40,718	-
Period 2a Collateral Costs																					
2a.3.1	Process decommissioning water waste	214	-	137	321	-	574	-	313	1,559	1,559	-	-	-	1,348	-	-	-	80,885	263	-
2a.3.2	Process decommissioning chemical flush waste	7	-	220	775	-	1,711	-	569	3,282	3,282	-	-	-	2,261	-	-	-	240,948	423	-
2a.3.3	Small tool allowance	-	361	-	-	-	-	-	54	415	373	-	41	-	-	-	-	-	-	-	-
2a.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	31,399	4,710	36,108	-	36,108	-	-	-	-	-	-	-	-	-
2a.3.5	Legal (License Termination)	-	-	-	-	-	-	1,695	254	1,949	1,949	-	-	-	-	-	-	-	-	-	-
2a.3.6	Annual Fee	-	-	-	-	-	-	168	25	193	193	-	-	-	-	-	-	-	-	-	-
2a.3.7	Corporate A&G	-	-	-	-	-	-	8,532	1,280	9,812	9,812	-	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	221	361	357	1,096	-	2,285	41,794	7,205	53,318	17,169	36,108	41	-	3,609	-	-	-	321,833	686	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	137	-	-	-	-	-	-	34	171	171	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	1,353	135	1,488	1,488	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	91	9	100	100	-	-	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	3,339	-	-	-	-	-	835	4,174	4,174	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	4,171	-	-	-	-	-	626	4,797	4,797	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	180	46	-	464	-	141	830	830	-	-	-	8,339	-	-	-	166,786	272	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	2,641	396	3,037	3,037	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	2,296	230	2,525	2,525	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	421	42	463	-	463	-	-	-	-	-	-	-	-	-
2a.4.10	Non-Labor Overhead	-	-	-	-	-	-	772	116	887	887	-	-	-	-	-	-	-	-	-	-
2a.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	1,586	238	1,824	-	1,824	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	208	31	239	-	239	-	-	-	-	-	-	-	-	-
2a.4.13	NDO	-	-	-	-	-	-	3,156	473	3,629	3,629	-	-	-	-	-	-	-	-	-	-
2a.4.14	Security Staff Cost	-	-	-	-	-	-	25,021	3,753	28,774	28,774	-	-	-	-	-	-	-	-	-	484,536
2a.4.15	Utility Staff Cost	-	-	-	-	-	-	64,421	9,663	74,084	74,084	-	-	-	-	-	-	-	-	-	845,463

Table C
River Bend Station
DECON 40 Decommissioning Cost Estimate
(thousands of 2018 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
2a.4	Subtotal Period 2a Period-Dependent Costs	137	7,510	180	46	-	464	101,963	16,722	127,021	124,496	2,525	-	-	8,339	-	-	-	166,786	272	1,329,999
2a.0	TOTAL PERIOD 2a COST	1,927	40,089	23,843	8,861	21,950	51,518	149,530	70,118	367,836	328,656	38,634	547	233,886	117,770	954	1,010	-	18,038,870	479,368	1,333,853
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	Closed Cooling Water - Reactor Plant	-	474	28	80	1,378	-	-	340	2,300	2,300	-	-	16,079	-	-	-	-	652,963	10,146	-
2b.1.1.2	Containment Atmosphere & Leak Monitor	-	64	3	2	9	21	-	23	122	122	-	-	100	84	-	-	-	9,542	1,505	-
2b.1.1.3	Diesel Generator	-	145	-	-	-	-	-	22	166	-	-	166	-	-	-	-	-	-	3,646	-
2b.1.1.4	Domestic Water	-	42	-	-	-	-	-	6	48	-	-	48	-	-	-	-	-	-	1,097	-
2b.1.1.5	Drains - Floor & Equipment	-	869	77	77	280	663	-	444	2,411	2,411	-	-	3,268	2,635	-	-	-	302,799	18,886	-
2b.1.1.6	Drains - Storm & Roof	-	16	-	-	-	-	-	2	19	-	-	19	-	-	-	-	-	-	430	-
2b.1.1.7	Elecrical - Contaminated	-	1,564	28	67	984	107	-	578	3,329	3,329	-	-	11,483	433	-	-	-	493,842	32,350	-
2b.1.1.8	Electrical - Clean - Non-RCA	-	2,381	-	-	-	-	-	357	2,738	-	-	2,738	-	-	-	-	-	-	59,476	-
2b.1.1.9	Electrical - Clean - RCA	-	10,065	194	555	9,518	-	-	4,046	24,378	24,378	-	-	111,082	-	-	-	-	4,511,108	192,540	-
2b.1.1.10	Fire Protect - Water & Engine Pumps	-	383	-	-	-	-	-	57	441	-	-	441	-	-	-	-	-	-	10,230	-
2b.1.1.11	Fire Protect - Water & Engine Pumps -RCA	-	1,480	32	91	1,561	-	-	621	3,785	3,785	-	-	18,218	-	-	-	-	739,845	29,410	-
2b.1.1.12	Fire Protection - Halon	-	14	-	-	-	-	-	2	17	-	-	17	-	-	-	-	-	-	378	-
2b.1.1.13	HPCS	-	169	51	57	201	494	-	209	1,181	1,181	-	-	2,342	1,979	-	-	-	221,878	3,921	-
2b.1.1.14	HVAC - Aux Boiler Room	-	10	-	-	-	-	-	1	11	-	-	11	-	-	-	-	-	-	262	-
2b.1.1.15	HVAC - Aux Control Bldg	-	120	4	9	134	15	-	55	337	337	-	-	1,561	59	-	-	-	67,111	2,507	-
2b.1.1.16	HVAC - Auxiliary Bldg	-	79	5	12	171	19	-	52	339	339	-	-	1,999	76	-	-	-	86,003	1,772	-
2b.1.1.17	HVAC - Chilled Water	-	73	-	-	-	-	-	11	84	-	-	84	-	-	-	-	-	-	1,946	-
2b.1.1.18	HVAC - Chilled Water - RCA	-	1,244	33	95	1,629	-	-	573	3,573	3,573	-	-	19,008	-	-	-	-	771,925	24,927	-
2b.1.1.19	HVAC - Containment Bldg	-	549	37	71	836	244	-	338	2,074	2,074	-	-	9,756	984	-	-	-	458,682	11,535	-
2b.1.1.20	HVAC - Control Bldg	-	112	-	-	-	-	-	17	129	-	-	129	-	-	-	-	-	-	3,213	-
2b.1.1.21	HVAC - Diesel Generator	-	37	-	-	-	-	-	6	43	-	-	43	-	-	-	-	-	-	1,043	-
2b.1.1.22	HVAC - Drywell Cooling	-	19	3	4	36	25	-	17	104	104	-	-	422	101	-	-	-	23,564	430	-
2b.1.1.23	HVAC - Radwaste Bldg	-	755	29	68	995	108	-	378	2,333	2,333	-	-	11,617	438	-	-	-	499,592	16,004	-
2b.1.1.24	HVAC - Water Treatment Bldg	-	6	-	-	-	-	-	1	7	-	-	7	-	-	-	-	-	-	168	-
2b.1.1.25	HVAC - Yard Structure - Clean	-	69	-	-	-	-	-	10	79	-	-	79	-	-	-	-	-	-	1,949	-
2b.1.1.26	HVAC - Yard Structure - Contaminated	-	332	11	26	372	47	-	155	942	942	-	-	4,337	187	-	-	-	188,075	6,847	-
2b.1.1.27	Hydraulic Recirc Flow Control Skid	-	16	1	1	7	9	-	8	42	42	-	-	76	36	-	-	-	5,456	338	-
2b.1.1.28	Instrument Air	-	9	-	-	-	-	-	1	11	-	-	11	-	-	-	-	-	-	253	-
2b.1.1.29	Instrument Air - RCA	-	409	8	24	414	-	-	169	1,025	1,025	-	-	4,836	-	-	-	-	196,385	8,195	-
2b.1.1.30	MSIV Positive Leakage Control	-	37	3	3	12	27	-	19	101	101	-	-	141	110	-	-	-	12,747	916	-
2b.1.1.31	Makeup Demineralizer Water Treatment	-	113	-	-	-	-	-	17	130	-	-	130	-	-	-	-	-	-	2,921	-
2b.1.1.32	Makeup Water	-	228	-	-	-	-	-	34	262	-	-	262	-	-	-	-	-	-	5,702	-
2b.1.1.33	Nuclear Boiler Instrumentation	-	14	1	1	1	9	-	6	33	33	-	-	17	37	-	-	-	3,038	349	-
2b.1.1.34	Off Gas	-	415	34	45	277	317	-	234	1,322	1,322	-	-	3,235	1,272	-	-	-	212,564	9,213	-
2b.1.1.35	Plant & Control Bldg Chilled Water	-	83	1	2	43	-	-	28	156	156	-	-	499	-	-	-	-	20,281	1,562	-
2b.1.1.36	Radiation Monitor	-	56	4	5	21	44	-	29	159	159	-	-	240	178	-	-	-	21,054	1,301	-
2b.1.1.37	Radwaste - Liquid	812	999	130	129	312	1,224	-	1,041	4,647	4,647	-	-	3,635	4,883	-	-	-	461,545	36,139	-
2b.1.1.38	Radwaste - Solid	64	87	9	9	22	82	-	80	352	352	-	-	251	324	-	-	-	31,120	3,272	-
2b.1.1.39	Reactor Core Isolation Cooling	166	251	28	29	34	296	-	232	1,036	1,036	-	-	396	1,188	-	-	-	92,018	7,593	-
2b.1.1.40	Reactor Water Clnup & Filter	254	423	44	38	54	389	-	348	1,550	1,550	-	-	635	1,542	-	-	-	125,431	13,775	-
2b.1.1.41	Refueling Equipment	9	19	1	1	7	8	-	12	57	57	-	-	82	31	-	-	-	5,382	588	-
2b.1.1.42	Sampling Radwaste	-	45	2	2	7	16	-	17	88	88	-	-	77	62	-	-	-	7,165	1,168	-
2b.1.1.43	Sampling Reactor Plant	-	53	2	2	13	19	-	21	110	110	-	-	147	74	-	-	-	10,794	1,344	-
2b.1.1.44	Sanitary Sewage Treatment	-	68	-	-	-	-	-	10	78	-	-	78	-	-	-	-	-	-	1,778	-
2b.1.1.45	Service & Breathing Air	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	302	-
2b.1.1.46	Service & Breathing Air - RCA	-	326	6	16	281	-	-	127	755	755	-	-	3,280	-	-	-	-	133,205	6,500	-
2b.1.1.47	Service Water - Cooling	-	121	-	-	-	-	-	18	139	-	-	139	-	-	-	-	-	-	3,202	-
2b.1.1.48	Service Water - Normal	-	377	-	-	-	-	-	57	434	-	-	434	-	-	-	-	-	-	10,039	-
2b.1.1.49	Service Water - Normal - RCA	-	1,676	58	165	2,825	-	-	873	5,596	5,596	-	-	32,965	-	-	-	-	1,338,721	34,925	-
2b.1.1.50	Service Water - Standby	-	80	-	-	-	-	-	12	92	-	-	92	-	-	-	-	-	-	2,097	-
2b.1.1.51	Service Water - Standby - RCA	-	126	6	19	318	-	-	83	551	551	-	-	3,708	-	-	-	-	150,566	2,705	-
2b.1.1.52	Standby Gas Treatment	-	29	1	2	24	8	-	13	77	77	-	-	275	33	-	-	-	13,290	633	-
2b.1.1.53	Standby Liquid Control	-	24	1	2	37	-	-	12	77	77	-	-	435	-	-	-	-	17,661	510	-
2b.1.1.54	Waste Water Treatment	-	92	-	-	-	-	-	14	106	-	-	106	-	-	-	-	-	-	2,393	-
2b.1.1	Totals	1,304	27,257	875	1,710	22,811	4,191	-	11,841	69,989	64,943	-	5,046	266,205	16,743	-	-	-	11,885,350	596,330	-
2b.1.2	Scaffolding in support of decommissioning	-	1,448	41	13	163	38	-	402	2,104	2,104	-	-	1,721	152	-	-	-	87,102	39,736	-

Table C
River Bend Station
DECON 40 Decommissioning Cost Estimate
(thousands of 2018 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																				
2b.1.3.1	Reactor Building	2,496	3,738	193	1,206	1,182	7,046	-	4,321	20,181	20,181	-	-	13,798	68,727	-	-	-	3,481,629	131,395	-
2b.1.3.2	Auxiliary Building	303	321	20	95	319	162	-	336	1,556	1,556	-	-	3,729	3,841	-	-	-	334,593	13,099	-
2b.1.3.3	Auxiliary Control Building	116	212	7	52	10	87	-	143	626	626	-	-	120	2,485	-	-	-	122,244	6,938	-
2b.1.3.4	Condensate Demin Regen & Off Gas Bldg	141	83	6	37	37	63	-	119	485	485	-	-	433	1,730	-	-	-	99,405	4,824	-
2b.1.3.5	Low Level Radwaste Storage	6	40	3	25	-	42	-	27	143	143	-	-	-	1,205	-	-	-	56,940	818	-
2b.1.3.6	Radwaste Building	370	274	19	105	205	178	-	346	1,495	1,495	-	-	2,388	4,597	-	-	-	315,300	13,689	-
2b.1.3.7	Services Building	34	1	0	1	-	1	-	18	55	55	-	-	-	43	-	-	-	2,028	816	-
2b.1.3.8	Turbine Building	977	562	41	261	270	440	-	822	3,373	3,373	-	-	3,152	12,028	-	-	-	697,548	33,093	-
2b.1.3	Totals	4,441	5,230	289	1,781	2,024	8,018	-	6,132	27,915	27,915	-	-	23,620	94,656	-	-	-	5,109,686	204,673	-
2b.1.4	Prepare/submit License Termination Plan	-	-	-	-	-	-	470	70	540	540	-	-	-	-	-	-	-	-	-	4,096
2b.1.5	Receive NRC approval of termination plan									a											
2b.1	Subtotal Period 2b Activity Costs	5,745	33,935	1,205	3,504	24,998	12,246	470	18,445	100,548	95,502	-	5,046	291,546	111,552	-	-	-	17,082,140	840,739	4,096
	Period 2b Additional Costs																				
2b.2.1	Remedial Action Surveys	-	-	-	-	-	-	2,098	629	2,727	2,727	-	-	-	-	-	-	-	-	42,370	-
2b.2.2	Underground Services Excavation	-	1,390	-	-	-	-	652	306	2,348	2,348	-	-	-	-	-	-	-	-	12,000	-
2b.2.3	IT Support and Projects	-	-	-	-	-	-	6	-	6	6	-	-	-	-	-	-	-	-	-	-
2b.2.4	Fees Paid by Headquarters	-	-	-	-	-	-	286	-	286	286	-	-	-	-	-	-	-	-	-	-
2b.2.5	Communication Plan	-	-	-	-	-	-	111	-	111	111	-	-	-	-	-	-	-	-	-	-
2b.2.6	Post-Shutdown Contractor	-	-	-	-	-	-	333	-	333	333	-	-	-	-	-	-	-	-	-	-
2b.2.7	Severance	-	-	-	-	-	-	6,000	-	6,000	6,000	-	-	-	-	-	-	-	-	-	-
2b.2.8	Operational Equipment	-	-	19	49	618	-	-	102	788	788	-	-	11,710	-	-	-	-	292,750	32	-
2b.2	Subtotal Period 2b Additional Costs	-	1,390	19	49	618	-	9,486	1,038	12,599	12,599	-	-	11,710	-	-	-	-	292,750	54,402	-
	Period 2b Collateral Costs																				
2b.3.1	Process decommissioning water waste	288	-	188	442	-	791	-	427	2,137	2,137	-	-	-	1,857	-	-	-	111,410	362	-
2b.3.2	Process decommissioning chemical flush waste	2	-	83	291	-	641	-	213	1,230	1,230	-	-	-	848	-	-	-	90,323	159	-
2b.3.3	Small tool allowance	-	574	-	-	-	-	-	86	660	660	-	-	-	-	-	-	-	-	-	-
2b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	73,083	10,963	84,046	-	84,046	-	-	-	-	-	-	-	-	-
2b.3.5	Legal (License Termination)	-	-	-	-	-	-	1,766	265	2,031	2,031	-	-	-	-	-	-	-	-	-	-
2b.3.6	Annual Fee	-	-	-	-	-	-	175	26	202	202	-	-	-	-	-	-	-	-	-	-
2b.3.7	Corporate A&G	-	-	-	-	-	-	5,517	828	6,345	6,345	-	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	291	574	271	733	-	1,432	80,542	12,808	96,651	12,605	84,046	-	-	2,704	-	-	-	201,733	521	-
	Period 2b Period-Dependent Costs																				
2b.4.1	Decon supplies	2,507	-	-	-	-	-	-	627	3,133	3,133	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	1,408	141	1,548	1,548	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	95	9	104	104	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	5,375	-	-	-	-	-	1,344	6,719	6,719	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	4,474	-	-	-	-	-	671	5,145	5,145	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	252	64	-	649	-	197	1,163	1,163	-	-	-	11,681	-	-	-	233,622	381	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	2,170	325	2,495	2,495	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	1,662	166	1,829	1,829	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	438	44	482	-	482	-	-	-	-	-	-	-	-	-
2b.4.10	Non-Labor Overhead	-	-	-	-	-	-	803	120	923	923	-	-	-	-	-	-	-	-	-	-
2b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	1,650	248	1,898	-	1,898	-	-	-	-	-	-	-	-	-
2b.4.12	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	415	62	478	478	-	-	-	-	-	-	-	-	-	-
2b.4.13	ISFSI Operating Costs	-	-	-	-	-	-	216	32	248	-	248	-	-	-	-	-	-	-	-	-
2b.4.14	NDO	-	-	-	-	-	-	3,284	493	3,776	3,776	-	-	-	-	-	-	-	-	-	-
2b.4.15	Security Staff Cost	-	-	-	-	-	-	26,035	3,905	29,941	29,941	-	-	-	-	-	-	-	-	-	504,189
2b.4.16	Utility Staff Cost	-	-	-	-	-	-	64,066	9,610	73,676	73,676	-	-	-	-	-	-	-	-	-	841,597
2b.4	Subtotal Period 2b Period-Dependent Costs	2,507	9,850	252	64	-	649	102,242	17,995	133,558	130,930	2,628	-	-	11,681	-	-	-	233,622	381	1,345,785
2b.0	TOTAL PERIOD 2b COST	8,543	45,748	1,748	4,349	25,616	14,328	192,739	50,286	343,357	251,636	86,674	5,046	303,256	125,937	-	-	-	17,810,250	896,042	1,349,881
	PERIOD 2d - Decontamination Following Wet Fuel Storage																				
	Period 2d Direct Decommissioning Activities																				
2d.1.1	Remove spent fuel racks	567	50	159	244	-	2,689	-	1,021	4,729	4,729	-	-	-	10,852	-	-	-	689,374	1,285	-
	Disposal of Plant Systems																				
2d.1.2.1	Fuel Pool Cooling	-	1,195	180	194	563	1,774	-	874	4,780	4,780	-	-	6,571	7,105	-	-	-	721,795	26,715	-
2d.1.2.2	HVAC - Fuel Bldg	-	198	7	16	236	26	-	95	578	578	-	-	2,757	104	-	-	-	118,566	4,102	-
2d.1.2	Totals	-	1,393	187	210	799	1,800	-	968	5,358	5,358	-	-	9,329	7,208	-	-	-	840,361	30,817	-

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River Bend Station
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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 Building	706	729	17	73	271	126	-	620	2,543	2,543	-	-	3,165	2,886	-	-	-	266,951	31,350	-
2d.1.3	Totals	706	729	17	73	271	126	-	620	2,543	2,543	-	-	3,165	2,886	-	-	-	266,951	31,350	-
2d.1.4	Scaffolding in support of decommissioning	-	290	8	3	33	8	-	80	421	421	-	-	344	30	-	-	-	17,420	7,947	-
2d.1	Subtotal Period 2d Activity Costs	1,273	2,462	371	530	1,103	4,622	-	2,690	13,050	13,050	-	-	12,838	20,976	-	-	-	1,814,107	71,399	-
Period 2d Additional Costs																					
2d.2.1	License Termination Survey Planning	-	-	-	-	-	-	1,056	317	1,373	1,373	-	-	-	-	-	-	-	-	-	12,480
2d.2.2	Remedial Action Surveys	-	-	-	-	-	-	570	171	740	740	-	-	-	-	-	-	-	-	11,504	-
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	1,626	488	2,114	2,114	-	-	-	-	-	-	-	-	11,504	12,480
Period 2d Collateral Costs																					
2d.3.1	Process decommissioning water waste	95	-	63	147	-	264	-	142	711	711	-	-	-	619	-	-	-	37,143	121	-
2d.3.3	Small tool allowance	-	57	-	-	-	-	-	9	66	66	-	-	-	-	-	-	-	-	-	-
2d.3.4	Decommissioning Equipment Disposition	-	-	142	50	570	131	-	140	1,033	1,033	-	-	6,000	529	-	-	-	303,608	147	-
2d.3.5	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,662	399	3,061	-	3,061	-	-	-	-	-	-	-	-	-
2d.3.6	Legal (License Termination)	-	-	-	-	-	-	479	72	551	551	-	-	-	-	-	-	-	-	-	-
2d.3.7	Annual Fee	-	-	-	-	-	-	43	6	49	49	-	-	-	-	-	-	-	-	-	-
2d.3.8	Corporate A&G	-	-	-	-	-	-	1,330	199	1,529	1,529	-	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	95	57	204	198	570	395	4,514	968	7,001	3,940	3,061	-	6,000	1,148	-	-	-	340,751	268	-
Period 2d Period-Dependent Costs																					
2d.4.1	Decon supplies	288	-	-	-	-	-	-	72	360	360	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	382	38	420	420	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	26	3	28	28	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	659	-	-	-	-	-	165	824	824	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,215	-	-	-	-	-	182	1,397	1,397	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	48	12	-	124	-	38	222	222	-	-	-	2,233	-	-	-	44,655	73	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	314	47	361	361	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	256	26	281	281	-	-	-	-	-	-	-	-	-	-
2d.4.9	Non-Labor Overhead	-	-	-	-	-	-	218	33	251	251	-	-	-	-	-	-	-	-	-	-
2d.4.10	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	226	34	259	259	-	-	-	-	-	-	-	-	-	-
2d.4.11	ISFSI Operating Costs	-	-	-	-	-	-	59	9	67	-	67	-	-	-	-	-	-	-	-	-
2d.4.12	Security Staff Cost	-	-	-	-	-	-	1,963	294	2,258	531	1,727	-	-	-	-	-	-	-	-	46,013
2d.4.13	Utility Staff Cost	-	-	-	-	-	-	12,119	1,818	13,937	13,226	711	-	-	-	-	-	-	-	-	157,128
2d.4	Subtotal Period 2d Period-Dependent Costs	288	1,874	48	12	-	124	15,562	2,758	20,666	18,161	2,505	-	-	2,233	-	-	-	44,655	73	203,142
2d.0	TOTAL PERIOD 2d COST	1,657	4,393	623	740	1,673	5,141	21,702	6,903	42,831	37,265	5,566	-	18,838	24,357	-	-	-	2,199,512	83,243	215,622
PERIOD 2f - License Termination																					
Period 2f Direct Decommissioning Activities																					
2f.1.1	ORISE confirmatory survey	-	-	-	-	-	-	161	48	209	209	-	-	-	-	-	-	-	-	-	-
2f.1.2	Terminate license									a											
2f.1	Subtotal Period 2f Activity Costs	-	-	-	-	-	-	161	48	209	209	-	-	-	-	-	-	-	-	-	-
Period 2f Additional Costs																					
2f.2.1	License Termination Survey	-	-	-	-	-	-	9,578	2,873	12,452	12,452	-	-	-	-	-	-	-	-	207,578	6,240
2f.2	Subtotal Period 2f Additional Costs	-	-	-	-	-	-	9,578	2,873	12,452	12,452	-	-	-	-	-	-	-	-	207,578	6,240
Period 2f Collateral Costs																					
2f.3.1	Staff relocation expenses	-	-	-	-	-	-	1,373	206	1,579	1,579	-	-	-	-	-	-	-	-	-	-
2f.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	1,384	208	1,591	-	1,591	-	-	-	-	-	-	-	-	-
2f.3.3	Legal (License Termination)	-	-	-	-	-	-	649	97	746	746	-	-	-	-	-	-	-	-	-	-
2f.3.4	Corporate A&G	-	-	-	-	-	-	1,159	174	1,332	1,332	-	-	-	-	-	-	-	-	-	-
2f.3	Subtotal Period 2f Collateral Costs	-	-	-	-	-	-	4,564	685	5,248	3,657	1,591	-	-	-	-	-	-	-	-	-
Period 2f Period-Dependent Costs																					
2f.4.1	Insurance	-	-	-	-	-	-	518	52	570	570	-	-	-	-	-	-	-	-	-	-
2f.4.2	Property taxes	-	-	-	-	-	-	35	3	38	38	-	-	-	-	-	-	-	-	-	-
2f.4.3	Health physics supplies	-	926	-	-	-	-	-	232	1,158	1,158	-	-	-	-	-	-	-	-	-	-
2f.4.4	Disposal of DAW generated	-	-	8	2	-	19	-	6	35	35	-	-	-	348	-	-	-	6,954	11	-
2f.4.5	Plant energy budget	-	-	-	-	-	-	213	32	245	245	-	-	-	-	-	-	-	-	-	-
2f.4.6	NRC Fees	-	-	-	-	-	-	347	35	382	382	-	-	-	-	-	-	-	-	-	-
2f.4.7	Non-Labor Overhead	-	-	-	-	-	-	296	44	340	340	-	-	-	-	-	-	-	-	-	-
2f.4.8	ISFSI Operating Costs	-	-	-	-	-	-	80	12	91	-	91	-	-	-	-	-	-	-	-	-

Table C
River Bend Station
DECON 40 Decommissioning Cost Estimate
(thousands of 2018 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 2f Period-Dependent Costs (continued)																					
2f.4.9	Security Staff Cost	-	-	-	-	-	-	2,663	399	3,062	720	2,343	-	-	-	-	-	-	-	-	62,414
2f.4.10	Utility Staff Cost	-	-	-	-	-	-	10,325	1,549	11,873	10,912	962	-	-	-	-	-	-	-	-	127,256
2f.4	Subtotal Period 2f Period-Dependent Costs	-	926	8	2	-	19	14,476	2,364	17,795	14,399	3,396	-	-	348	-	-	-	6,954	11	189,670
2f.0	TOTAL PERIOD 2f COST	-	926	8	2	-	19	28,778	5,970	35,703	30,716	4,987	-	-	348	-	-	-	6,954	207,589	195,910
PERIOD 2 TOTALS		12,126	91,156	26,221	13,953	49,239	71,006	392,750	133,276	789,728	648,273	135,861	5,593	555,980	268,412	954	1,010	-	38,055,580	1,666,242	3,095,266
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Reactor Building	-	2,155	-	-	-	-	-	323	2,478	-	-	2,478	-	-	-	-	-	-	28,224	-
3b.1.1.2	Aux Boiler & Water Treatment	-	131	-	-	-	-	-	20	150	-	-	150	-	-	-	-	-	-	2,165	-
3b.1.1.3	Auxiliary Building	-	1,254	-	-	-	-	-	188	1,442	-	-	1,442	-	-	-	-	-	-	10,010	-
3b.1.1.4	Auxiliary Control Building	-	121	-	-	-	-	-	18	139	-	-	139	-	-	-	-	-	-	1,263	-
3b.1.1.5	Circ. Water Cooling Tower & Flumes	-	1,993	-	-	-	-	-	299	2,292	-	-	2,292	-	-	-	-	-	-	24,290	-
3b.1.1.6	Circulating Water Pump Structure	-	90	-	-	-	-	-	13	103	-	-	103	-	-	-	-	-	-	384	-
3b.1.1.7	Condensate Demin Regen & Off Gas Bldg	-	622	-	-	-	-	-	93	715	-	-	715	-	-	-	-	-	-	4,774	-
3b.1.1.8	Control Building	-	628	-	-	-	-	-	94	722	-	-	722	-	-	-	-	-	-	6,127	-
3b.1.1.9	Diesel Generator Building	-	320	-	-	-	-	-	48	368	-	-	368	-	-	-	-	-	-	2,837	-
3b.1.1.10	Fire Pump House	-	26	-	-	-	-	-	4	30	-	-	30	-	-	-	-	-	-	443	-
3b.1.1.11	Flex Building 1& 2	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	1,435	-
3b.1.1.12	Hypochlorite SWGR House	-	34	-	-	-	-	-	5	39	-	-	39	-	-	-	-	-	-	323	-
3b.1.1.13	Low Level Radwaste Storage	-	212	-	-	-	-	-	32	243	-	-	243	-	-	-	-	-	-	1,781	-
3b.1.1.14	Makeup Water Pump House	-	67	-	-	-	-	-	10	77	-	-	77	-	-	-	-	-	-	686	-
3b.1.1.15	Miscellaneous Structures	-	3,408	-	-	-	-	-	511	3,920	-	-	3,920	-	-	-	-	-	-	36,377	-
3b.1.1.16	Motor Generator Building	-	13	-	-	-	-	-	2	15	-	-	15	-	-	-	-	-	-	153	-
3b.1.1.17	Normal Switchgear Building	-	206	-	-	-	-	-	31	237	-	-	237	-	-	-	-	-	-	2,293	-
3b.1.1.18	PAP Facility	-	41	-	-	-	-	-	6	47	-	-	47	-	-	-	-	-	-	467	-
3b.1.1.19	Radwaste Building	-	1,479	-	-	-	-	-	222	1,701	-	-	1,701	-	-	-	-	-	-	13,471	-
3b.1.1.20	Rail Road Enclosure	-	36	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	529	-
3b.1.1.21	SSW Cooling Tower	-	1,148	-	-	-	-	-	172	1,320	-	-	1,320	-	-	-	-	-	-	8,177	-
3b.1.1.22	Service Water Cooling Tower	-	214	-	-	-	-	-	32	246	-	-	246	-	-	-	-	-	-	2,079	-
3b.1.1.23	Services Building	-	738	-	-	-	-	-	111	849	-	-	849	-	-	-	-	-	-	9,604	-
3b.1.1.24	Tunnels	-	177	-	-	-	-	-	27	203	-	-	203	-	-	-	-	-	-	1,418	-
3b.1.1.25	Turbine Building	-	3,222	-	-	-	-	-	483	3,705	-	-	3,705	-	-	-	-	-	-	37,157	-
3b.1.1.26	Turbine Pedestal	-	553	-	-	-	-	-	83	635	-	-	635	-	-	-	-	-	-	2,770	-
3b.1.1.27	Fuel Handling Building	-	809	-	-	-	-	-	121	931	-	-	931	-	-	-	-	-	-	6,660	-
3b.1.1	Totals	-	19,774	-	-	-	-	-	2,966	22,740	-	-	22,740	-	-	-	-	-	-	205,899	-
Site Closeout Activities																					
3b.1.2	BackFill Site	-	1,242	-	-	-	-	-	186	1,429	-	-	1,429	-	-	-	-	-	-	2,415	-
3b.1.3	Grade & landscape site	-	386	-	-	-	-	-	58	444	-	-	444	-	-	-	-	-	-	1,068	-
3b.1.4	Final report to NRC	-	-	-	-	-	-	179	27	206	206	-	-	-	-	-	-	-	-	-	1,560
3b.1	Subtotal Period 3b Activity Costs	-	21,403	-	-	-	-	179	3,237	24,819	206	-	24,614	-	-	-	-	-	-	209,382	1,560
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	1,314	-	-	-	-	11	199	1,524	-	-	1,524	-	-	-	-	-	-	6,751	-
3b.2.2	Firing Range Closure	-	166	-	-	-	-	467	95	728	-	-	728	-	-	-	-	-	-	1,999	-
3b.2.3	Mobile Barrier Removal	-	164	-	-	-	-	521	103	788	-	-	788	-	-	-	-	-	-	1,920	-
3b.2.4	Construction Debris	-	-	-	-	-	-	3,090	464	3,554	-	-	3,554	-	-	-	-	-	-	-	-
3b.2	Subtotal Period 3b Additional Costs	-	1,643	-	-	-	-	4,090	860	6,594	-	-	6,594	-	-	-	-	-	-	10,669	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	151	-	-	-	-	-	23	173	-	-	173	-	-	-	-	-	-	-	-
3b.3.2	Legal (License Termination)	-	-	-	-	-	-	1,903	285	2,189	-	-	2,189	-	-	-	-	-	-	-	-
3b.3.3	Corporate A&G	-	-	-	-	-	-	1,702	255	1,957	-	-	1,957	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	151	-	-	-	-	3,605	563	4,319	-	-	4,319	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	1,548	155	1,702	1,702	-	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	104	10	115	-	115	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	6,701	-	-	-	-	-	1,005	7,706	-	-	7,706	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	318	48	366	-	-	366	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	732	73	805	-	805	-	-	-	-	-	-	-	-	-

Table C
River Bend Station
DECON 40 Decommissioning Cost Estimate
(thousands of 2018 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 3b Period-Dependent Costs (continued)																					
3b.4.6	Non-Labor Overhead	-	-	-	-	-	-	513	77	590	-	-	590	-	-	-	-	-	-	-	-
3b.4.7	ISFSI Operating Costs	-	-	-	-	-	-	237	36	273	-	273	-	-	-	-	-	-	-	-	-
3b.4.8	Security Staff Cost	-	-	-	-	-	-	7,659	1,149	8,808	-	6,993	1,814	-	-	-	-	-	-	-	181,673
3b.4.9	Utility Staff Cost	-	-	-	-	-	-	21,121	3,168	24,289	-	2,890	21,399	-	-	-	-	-	-	-	266,870
3b.4	Subtotal Period 3b Period-Dependent Costs	-	6,701	-	-	-	-	32,231	5,721	44,653	1,702	11,076	31,874	-	-	-	-	-	-	-	448,543
3b.0	TOTAL PERIOD 3b COST	-	29,898	-	-	-	-	40,106	10,381	80,385	1,908	11,076	67,401	-	-	-	-	-	-	220,051	450,103
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	13,350	2,003	15,353	-	15,353	-	-	-	-	-	-	-	-	-
3c.3.2	Corporate A&G	-	-	-	-	-	-	9,479	1,422	10,901	-	10,901	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	22,829	3,424	26,254	-	26,254	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	21,601	2,160	23,761	-	23,761	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	1,454	145	1,599	-	1,599	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	10,216	1,022	11,237	-	11,237	-	-	-	-	-	-	-	-	-
3c.4.5	Non-Labor Overhead	-	-	-	-	-	-	79	12	91	-	91	-	-	-	-	-	-	-	-	-
3c.4.6	ISFSI Operating Costs	-	-	-	-	-	-	3,315	497	3,812	-	3,812	-	-	-	-	-	-	-	-	-
3c.4.7	Security Staff Cost	-	-	-	-	-	-	84,895	12,734	97,629	-	97,629	-	-	-	-	-	-	-	-	2,015,695
3c.4.8	Utility Staff Cost	-	-	-	-	-	-	34,986	5,248	40,234	-	40,234	-	-	-	-	-	-	-	-	439,202
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	156,545	21,818	178,364	-	178,364	-	-	-	-	-	-	-	-	2,454,897
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	179,375	25,243	204,617	-	204,617	-	-	-	-	-	-	-	-	2,454,897
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	600	-	-	6,529	-	1,129	8,258	8,258	-	-	-	-	-	-	1,633	331,931	-	-
3d.1.1	Totals	-	-	600	-	-	6,529	-	1,129	8,258	8,258	-	-	-	-	-	-	1,633	331,931	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	600	-	-	6,529	-	1,129	8,258	8,258	-	-	-	-	-	-	1,633	331,931	-	-
Period 3d Collateral Costs																					
3d.3.1	Corporate A&G	-	-	-	-	-	-	11	2	13	13	-	-	-	-	-	-	-	-	-	-
3d.3	Subtotal Period 3d Collateral Costs	-	-	-	-	-	-	11	2	13	13	-	-	-	-	-	-	-	-	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	26	3	29	29	-	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	2	0	2	2	-	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	13	1	14	-	14	-	-	-	-	-	-	-	-	-
3d.4.5	Non-Labor Overhead	-	-	-	-	-	-	0	0	0	0	-	-	-	-	-	-	-	-	-	-
3d.4.6	ISFSI Operating Costs	-	-	-	-	-	-	4	1	5	-	5	-	-	-	-	-	-	-	-	-
3d.4.7	Security Staff Cost	-	-	-	-	-	-	104	16	120	120	-	-	-	-	-	-	-	-	-	2,472
3d.4.8	Utility Staff Cost	-	-	-	-	-	-	43	6	49	49	-	-	-	-	-	-	-	-	-	539
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	192	27	219	200	18	-	-	-	-	-	-	-	-	3,010
3d.0	TOTAL PERIOD 3d COST	-	-	600	-	-	6,529	203	1,158	8,490	8,472	18	-	-	-	-	-	1,633	331,931	-	3,010
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	Decommissioning of ISFSI	-	262	215	1,194	-	3,793	2,120	1,896	9,480	9,480	-	-	-	50,626	-	-	-	2,702,029	12,913	2,249
3e.2	Subtotal Period 3e Additional Costs	-	262	215	1,194	-	3,793	2,120	1,896	9,480	9,480	-	-	-	50,626	-	-	-	2,702,029	12,913	2,249
Period 3e Collateral Costs																					
3e.3.1	Corporate A&G	-	-	-	-	-	-	99	25	124	124	-	-	-	-	-	-	-	-	-	-
3e.3	Subtotal Period 3e Collateral Costs	-	-	-	-	-	-	99	25	124	124	-	-	-	-	-	-	-	-	-	-

Table C
River Bend Station
DECON 40 Decommissioning Cost Estimate
(thousands of 2018 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																					
3e.4.1	Insurance	-	-	-	-	-	-	80	20	101	101	-	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	15	4	19	19	-	-	-	-	-	-	-	-	-	-
3e.4.3	Plant energy budget	-	-	-	-	-	-	47	12	59	59	-	-	-	-	-	-	-	-	-	-
3e.4.4	Non-Labor Overhead	-	-	-	-	-	-	1	0	1	1	-	-	-	-	-	-	-	-	-	-
3e.4.5	Security Staff Cost	-	-	-	-	-	-	215	54	269	269	-	-	-	-	-	-	-	-	-	4,999
3e.4.6	Utility Staff Cost	-	-	-	-	-	-	311	78	388	388	-	-	-	-	-	-	-	-	-	3,792
3e.4	Subtotal Period 3e Period-Dependent Costs	-	-	-	-	-	-	669	167	837	837	-	-	-	-	-	-	-	-	-	8,792
3e.0	TOTAL PERIOD 3e COST	-	262	215	1,194	-	3,793	2,889	2,088	10,441	10,441	-	-	-	50,626	-	-	-	2,702,029	12,913	11,041
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	Demolition of ISFSI	-	3,038	-	-	-	-	419	519	3,976	-	-	3,976	-	-	-	-	-	-	34,402	160
3f.2	Subtotal Period 3f Additional Costs	-	3,038	-	-	-	-	419	519	3,976	-	-	3,976	-	-	-	-	-	-	34,402	160
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	43	-	-	-	-	-	6	49	-	-	49	-	-	-	-	-	-	-	-
3f.3.2	Corporate A&G	-	-	-	-	-	-	49	7	57	-	-	57	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	43	-	-	-	-	49	14	106	-	-	106	-	-	-	-	-	-	-	-
Period 3f Period-Dependent Costs																					
3f.4.2	Property taxes	-	-	-	-	-	-	8	1	8	-	-	8	-	-	-	-	-	-	-	-
3f.4.3	Heavy equipment rental	-	115	-	-	-	-	-	17	132	-	-	132	-	-	-	-	-	-	-	-
3f.4.4	Plant energy budget	-	-	-	-	-	-	23	3	27	-	-	27	-	-	-	-	-	-	-	-
3f.4.5	Non-Labor Overhead	-	-	-	-	-	-	0	0	0	-	-	0	-	-	-	-	-	-	-	-
3f.4.6	Security Staff Cost	-	-	-	-	-	-	107	16	123	-	-	123	-	-	-	-	-	-	-	2,479
3f.4.7	Utility Staff Cost	-	-	-	-	-	-	132	20	152	-	-	152	-	-	-	-	-	-	-	1,539
3f.4	Subtotal Period 3f Period-Dependent Costs	-	115	-	-	-	-	270	57	443	-	-	443	-	-	-	-	-	-	-	4,018
3f.0	TOTAL PERIOD 3f COST	-	3,196	-	-	-	-	739	590	4,525	-	-	4,525	-	-	-	-	-	-	34,402	4,178
PERIOD 3 TOTALS		-	33,356	815	1,194	-	10,322	223,311	39,460	308,458	20,820	215,712	71,925	-	50,626	-	-	1,633	3,033,960	267,366	2,923,228
TOTAL COST TO DECOMMISSION		15,425	127,356	27,142	15,367	49,239	82,743	784,237	198,110	1,299,619	864,794	356,403	78,422	555,980	320,718	1,092	1,010	1,633	41,166,120	1,965,370	7,255,724

TOTAL COST TO DECOMMISSION WITH 17.99% CONTINGENCY:	**$1,299,619**	**thousands of 2018 dollars**
TOTAL NRC LICENSE TERMINATION COST IS 66.54% OR:	**$864,794**	**thousands of 2018 dollars**
SPENT FUEL MANAGEMENT COST IS 27.42% OR:	**$356,403**	**thousands of 2018 dollars**
NON-NUCLEAR DEMOLITION COST IS 6.03% OR:	**$78,422**	**thousands of 2018 dollars**
TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC):	**322,820**	**cubic feet**
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	**1,633**	**cubic feet**
TOTAL SCRAP METAL REMOVED:	**58,607**	**tons**
TOTAL CRAFT LABOR REQUIREMENTS:	**1,965,370**	**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 ANALYSIS

DECON 60

Table D
River Bend Station
DECON 60 Decommissioning Cost Estimate
(thousands of 2018 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 0a - Pre-Shutdown Early Planning																					
Period 0a Direct Decommissioning Activities																					
Period 0a Additional Costs																					
0a.2.1	Pre-Shutdown Contractor	-	-	-	-	-	-	8,624	-	8,624	8,624	-	-	-	-	-	-	-	-	-	-
0a.2.2	IT Support and Projects	-	-	-	-	-	-	683	-	683	683	-	-	-	-	-	-	-	-	-	-
0a.2	Subtotal Period 0a Additional Costs	-	-	-	-	-	-	9,307	-	9,307	9,307	-	-	-	-	-	-	-	-	-	-
Period 0a Period-Dependent Costs																					
0a.4.4	NRC Fees	-	-	-	-	-	-	484	48	532	532	-	-	-	-	-	-	-	-	-	-
0a.4.5	NDO	-	-	-	-	-	-	3,222	483	3,705	3,705	-	-	-	-	-	-	-	-	-	-
0a.4.6	Utility Staff Cost	-	-	-	-	-	-	3,923	588	4,512	4,512	-	-	-	-	-	-	-	-	-	-
0a.4	Subtotal Period 0a Period-Dependent Costs	-	-	-	-	-	-	7,629	1,120	8,749	8,749	-	-	-	-	-	-	-	-	-	-
0a.0	TOTAL PERIOD 0a COST	-	-	-	-	-	-	16,935	1,120	18,055	18,055	-	-	-	-	-	-	-	-	-	-
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	149	22	171	171	-	-	-	-	-	-	-	-	-	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	-	-	-	-	-	-	229	34	264	264	-	-	-	-	-	-	-	-	-	2,000
1a.1.7	Review plant dwgs & specs.	-	-	-	-	-	-	527	79	607	607	-	-	-	-	-	-	-	-	-	4,600
1a.1.8	Perform detailed rad survey									a											
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1a.1.10	End product description	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	149	22	171	171	-	-	-	-	-	-	-	-	-	1,300
1a.1.12	Define major work sequence	-	-	-	-	-	-	860	129	989	989	-	-	-	-	-	-	-	-	-	7,500
1a.1.13	Perform SER and EA	-	-	-	-	-	-	355	53	409	409	-	-	-	-	-	-	-	-	-	3,100
1a.1.14	Prepare/submit Defueled Technical Specifications	-	-	-	-	-	-	860	129	989	989	-	-	-	-	-	-	-	-	-	7,500
1a.1.15	Perform Site-Specific Cost Study	-	-	-	-	-	-	573	86	659	659	-	-	-	-	-	-	-	-	-	5,000
1a.1.16	Prepare/submit Irradiated Fuel Management Plan	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	564	85	649	584	-	65	-	-	-	-	-	-	-	4,920
1a.1.17.2	Plant systems	-	-	-	-	-	-	478	72	549	494	-	55	-	-	-	-	-	-	-	4,167
1a.1.17.3	NSSS Decontamination Flush	-	-	-	-	-	-	57	9	66	66	-	-	-	-	-	-	-	-	-	500
1a.1.17.4	Reactor internals	-	-	-	-	-	-	814	122	936	936	-	-	-	-	-	-	-	-	-	7,100
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	745	112	857	857	-	-	-	-	-	-	-	-	-	6,500
1a.1.17.6	Sacrificial shield	-	-	-	-	-	-	57	9	66	66	-	-	-	-	-	-	-	-	-	500
1a.1.17.7	Moisture separators/reheaters	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	183	28	211	105	-	105	-	-	-	-	-	-	-	1,600
1a.1.17.9	Main Turbine	-	-	-	-	-	-	239	36	275	275	-	-	-	-	-	-	-	-	-	2,088
1a.1.17.10	Main Condensers	-	-	-	-	-	-	239	36	275	275	-	-	-	-	-	-	-	-	-	2,088
1a.1.17.11	Pressure suppression structure	-	-	-	-	-	-	229	34	264	264	-	-	-	-	-	-	-	-	-	2,000
1a.1.17.12	Drywell	-	-	-	-	-	-	183	28	211	211	-	-	-	-	-	-	-	-	-	1,600
1a.1.17.13	Plant structures & buildings	-	-	-	-	-	-	358	54	411	206	-	206	-	-	-	-	-	-	-	3,120
1a.1.17.14	Waste management	-	-	-	-	-	-	527	79	607	607	-	-	-	-	-	-	-	-	-	4,600
1a.1.17.15	Facility & site closeout	-	-	-	-	-	-	103	15	119	59	-	59	-	-	-	-	-	-	-	900
1a.1.17	Total	-	-	-	-	-	-	4,894	734	5,628	5,138	-	490	-	-	-	-	-	-	-	42,683
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	275	41	316	316	-	-	-	-	-	-	-	-	-	2,400
1a.1.19	Plant prep. & temp. svces	-	-	-	-	-	-	3,300	495	3,795	3,795	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	161	24	185	185	-	-	-	-	-	-	-	-	-	1,400
1a.1.21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-	-	-	2,300	345	2,645	2,645	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	141	21	162	162	-	-	-	-	-	-	-	-	-	1,230
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	15,118	2,268	17,386	16,896	-	490	-	-	-	-	-	-	-	83,013
Period 1a Additional Costs																					
1a.2.1	IT Support and Projects	-	-	-	-	-	-	533	-	533	533	-	-	-	-	-	-	-	-	-	-
1a.2.2	Fees Paid by Headquarters	-	-	-	-	-	-	95	-	95	95	-	-	-	-	-	-	-	-	-	-
1a.2.3	Communication Plan	-	-	-	-	-	-	333	-	333	333	-	-	-	-	-	-	-	-	-	-
1a.2.4	Post-Shutdown Contractor	-	-	-	-	-	-	794	-	794	794	-	-	-	-	-	-	-	-	-	-

Table D
River Bend Station
DECON 60 Decommissioning Cost Estimate
(thousands of 2018 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
1a.2	Subtotal Period 1a Additional Costs	-	-	-	-	-	-	1,755	-	1,755	1,755	-	-	-	-	-	-	-	-	-	-
	Period 1a Collateral Costs																				
1a.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,945	592	4,537	-	4,537	-	-	-	-	-	-	-	-	-
1a.3.2	Legal (License Termination)	-	-	-	-	-	-	866	130	996	996	-	-	-	-	-	-	-	-	-	-
1a.3.3	Annual Fee	-	-	-	-	-	-	86	13	99	99	-	-	-	-	-	-	-	-	-	-
1a.3.4	Corporate A&G	-	-	-	-	-	-	9,235	1,385	10,621	10,621	-	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	-	-	-	-	-	14,133	2,120	16,253	11,716	4,537	-	-	-	-	-	-	-	-	-
	Period 1a Period-Dependent Costs																				
1a.4.1	Insurance	-	-	-	-	-	-	2,948	295	3,243	3,243	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	46	5	51	51	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	525	-	-	-	-	-	131	656	656	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	546	-	-	-	-	-	82	628	628	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	13	3	-	34	-	10	61	61	-	-	-	616	-	-	-	12,311	20	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	1,419	213	1,632	1,632	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	1,718	172	1,890	1,890	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	1,293	129	1,422	-	1,422	-	-	-	-	-	-	-	-	-
1a.4.9	Non-Labor Overhead	-	-	-	-	-	-	2,081	312	2,393	2,393	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	810	121	931	-	931	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	106	16	122	-	122	-	-	-	-	-	-	-	-	-
1a.4.12	NDO	-	-	-	-	-	-	3,222	483	3,705	3,705	-	-	-	-	-	-	-	-	-	-
1a.4.13	Security Staff Cost	-	-	-	-	-	-	14,307	2,146	16,453	16,453	-	-	-	-	-	-	-	-	-	277,511
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	32,774	4,916	37,690	37,690	-	-	-	-	-	-	-	-	-	432,640
1a.4	Subtotal Period 1a Period-Dependent Costs	-	1,071	13	3	-	34	60,725	9,032	70,878	68,403	2,475	-	-	616	-	-	-	12,311	20	710,151
1a.0	TOTAL PERIOD 1a COST	-	1,071	13	3	-	34	91,730	13,420	106,272	98,769	7,012	490	-	616	-	-	-	12,311	20	793,163
	PERIOD 1b - Decommissioning Preparations																				
	Period 1b Direct Decommissioning Activities																				
	Detailed Work Procedures																				
1b.1.1.1	Plant systems	-	-	-	-	-	-	543	81	624	562	-	62	-	-	-	-	-	-	-	4,733
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.3	Reactor internals	-	-	-	-	-	-	459	69	527	527	-	-	-	-	-	-	-	-	-	4,000
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	155	23	178	45	-	134	-	-	-	-	-	-	-	1,350
1b.1.1.5	CRD housings & NIs	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.6	Incore instrumentation	-	-	-	-	-	-	115	17	132	132	-	-	-	-	-	-	-	-	-	1,000
1b.1.1.7	Removal primary containment	-	-	-	-	-	-	229	34	264	264	-	-	-	-	-	-	-	-	-	2,000
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	416	62	479	479	-	-	-	-	-	-	-	-	-	3,630
1b.1.1.9	Facility closeout	-	-	-	-	-	-	138	21	158	79	-	79	-	-	-	-	-	-	-	1,200
1b.1.1.10	Sacrificial shield	-	-	-	-	-	-	138	21	158	158	-	-	-	-	-	-	-	-	-	1,200
1b.1.1.11	Reinforced concrete	-	-	-	-	-	-	115	17	132	66	-	66	-	-	-	-	-	-	-	1,000
1b.1.1.12	Main Turbine	-	-	-	-	-	-	238	36	274	274	-	-	-	-	-	-	-	-	-	2,080
1b.1.1.13	Main Condensers	-	-	-	-	-	-	239	36	275	275	-	-	-	-	-	-	-	-	-	2,088
1b.1.1.14	Moisture separators & reheaters	-	-	-	-	-	-	229	34	264	264	-	-	-	-	-	-	-	-	-	2,000
1b.1.1.15	Radwaste building	-	-	-	-	-	-	313	47	360	324	-	36	-	-	-	-	-	-	-	2,730
1b.1.1.16	Reactor building	-	-	-	-	-	-	313	47	360	324	-	36	-	-	-	-	-	-	-	2,730
1b.1.1	Total	-	-	-	-	-	-	3,869	580	4,449	4,036	-	413	-	-	-	-	-	-	-	33,741
1b.1.2	Decon NSSS	212	-	-	-	-	-	-	106	317	317	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	212	-	-	-	-	-	3,869	686	4,767	4,354	-	413	-	-	-	-	-	-	1,067	33,741
	Period 1b Additional Costs																				
1b.2.1	Spent fuel pool isolation	-	-	-	-	-	-	12,000	1,800	13,800	13,800	-	-	-	-	-	-	-	-	-	-
1b.2.2	Site Characterization	-	-	-	-	-	-	5,325	1,598	6,923	6,923	-	-	-	-	-	-	-	-	30,500	10,852
1b.2.3	IT Support and Projects	-	-	-	-	-	-	236	-	236	236	-	-	-	-	-	-	-	-	-	-
1b.2.4	Fees Paid by Headquarters	-	-	-	-	-	-	48	-	48	48	-	-	-	-	-	-	-	-	-	-
1b.2.5	Communication Plan	-	-	-	-	-	-	17	-	17	17	-	-	-	-	-	-	-	-	-	-
1b.2.6	Post-Shutdown Contractor	-	-	-	-	-	-	197	-	197	197	-	-	-	-	-	-	-	-	-	-
1b.2	Subtotal Period 1b Additional Costs	-	-	-	-	-	-	17,822	3,398	21,220	21,220	-	-	-	-	-	-	-	-	30,500	10,852
	Period 1b Collateral Costs																				
1b.3.1	Decon equipment	999	-	-	-	-	-	-	150	1,148	1,148	-	-	-	-	-	-	-	-	-	-
1b.3.2	Staff relocation expenses	-	-	-	-	-	-	1,373	206	1,579	1,579	-	-	-	-	-	-	-	-	-	-
1b.3.3	Process decommissioning water waste	114	-	72	168	-	301	-	165	819	819	-	-	-	706	-	-	-	42,331	138	-
1b.3.4	Process decommissioning chemical flush waste	0	-	13	48	-	1,060	-	274	1,395	1,395	-	-	-	-	139	-	-	14,770	26	-

Table D
River Bend Station
DECON 60 Decommissioning Cost Estimate
(thousands of 2018 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 1b Collateral Costs (continued)																					
1b.3.5	Small tool allowance	-	2	-	-	-	-	-	0	2	2	-	-	-	-	-	-	-	-	-	-
1b.3.6	Pipe cutting equipment	-	1,200	-	-	-	-	-	180	1,380	1,380	-	-	-	-	-	-	-	-	-	-
1b.3.7	Decon rig	1,938	-	-	-	-	-	-	291	2,229	2,229	-	-	-	-	-	-	-	-	-	-
1b.3.8	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,712	407	3,119	-	3,119	-	-	-	-	-	-	-	-	-
1b.3.9	Legal (License Termination)	-	-	-	-	-	-	439	66	505	505	-	-	-	-	-	-	-	-	-	-
1b.3.10	Annual Fee	-	-	-	-	-	-	44	7	50	50	-	-	-	-	-	-	-	-	-	-
1b.3.11	Corporate A&G	-	-	-	-	-	-	3,984	598	4,581	4,581	-	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	3,051	1,202	85	215	-	1,360	8,552	2,342	16,808	13,688	3,119	-	-	706	139	-	-	57,101	163	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	35	-	-	-	-	-	-	9	44	44	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	1,494	149	1,644	1,644	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	24	2	26	26	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	294	-	-	-	-	-	73	367	367	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	277	-	-	-	-	-	42	318	318	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	8	2	-	20	-	6	36	36	-	-	-	359	-	-	-	7,173	12	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	1,439	216	1,654	1,654	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	600	60	660	660	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	109	11	120	-	120	-	-	-	-	-	-	-	-	-
1b.4.10	Non-Labor Overhead	-	-	-	-	-	-	1,055	158	1,213	1,213	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	410	62	472	-	472	-	-	-	-	-	-	-	-	-
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	54	8	62	-	62	-	-	-	-	-	-	-	-	-
1b.4.13	NDO	-	-	-	-	-	-	1,633	245	1,878	1,878	-	-	-	-	-	-	-	-	-	-
1b.4.14	Security Staff Cost	-	-	-	-	-	-	6,474	971	7,445	7,445	-	-	-	-	-	-	-	-	-	125,370
1b.4.15	Utility Staff Cost	-	-	-	-	-	-	21,156	3,173	24,329	24,329	-	-	-	-	-	-	-	-	-	274,104
1b.4	Subtotal Period 1b Period-Dependent Costs	35	571	8	2	-	20	34,446	5,185	40,267	39,614	653	-	-	359	-	-	-	7,173	12	399,474
1b.0	TOTAL PERIOD 1b COST	3,298	1,772	93	217	-	1,380	64,689	11,611	83,061	78,875	3,773	413	-	1,064	139	-	-	64,274	31,742	444,067
PERIOD 1 TOTALS		3,298	2,843	106	221	-	1,414	156,419	25,031	189,333	177,645	10,785	903	-	1,680	139	-	-	76,585	31,762	1,237,230
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Recirculation System Piping & Valves	49	43	19	37	-	254	-	106	508	508	-	-	-	935	-	-	-	65,220	2,005	-
2a.1.1.2	Recirculation Pumps & Motors	48	53	93	54	-	305	-	131	682	682	-	-	-	1,691	-	-	-	165,200	2,252	100
2a.1.1.3	CRDMs & NIs Removal	152	789	498	179	-	996	-	599	3,215	3,215	-	-	-	4,396	-	-	-	255,500	21,130	-
2a.1.1.4	Reactor Vessel Internals	141	7,288	13,741	2,296	-	26,848	494	23,044	73,851	73,851	-	-	-	751	1,481	1,122	-	349,619	42,957	1,877
2a.1.1.5	Reactor Vessel	95	9,522	3,799	1,876	-	7,804	494	12,584	36,174	36,174	-	-	-	24,324	-	-	-	1,641,321	42,957	1,877
2a.1.1	Totals	485	17,695	18,150	4,442	-	36,207	987	36,464	114,430	114,430	-	-	-	32,097	1,481	1,122	-	2,476,860	111,301	3,853
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	306	1,913	378	4,072	419	-	1,040	8,128	8,128	-	-	32,163	1,791	-	-	-	2,043,586	7,043	-
2a.1.3	Main Condensers	-	1,382	1,413	406	5,951	649	-	1,603	11,404	11,404	-	-	62,678	2,618	-	-	-	2,986,796	32,258	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	*Reactor Building	-	379	-	-	-	-	-	57	436	436	-	-	-	-	-	-	-	-	4,960	-
2a.1.4.2	Auxiliary Building	-	139	-	-	-	-	-	21	160	160	-	-	-	-	-	-	-	-	1,112	-
2a.1.4.3	Auxiliary Control Building	-	13	-	-	-	-	-	2	15	15	-	-	-	-	-	-	-	-	140	-
2a.1.4.4	Condensate Demin Regen & Off Gas Bldg	-	69	-	-	-	-	-	10	79	79	-	-	-	-	-	-	-	-	519	-
2a.1.4.5	Radwaste Building	-	164	-	-	-	-	-	25	189	189	-	-	-	-	-	-	-	-	1,497	-
2a.1.4.6	Services Building	-	36	-	-	-	-	-	5	41	41	-	-	-	-	-	-	-	-	425	-
2a.1.4.7	Turbine Building	-	345	-	-	-	-	-	52	397	397	-	-	-	-	-	-	-	-	3,766	-
2a.1.4.8	Fuel Handling Building	-	90	-	-	-	-	-	13	103	103	-	-	-	-	-	-	-	-	740	-
2a.1.4	Totals	-	1,236	-	-	-	-	-	185	1,422	1,422	-	-	-	-	-	-	-	-	13,160	-
Disposal of Plant Systems																					
2a.1.5.1	Air Removal - Condenser	-	250	39	61	553	312	-	236	1,451	1,451	-	-	6,456	1,251	-	-	-	342,103	5,752	-
2a.1.5.2	Bearing Cooling Water	-	17	0	1	11	-	-	6	34	34	-	-	124	-	-	-	-	5,051	315	-
2a.1.5.3	Berm Drain System	-	6	-	-	-	-	-	1	7	-	-	7	-	-	-	-	-	-	164	-
2a.1.5.4	Chemical Feed & Corrosion Monitoring	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	285	-
2a.1.5.5	Circ Water	-	101	-	-	-	-	-	15	116	-	-	116	-	-	-	-	-	-	2,618	-
2a.1.5.6	Circ Water - RCA	-	278	27	77	1,321	-	-	282	1,985	1,985	-	-	15,415	-	-	-	-	626,003	6,069	-
2a.1.5.7	Closed Cooling Water - Turbine Plant	-	446	32	92	1,580	-	-	365	2,515	2,515	-	-	18,434	-	-	-	-	748,628	9,713	-
2a.1.5.8	Condensate	-	874	285	335	1,085	2,992	-	1,208	6,780	6,780	-	-	12,668	12,032	-	-	-	1,281,614	20,678	-

Table D
River Bend Station
DECON 60 Decommissioning Cost Estimate
(thousands of 2018 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.1.5.9	Condensate Demineralizer	-	849	87	98	458	784	-	500	2,776	2,776	-	-	5,350	3,132	-	-	-	418,319	18,837	-
2a.1.5.10	Condensate Makeup Storage & Transfer	-	707	69	86	453	660	-	430	2,406	2,406	-	-	5,291	2,648	-	-	-	384,085	15,871	-
2a.1.5.11	Condenser Tube Cleaning	-	102	10	9	29	79	-	52	280	280	-	-	340	311	-	-	-	34,050	2,144	-
2a.1.5.12	Control Rod Drive Hydraulic	-	291	33	37	57	370	-	182	970	970	-	-	665	1,488	-	-	-	121,787	6,629	-
2a.1.5.13	Cooling Tower Makeup Water	-	239	-	-	-	-	-	36	274	-	-	274	-	-	-	-	-	-	6,254	-
2a.1.5.14	EHC Hydraulic Oil	-	24	0	1	14	-	-	8	48	48	-	-	166	-	-	-	-	6,750	491	-
2a.1.5.15	Electrohydraulic Control	-	7	0	1	11	-	-	3	21	21	-	-	126	-	-	-	-	5,099	158	-
2a.1.5.16	Feed Water	-	648	189	217	794	1,877	-	802	4,526	4,526	-	-	9,264	7,529	-	-	-	857,490	15,116	-
2a.1.5.17	Gland Seal & Exhaust	-	169	13	36	614	-	-	141	973	973	-	-	7,169	-	-	-	-	291,129	3,576	-
2a.1.5.18	H2 & CO2 Generator	-	4	0	0	3	-	-	1	9	9	-	-	38	-	-	-	-	1,541	76	-
2a.1.5.19	H2 Mixing Purge & Recombiner	-	3	-	-	-	-	-	0	4	-	-	4	-	-	-	-	-	-	85	-
2a.1.5.20	H2 Mixing Purge & Recombiner - RCA	-	81	1	4	70	-	-	31	188	188	-	-	819	-	-	-	-	33,256	1,594	-
2a.1.5.21	HVAC - Turbine Bldg	-	525	19	44	644	70	-	254	1,556	1,556	-	-	7,516	284	-	-	-	323,293	10,956	-
2a.1.5.22	Heater Feedwater	-	1,928	421	481	1,733	4,181	-	1,901	10,645	10,645	-	-	20,220	16,769	-	-	-	1,893,210	44,189	-
2a.1.5.23	Hypochlorination & Chemical Feed	-	47	-	-	-	-	-	7	54	-	-	54	-	-	-	-	-	-	1,131	-
2a.1.5.24	Isolated Phase Bus Cooling	-	3	0	0	4	-	-	1	9	9	-	-	47	-	-	-	-	1,929	76	-
2a.1.5.25	Low Pressure Core Spray	-	122	44	47	159	413	-	169	952	952	-	-	1,854	1,649	-	-	-	181,090	2,831	-
2a.1.5.26	Main Steam	-	1,098	254	314	1,136	2,724	-	1,198	6,725	6,725	-	-	13,254	10,975	-	-	-	1,236,700	25,662	-
2a.1.5.27	Reactor Recirculation	0	37	2	3	4	27	-	17	90	90	-	-	43	108	-	-	-	8,598	878	-
2a.1.5.28	Residual Heat Removal - LPCI	1,084	908	254	254	394	2,539	-	1,526	6,959	6,959	-	-	4,600	10,156	-	-	-	837,839	26,018	-
2a.1.5.29	SVV Compressors/Dryers	-	6	0	0	4	3	-	3	17	17	-	-	47	11	-	-	-	2,640	148	-
2a.1.5.30	Sampling Turbine	-	52	3	3	20	25	-	23	126	126	-	-	237	99	-	-	-	15,962	1,311	-
2a.1.5.31	Seal Oil - Hydrogen	-	33	-	-	-	-	-	5	38	-	-	38	-	-	-	-	-	-	823	-
2a.1.5.32	Stator Cooling	-	86	2	6	100	-	-	38	232	232	-	-	1,164	-	-	-	-	47,286	1,742	-
2a.1.5.33	Steam Aux Blowdown	-	368	8	24	405	-	-	157	963	963	-	-	4,730	-	-	-	-	192,089	7,482	-
2a.1.5.34	Turbine Lube Oil	-	111	3	8	129	-	-	48	298	298	-	-	1,503	-	-	-	-	61,038	2,244	-
2a.1.5.35	Waste Oil Disposal	-	11	0	1	11	-	-	5	28	28	-	-	127	-	-	-	-	5,169	224	-
2a.1.5	Totals	1,084	10,440	1,797	2,238	11,797	17,055	-	9,657	54,068	53,562	-	505	137,668	68,443	-	-	-	9,963,748	242,142	-
2a.1.6	Scaffolding in support of decommissioning	-	1,158	33	10	131	30	-	321	1,683	1,683	-	-	1,377	121	-	-	-	69,681	31,789	-
2a.1	Subtotal Period 2a Activity Costs	1,569	32,218	23,305	7,474	21,950	54,360	987	49,270	191,134	190,629	-	505	233,886	105,071	1,481	1,122	-	17,540,670	437,691	3,853
Period 2a Additional Costs																					
2a.2.1	Remedial Action Surveys	-	-	-	-	-	-	2,016	605	2,621	2,621	-	-	-	-	-	-	-	-	40,718	-
2a.2.2	IT Support and Projects	-	-	-	-	-	-	247	-	247	247	-	-	-	-	-	-	-	-	-	-
2a.2.3	Fees Paid by Headquarters	-	-	-	-	-	-	143	-	143	143	-	-	-	-	-	-	-	-	-	-
2a.2.4	Communication Plan	-	-	-	-	-	-	72	-	72	72	-	-	-	-	-	-	-	-	-	-
2a.2.5	Post-Shutdown Contractor	-	-	-	-	-	-	308	-	308	308	-	-	-	-	-	-	-	-	-	-
2a.2.6	131 Irradiated Fuel Channels	-	-	-	200	-	1,800	2,000	-	4,000	4,000	-	-	-	-	-	112	-	9,576	-	-
2a.2	Subtotal Period 2a Additional Costs	-	-	-	200	-	1,800	4,786	605	7,391	7,391	-	-	-	-	-	112	-	9,576	40,718	-
Period 2a Collateral Costs																					
2a.3.1	Process decommissioning water waste	214	-	137	321	-	574	-	313	1,559	1,559	-	-	-	1,348	-	-	-	80,885	263	-
2a.3.2	Process decommissioning chemical flush waste	7	-	220	775	-	1,711	-	569	3,282	3,282	-	-	-	2,261	-	-	-	240,948	423	-
2a.3.3	Small tool allowance	-	361	-	-	-	-	-	54	415	373	-	41	-	-	-	-	-	-	-	-
2a.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	6,994	1,049	8,043	-	8,043	-	-	-	-	-	-	-	-	-
2a.3.5	Legal (License Termination)	-	-	-	-	-	-	1,695	254	1,949	1,949	-	-	-	-	-	-	-	-	-	-
2a.3.6	Annual Fee	-	-	-	-	-	-	168	25	193	193	-	-	-	-	-	-	-	-	-	-
2a.3.7	Corporate A&G	-	-	-	-	-	-	8,532	1,280	9,812	9,812	-	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	221	361	357	1,096	-	2,285	17,389	3,544	25,254	17,169	8,043	41	-	3,609	-	-	-	321,833	686	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	137	-	-	-	-	-	-	34	171	171	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	1,353	135	1,488	1,488	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	91	9	100	100	-	-	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	3,339	-	-	-	-	-	835	4,174	4,174	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	4,171	-	-	-	-	-	626	4,797	4,797	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	180	46	-	464	-	141	830	830	-	-	-	8,339	-	-	-	166,786	272	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	2,641	396	3,037	3,037	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	2,296	230	2,525	2,525	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	421	42	463	-	463	-	-	-	-	-	-	-	-	-
2a.4.10	Non-Labor Overhead	-	-	-	-	-	-	772	116	887	887	-	-	-	-	-	-	-	-	-	-
2a.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	1,586	238	1,824	-	1,824	-	-	-	-	-	-	-	-	-
2a.4.12	ISFSI Operating Costs	-	-	-	-	-	-	208	31	239	-	239	-	-	-	-	-	-	-	-	-
2a.4.13	NDO	-	-	-	-	-	-	3,156	473	3,629	3,629	-	-	-	-	-	-	-	-	-	-
2a.4.14	Security Staff Cost	-	-	-	-	-	-	25,021	3,753	28,774	28,774	-	-	-	-	-	-	-	-	-	484,536

Table D
River Bend Station
DECON 60 Decommissioning Cost Estimate
(thousands of 2018 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 (continued)																					
2a.4.15	Utility Staff Cost	-	-	-	-	-	-	64,421	9,663	74,084	74,084	-	-	-	-	-	-	-	-	-	845,463
2a.4	Subtotal Period 2a Period-Dependent Costs	137	7,510	180	46	-	464	101,963	16,722	127,021	124,496	2,525	-	-	8,339	-	-	-	166,786	272	1,329,999
2a.0	TOTAL PERIOD 2a COST	1,927	40,089	23,843	8,816	21,950	58,908	125,126	70,141	350,800	339,684	10,569	547	233,886	117,019	1,481	1,234	-	18,038,870	479,368	1,333,853
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	Closed Cooling Water - Reactor Plant	-	474	28	80	1,378	-	-	340	2,300	2,300	-	-	16,079	-	-	-	-	652,963	10,146	-
2b.1.1.2	Containment Atmosphere & Leak Monitor	-	64	3	2	9	21	-	23	122	122	-	-	100	84	-	-	-	9,542	1,505	-
2b.1.1.3	Diesel Generator	-	145	-	-	-	-	-	22	166	-	-	166	-	-	-	-	-	-	3,646	-
2b.1.1.4	Domestic Water	-	42	-	-	-	-	-	6	48	-	-	48	-	-	-	-	-	-	1,097	-
2b.1.1.5	Drains - Floor & Equipment	-	869	77	77	280	663	-	444	2,411	2,411	-	-	3,268	2,635	-	-	-	302,799	18,886	-
2b.1.1.6	Drains - Storm & Roof	-	16	-	-	-	-	-	2	19	-	-	19	-	-	-	-	-	-	430	-
2b.1.1.7	Electical - Contaminated	-	1,564	28	67	984	107	-	578	3,329	3,329	-	-	11,483	433	-	-	-	493,842	32,350	-
2b.1.1.8	Electrical - Clean - Non-RCA	-	2,381	-	-	-	-	-	357	2,738	-	-	2,738	-	-	-	-	-	-	59,476	-
2b.1.1.9	Electrical - Clean - RCA	-	10,065	194	555	9,518	-	-	4,046	24,378	24,378	-	-	111,082	-	-	-	-	4,511,108	192,540	-
2b.1.1.10	Fire Protect - Water & Engine Pumps	-	383	-	-	-	-	-	57	441	-	-	441	-	-	-	-	-	-	10,230	-
2b.1.1.11	Fire Protect - Water & Engine Pumps -RCA	-	1,480	32	91	1,561	-	-	621	3,785	3,785	-	-	18,218	-	-	-	-	739,845	29,410	-
2b.1.1.12	Fire Protection - Halon	-	14	-	-	-	-	-	2	17	-	-	17	-	-	-	-	-	-	378	-
2b.1.1.13	HPCS	-	169	51	57	201	494	-	209	1,181	1,181	-	-	2,342	1,979	-	-	-	221,878	3,921	-
2b.1.1.14	HVAC - Aux Boiler Room	-	10	-	-	-	-	-	1	11	-	-	11	-	-	-	-	-	-	262	-
2b.1.1.15	HVAC - Aux Control Bldg	-	120	4	9	134	15	-	55	337	337	-	-	1,561	59	-	-	-	67,111	2,507	-
2b.1.1.16	HVAC - Auxiliary Bldg	-	79	5	12	171	19	-	52	339	339	-	-	1,999	76	-	-	-	86,003	1,772	-
2b.1.1.17	HVAC - Chilled Water	-	73	-	-	-	-	-	11	84	-	-	84	-	-	-	-	-	-	1,946	-
2b.1.1.18	HVAC - Chilled Water - RCA	-	1,244	33	95	1,629	-	-	573	3,573	3,573	-	-	19,008	-	-	-	-	771,925	24,927	-
2b.1.1.19	HVAC - Containment Bldg	-	549	37	71	836	244	-	338	2,074	2,074	-	-	9,756	984	-	-	-	458,682	11,535	-
2b.1.1.20	HVAC - Control Bldg	-	112	-	-	-	-	-	17	129	-	-	129	-	-	-	-	-	-	3,213	-
2b.1.1.21	HVAC - Diesel Generator	-	37	-	-	-	-	-	6	43	-	-	43	-	-	-	-	-	-	1,043	-
2b.1.1.22	HVAC - Drywell Cooling	-	19	3	4	36	25	-	17	104	104	-	-	422	101	-	-	-	23,564	430	-
2b.1.1.23	HVAC - Radwaste Bldg	-	755	29	68	995	108	-	378	2,333	2,333	-	-	11,617	438	-	-	-	499,592	16,004	-
2b.1.1.24	HVAC - Water Treatment Bldg	-	6	-	-	-	-	-	1	7	-	-	7	-	-	-	-	-	-	168	-
2b.1.1.25	HVAC - Yard Structure - Clean	-	69	-	-	-	-	-	10	79	-	-	79	-	-	-	-	-	-	1,949	-
2b.1.1.26	HVAC - Yard Structure - Contaminated	-	332	11	26	372	47	-	155	942	942	-	-	4,337	187	-	-	-	188,075	6,847	-
2b.1.1.27	Hydraulic Recirc Flow Control Skid	-	16	1	1	7	9	-	8	42	42	-	-	76	36	-	-	-	5,456	338	-
2b.1.1.28	Instrument Air	-	9	-	-	-	-	-	1	11	-	-	11	-	-	-	-	-	-	253	-
2b.1.1.29	Instrument Air - RCA	-	409	8	24	414	-	-	169	1,025	1,025	-	-	4,836	-	-	-	-	196,385	8,195	-
2b.1.1.30	MSIV Positive Leakage Control	-	37	3	3	12	27	-	19	101	101	-	-	141	110	-	-	-	12,747	916	-
2b.1.1.31	Makeup Demineralizer Water Treatment	-	113	-	-	-	-	-	17	130	-	-	130	-	-	-	-	-	-	2,921	-
2b.1.1.32	Makeup Water	-	228	-	-	-	-	-	34	262	-	-	262	-	-	-	-	-	-	5,702	-
2b.1.1.33	Nuclear Boiler Instrumentation	-	14	1	1	1	9	-	6	33	33	-	-	17	37	-	-	-	3,038	349	-
2b.1.1.34	Off Gas	-	415	34	45	277	317	-	234	1,322	1,322	-	-	3,235	1,272	-	-	-	212,564	9,213	-
2b.1.1.35	Plant & Control Bldg Chilled Water	-	83	1	2	43	-	-	28	156	156	-	-	499	-	-	-	-	20,281	1,562	-
2b.1.1.36	Radiation Monitor	-	56	4	5	21	44	-	29	159	159	-	-	240	178	-	-	-	21,054	1,301	-
2b.1.1.37	Radwaste - Liquid	812	999	130	129	312	1,224	-	1,041	4,647	4,647	-	-	3,635	4,883	-	-	-	461,545	36,139	-
2b.1.1.38	Radwaste - Solid	64	87	9	9	22	82	-	80	352	352	-	-	251	324	-	-	-	31,120	3,272	-
2b.1.1.39	Reactor Core Isolation Cooling	166	251	28	29	34	296	-	232	1,036	1,036	-	-	396	1,188	-	-	-	92,018	7,593	-
2b.1.1.40	Reactor Water Clnup & Filter	254	423	44	38	54	389	-	348	1,550	1,550	-	-	635	1,542	-	-	-	125,431	13,775	-
2b.1.1.41	Refueling Equipment	9	19	1	1	7	8	-	12	57	57	-	-	82	31	-	-	-	5,382	588	-
2b.1.1.42	Sampling Radwaste	-	45	2	2	7	16	-	17	88	88	-	-	77	62	-	-	-	7,165	1,168	-
2b.1.1.43	Sampling Reactor Plant	-	53	2	2	13	19	-	21	110	110	-	-	147	74	-	-	-	10,794	1,344	-
2b.1.1.44	Sanitary Sewage Treatment	-	68	-	-	-	-	-	10	78	-	-	78	-	-	-	-	-	-	1,778	-
2b.1.1.45	Service & Breathing Air	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	302	-
2b.1.1.46	Service & Breathing Air - RCA	-	326	6	16	281	-	-	127	755	755	-	-	3,280	-	-	-	-	133,205	6,500	-
2b.1.1.47	Service Water - Cooling	-	121	-	-	-	-	-	18	139	-	-	139	-	-	-	-	-	-	3,202	-
2b.1.1.48	Service Water - Normal	-	377	-	-	-	-	-	57	434	-	-	434	-	-	-	-	-	-	10,039	-
2b.1.1.49	Service Water - Normal - RCA	-	1,676	58	165	2,825	-	-	873	5,596	5,596	-	-	32,965	-	-	-	-	1,338,721	34,925	-
2b.1.1.50	Service Water - Standby	-	80	-	-	-	-	-	12	92	-	-	92	-	-	-	-	-	-	2,097	-
2b.1.1.51	Service Water - Standby - RCA	-	126	6	19	318	-	-	83	551	551	-	-	3,708	-	-	-	-	150,566	2,705	-
2b.1.1.52	Standby Gas Treatment	-	29	1	2	24	8	-	13	77	77	-	-	275	33	-	-	-	13,290	633	-
2b.1.1.53	Standby Liquid Control	-	24	1	2	37	-	-	12	77	77	-	-	435	-	-	-	-	17,661	510	-
2b.1.1.54	Waste Water Treatment	-	92	-	-	-	-	-	14	106	-	-	106	-	-	-	-	-	-	2,393	-
2b.1.1	Totals	1,304	27,257	875	1,710	22,811	4,191	-	11,841	69,989	64,943	-	5,046	266,205	16,743	-	-	-	11,885,350	596,330	-
2b.1.2	Scaffolding in support of decommissioning	-	1,448	41	13	163	38	-	402	2,104	2,104	-	-	1,721	152	-	-	-	87,102	39,736	-

Table D
River Bend Station
DECON 60 Decommissioning Cost Estimate
(thousands of 2018 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																					
2b.1.3.1	Reactor Building	2,496	3,738	193	1,206	1,182	7,046	-	4,321	20,181	20,181	-	-	13,798	68,727	-	-	-	3,481,629	131,395	-
2b.1.3.2	Auxiliary Building	303	321	20	95	319	162	-	336	1,556	1,556	-	-	3,729	3,841	-	-	-	334,593	13,099	-
2b.1.3.3	Auxiliary Control Building	116	212	7	52	10	87	-	143	626	626	-	-	120	2,485	-	-	-	122,244	6,938	-
2b.1.3.4	Condensate Demin Regen & Off Gas Bldg	141	83	6	37	37	63	-	119	485	485	-	-	433	1,730	-	-	-	99,405	4,824	-
2b.1.3.5	Low Level Radwaste Storage	6	40	3	25	-	42	-	27	143	143	-	-	-	1,205	-	-	-	56,940	818	-
2b.1.3.6	Radwaste Building	370	274	19	105	205	178	-	346	1,495	1,495	-	-	2,388	4,597	-	-	-	315,300	13,689	-
2b.1.3.7	Services Building	34	1	0	1	-	1	-	18	55	55	-	-	-	43	-	-	-	2,028	816	-
2b.1.3.8	Turbine Building	977	562	41	261	270	440	-	822	3,373	3,373	-	-	3,152	12,028	-	-	-	697,548	33,093	-
2b.1.3	Totals	4,441	5,230	289	1,781	2,024	8,018	-	6,132	27,915	27,915	-	-	23,620	94,656	-	-	-	5,109,686	204,673	-
2b.1.4	Prepare/submit License Termination Plan	-	-	-	-	-	-	470	70	540	540	-	-	-	-	-	-	-	-	-	4,096
2b.1.5	Receive NRC approval of termination plan									a											
2b.1	Subtotal Period 2b Activity Costs	5,745	33,935	1,205	3,504	24,998	12,246	470	18,445	100,548	95,502	-	5,046	291,546	111,552	-	-	-	17,082,140	840,739	4,096
Period 2b Additional Costs																					
2b.2.1	Remedial Action Surveys	-	-	-	-	-	-	2,098	629	2,727	2,727	-	-	-	-	-	-	-	-	42,370	-
2b.2.2	Underground Services Excavation	-	1,390	-	-	-	-	652	306	2,348	2,348	-	-	-	-	-	-	-	-	12,000	-
2b.2.3	IT Support and Projects	-	-	-	-	-	-	6	-	6	6	-	-	-	-	-	-	-	-	-	-
2b.2.4	Fees Paid by Headquarters	-	-	-	-	-	-	286	-	286	286	-	-	-	-	-	-	-	-	-	-
2b.2.5	Communication Plan	-	-	-	-	-	-	111	-	111	111	-	-	-	-	-	-	-	-	-	-
2b.2.6	Post-Shutdown Contractor	-	-	-	-	-	-	333	-	333	333	-	-	-	-	-	-	-	-	-	-
2b.2.7	Severance	-	-	-	-	-	-	6,000	-	6,000	6,000	-	-	-	-	-	-	-	-	-	-
2b.2.8	Operational Equipment	-	-	19	49	618	-	-	102	788	788	-	-	11,710	-	-	-	-	292,750	32	-
2b.2	Subtotal Period 2b Additional Costs	-	1,390	19	49	618	-	9,486	1,038	12,599	12,599	-	-	11,710	-	-	-	-	292,750	54,402	-
Period 2b Collateral Costs																					
2b.3.1	Process decommissioning water waste	288	-	188	442	-	791	-	427	2,137	2,137	-	-	-	1,857	-	-	-	111,410	362	-
2b.3.2	Process decommissioning chemical flush waste	2	-	83	291	-	641	-	213	1,230	1,230	-	-	-	848	-	-	-	90,323	159	-
2b.3.3	Small tool allowance	-	574	-	-	-	-	-	86	660	660	-	-	-	-	-	-	-	-	-	-
2b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	55,773	8,366	64,139	-	64,139	-	-	-	-	-	-	-	-	-
2b.3.5	Legal (License Termination)	-	-	-	-	-	-	1,766	265	2,031	2,031	-	-	-	-	-	-	-	-	-	-
2b.3.6	Annual Fee	-	-	-	-	-	-	175	26	202	202	-	-	-	-	-	-	-	-	-	-
2b.3.7	Corporate A&G	-	-	-	-	-	-	5,517	828	6,345	6,345	-	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	291	574	271	733	-	1,432	63,232	10,211	76,745	12,605	64,139	-	-	2,704	-	-	-	201,733	521	-
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	2,507	-	-	-	-	-	-	627	3,133	3,133	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	1,408	141	1,548	1,548	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	95	9	104	104	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	5,375	-	-	-	-	-	1,344	6,719	6,719	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	4,474	-	-	-	-	-	671	5,145	5,145	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	252	64	-	649	-	197	1,163	1,163	-	-	-	11,681	-	-	-	233,622	381	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	2,170	325	2,495	2,495	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	1,662	166	1,829	1,829	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	438	44	482	-	482	-	-	-	-	-	-	-	-	-
2b.4.10	Non-Labor Overhead	-	-	-	-	-	-	803	120	923	923	-	-	-	-	-	-	-	-	-	-
2b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	1,650	248	1,898	-	1,898	-	-	-	-	-	-	-	-	-
2b.4.12	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	415	62	478	478	-	-	-	-	-	-	-	-	-	-
2b.4.13	ISFSI Operating Costs	-	-	-	-	-	-	216	32	248	-	248	-	-	-	-	-	-	-	-	-
2b.4.14	NDO	-	-	-	-	-	-	3,284	493	3,776	3,776	-	-	-	-	-	-	-	-	-	-
2b.4.15	Security Staff Cost	-	-	-	-	-	-	26,035	3,905	29,941	29,941	-	-	-	-	-	-	-	-	-	504,189
2b.4.16	Utility Staff Cost	-	-	-	-	-	-	64,066	9,610	73,676	73,676	-	-	-	-	-	-	-	-	-	841,597
2b.4	Subtotal Period 2b Period-Dependent Costs	2,507	9,850	252	64	-	649	102,242	17,995	133,558	130,930	2,628	-	-	11,681	-	-	-	233,622	381	1,345,785
2b.0	TOTAL PERIOD 2b COST	8,543	45,748	1,748	4,349	25,616	14,328	175,429	47,689	323,450	251,636	66,767	5,046	303,256	125,937	-	-	-	17,810,250	896,042	1,349,881
PERIOD 2d - Decontamination Following Wet Fuel Storage																					
Period 2d Direct Decommissioning Activities																					
2d.1.1	Remove spent fuel racks	567	50	159	244	-	2,689	-	1,021	4,729	4,729	-	-	-	10,852	-	-	-	689,374	1,285	-
Disposal of Plant Systems																					
2d.1.2.1	Fuel Pool Cooling	-	1,195	180	194	563	1,774	-	874	4,780	4,780	-	-	6,571	7,105	-	-	-	721,795	26,715	-
2d.1.2.2	HVAC - Fuel Bldg	-	198	7	16	236	26	-	95	578	578	-	-	2,757	104	-	-	-	118,566	4,102	-
2d.1.2	Totals	-	1,393	187	210	799	1,800	-	968	5,358	5,358	-	-	9,329	7,208	-	-	-	840,361	30,817	-

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River Bend Station
DECON 60 Decommissioning Cost Estimate
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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 Building	706	729	17	73	271	126	-	620	2,543	2,543	-	-	3,165	2,886	-	-	-	266,951	31,350	-
2d.1.3	Totals	706	729	17	73	271	126	-	620	2,543	2,543	-	-	3,165	2,886	-	-	-	266,951	31,350	-
2d.1.4	Scaffolding in support of decommissioning	-	290	8	3	33	8	-	80	421	421	-	-	344	30	-	-	-	17,420	7,947	-
2d.1	Subtotal Period 2d Activity Costs	1,273	2,462	371	530	1,103	4,622	-	2,690	13,050	13,050	-	-	12,838	20,976	-	-	-	1,814,107	71,399	-
	Period 2d Additional Costs																				
2d.2.1	License Termination Survey Planning	-	-	-	-	-	-	1,056	317	1,373	1,373	-	-	-	-	-	-	-	-	-	12,480
2d.2.2	Remedial Action Surveys	-	-	-	-	-	-	570	171	740	740	-	-	-	-	-	-	-	-	11,504	-
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	1,626	488	2,114	2,114	-	-	-	-	-	-	-	-	11,504	12,480
	Period 2d Collateral Costs																				
2d.3.1	Process decommissioning water waste	95	-	63	147	-	264	-	142	711	711	-	-	-	619	-	-	-	37,143	121	-
2d.3.3	Small tool allowance	-	57	-	-	-	-	-	9	66	66	-	-	-	-	-	-	-	-	-	-
2d.3.4	Decommissioning Equipment Disposition	-	-	142	50	570	131	-	140	1,033	1,033	-	-	6,000	529	-	-	-	303,608	147	-
2d.3.5	Spent Fuel Capital and Transfer	-	-	-	-	-	-	4,098	615	4,713	-	4,713	-	-	-	-	-	-	-	-	-
2d.3.6	Legal (License Termination)	-	-	-	-	-	-	479	72	551	551	-	-	-	-	-	-	-	-	-	-
2d.3.7	Annual Fee	-	-	-	-	-	-	43	6	49	49	-	-	-	-	-	-	-	-	-	-
2d.3.8	Corporate A&G	-	-	-	-	-	-	1,330	199	1,529	1,529	-	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	95	57	204	198	570	395	5,950	1,183	8,653	3,940	4,713	-	6,000	1,148	-	-	-	340,751	268	-
	Period 2d Period-Dependent Costs																				
2d.4.1	Decon supplies	288	-	-	-	-	-	-	72	360	360	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	382	38	420	420	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	26	3	28	28	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	659	-	-	-	-	-	165	824	824	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,215	-	-	-	-	-	182	1,397	1,397	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	48	12	-	124	-	38	222	222	-	-	-	2,233	-	-	-	44,655	73	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	314	47	361	361	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	256	26	281	281	-	-	-	-	-	-	-	-	-	-
2d.4.9	Non-Labor Overhead	-	-	-	-	-	-	218	33	251	251	-	-	-	-	-	-	-	-	-	-
2d.4.10	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	226	34	259	259	-	-	-	-	-	-	-	-	-	-
2d.4.11	ISFSI Operating Costs	-	-	-	-	-	-	59	9	67	-	67	-	-	-	-	-	-	-	-	-
2d.4.12	Security Staff Cost	-	-	-	-	-	-	1,963	294	2,258	531	1,727	-	-	-	-	-	-	-	-	46,013
2d.4.13	Utility Staff Cost	-	-	-	-	-	-	12,119	1,818	13,937	13,226	711	-	-	-	-	-	-	-	-	157,128
2d.4	Subtotal Period 2d Period-Dependent Costs	288	1,874	48	12	-	124	15,562	2,758	20,666	18,161	2,505	-	-	2,233	-	-	-	44,655	73	203,142
2d.0	TOTAL PERIOD 2d COST	1,657	4,393	623	740	1,673	5,141	23,138	7,118	44,483	37,265	7,218	-	18,838	24,357	-	-	-	2,199,512	83,243	215,622

PERIOD 2f - License Termination

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 Direct Decommissioning Activities																				
2f.1.1	ORISE confirmatory survey	-	-	-	-	-	-	161	48	209	209	-	-	-	-	-	-	-	-	-	-
2f.1.2	Terminate license									a											
2f.1	Subtotal Period 2f Activity Costs	-	-	-	-	-	-	161	48	209	209	-	-	-	-	-	-	-	-	-	-
	Period 2f Additional Costs																				
2f.2.1	License Termination Survey	-	-	-	-	-	-	9,578	2,873	12,452	12,452	-	-	-	-	-	-	-	-	207,578	6,240
2f.2	Subtotal Period 2f Additional Costs	-	-	-	-	-	-	9,578	2,873	12,452	12,452	-	-	-	-	-	-	-	-	207,578	6,240
	Period 2f Collateral Costs																				
2f.3.1	Staff relocation expenses	-	-	-	-	-	-	1,373	206	1,579	1,579	-	-	-	-	-	-	-	-	-	-
2f.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,338	351	2,689	-	2,689	-	-	-	-	-	-	-	-	-
2f.3.3	Legal (License Termination)	-	-	-	-	-	-	649	97	746	746	-	-	-	-	-	-	-	-	-	-
2f.3.4	Corporate A&G	-	-	-	-	-	-	1,159	174	1,332	1,332	-	-	-	-	-	-	-	-	-	-
2f.3	Subtotal Period 2f Collateral Costs	-	-	-	-	-	-	5,518	828	6,346	3,657	2,689	-	-	-	-	-	-	-	-	-
	Period 2f Period-Dependent Costs																				
2f.4.1	Insurance	-	-	-	-	-	-	518	52	570	570	-	-	-	-	-	-	-	-	-	-
2f.4.2	Property taxes	-	-	-	-	-	-	35	3	38	38	-	-	-	-	-	-	-	-	-	-
2f.4.3	Health physics supplies	-	926	-	-	-	-	-	232	1,158	1,158	-	-	-	-	-	-	-	-	-	-
2f.4.4	Disposal of DAW generated	-	-	8	2	-	19	-	6	35	35	-	-	-	348	-	-	-	6,954	11	-
2f.4.5	Plant energy budget	-	-	-	-	-	-	213	32	245	245	-	-	-	-	-	-	-	-	-	-
2f.4.6	NRC Fees	-	-	-	-	-	-	347	35	382	382	-	-	-	-	-	-	-	-	-	-
2f.4.7	Non-Labor Overhead	-	-	-	-	-	-	296	44	340	340	-	-	-	-	-	-	-	-	-	-
2f.4.8	ISFSI Operating Costs	-	-	-	-	-	-	80	12	91	-	91	-	-	-	-	-	-	-	-	-

Table D
River Bend Station
DECON 60 Decommissioning Cost Estimate
(thousands of 2018 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 2f Period-Dependent Costs (continued)																					
2f.4.9	Security Staff Cost	-	-	-	-	-	-	2,663	399	3,062	720	2,343	-	-	-	-	-	-	-	-	62,414
2f.4.10	Utility Staff Cost	-	-	-	-	-	-	10,325	1,549	11,873	10,912	962	-	-	-	-	-	-	-	-	127,256
2f.4	Subtotal Period 2f Period-Dependent Costs	-	926	8	2	-	19	14,476	2,364	17,795	14,399	3,396	-	-	348	-	-	-	6,954	11	189,670
2f.0	TOTAL PERIOD 2f COST	-	926	8	2	-	19	29,733	6,113	36,801	30,716	6,085	-	-	348	-	-	-	6,954	207,589	195,910
PERIOD 2 TOTALS		12,126	91,156	26,221	13,907	49,239	78,397	353,426	131,062	755,534	659,302	90,639	5,593	555,980	267,661	1,481	1,234	-	38,055,580	1,666,242	3,095,266
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Reactor Building	-	2,155	-	-	-	-	-	323	2,478	-	-	2,478	-	-	-	-	-	-	28,224	-
3b.1.1.2	Aux Boiler & Water Treatment	-	131	-	-	-	-	-	20	150	-	-	150	-	-	-	-	-	-	2,165	-
3b.1.1.3	Auxiliary Building	-	1,254	-	-	-	-	-	188	1,442	-	-	1,442	-	-	-	-	-	-	10,010	-
3b.1.1.4	Auxiliary Control Building	-	121	-	-	-	-	-	18	139	-	-	139	-	-	-	-	-	-	1,263	-
3b.1.1.5	Circ. Water Cooling Tower & Flumes	-	1,993	-	-	-	-	-	299	2,292	-	-	2,292	-	-	-	-	-	-	24,290	-
3b.1.1.6	Circulating Water Pump Structure	-	90	-	-	-	-	-	13	103	-	-	103	-	-	-	-	-	-	384	-
3b.1.1.7	Condensate Demin Regen & Off Gas Bldg	-	622	-	-	-	-	-	93	715	-	-	715	-	-	-	-	-	-	4,774	-
3b.1.1.8	Control Building	-	628	-	-	-	-	-	94	722	-	-	722	-	-	-	-	-	-	6,127	-
3b.1.1.9	Diesel Generator Building	-	320	-	-	-	-	-	48	368	-	-	368	-	-	-	-	-	-	2,837	-
3b.1.1.10	Fire Pump House	-	26	-	-	-	-	-	4	30	-	-	30	-	-	-	-	-	-	443	-
3b.1.1.11	Flex Building 1& 2	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	1,435	-
3b.1.1.12	Hypochlorite SWGR House	-	34	-	-	-	-	-	5	39	-	-	39	-	-	-	-	-	-	323	-
3b.1.1.13	Low Level Radwaste Storage	-	212	-	-	-	-	-	32	243	-	-	243	-	-	-	-	-	-	1,781	-
3b.1.1.14	Makeup Water Pump House	-	67	-	-	-	-	-	10	77	-	-	77	-	-	-	-	-	-	686	-
3b.1.1.15	Miscellaneous Structures	-	3,408	-	-	-	-	-	511	3,920	-	-	3,920	-	-	-	-	-	-	36,377	-
3b.1.1.16	Motor Generator Building	-	13	-	-	-	-	-	2	15	-	-	15	-	-	-	-	-	-	153	-
3b.1.1.17	Normal Switchgear Building	-	206	-	-	-	-	-	31	237	-	-	237	-	-	-	-	-	-	2,293	-
3b.1.1.18	PAP Facility	-	41	-	-	-	-	-	6	47	-	-	47	-	-	-	-	-	-	467	-
3b.1.1.19	Radwaste Building	-	1,479	-	-	-	-	-	222	1,701	-	-	1,701	-	-	-	-	-	-	13,471	-
3b.1.1.20	Rail Road Enclosure	-	36	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	529	-
3b.1.1.21	SSW Cooling Tower	-	1,148	-	-	-	-	-	172	1,320	-	-	1,320	-	-	-	-	-	-	8,177	-
3b.1.1.22	Service Water Cooling Tower	-	214	-	-	-	-	-	32	246	-	-	246	-	-	-	-	-	-	2,079	-
3b.1.1.23	Services Building	-	738	-	-	-	-	-	111	849	-	-	849	-	-	-	-	-	-	9,604	-
3b.1.1.24	Tunnels	-	177	-	-	-	-	-	27	203	-	-	203	-	-	-	-	-	-	1,418	-
3b.1.1.25	Turbine Building	-	3,222	-	-	-	-	-	483	3,705	-	-	3,705	-	-	-	-	-	-	37,157	-
3b.1.1.26	Turbine Pedestal	-	553	-	-	-	-	-	83	635	-	-	635	-	-	-	-	-	-	2,770	-
3b.1.1.27	Fuel Handling Building	-	809	-	-	-	-	-	121	931	-	-	931	-	-	-	-	-	-	6,660	-
3b.1.1	Totals	-	19,774	-	-	-	-	-	2,966	22,740	-	-	22,740	-	-	-	-	-	-	205,899	-
Site Closeout Activities																					
3b.1.2	BackFill Site	-	1,242	-	-	-	-	-	186	1,429	-	-	1,429	-	-	-	-	-	-	2,415	-
3b.1.3	Grade & landscape site	-	386	-	-	-	-	-	58	444	-	-	444	-	-	-	-	-	-	1,068	-
3b.1.4	Final report to NRC	-	-	-	-	-	-	179	27	206	206	-	-	-	-	-	-	-	-	-	1,560
3b.1	Subtotal Period 3b Activity Costs	-	21,403	-	-	-	-	179	3,237	24,819	206	-	24,614	-	-	-	-	-	-	209,382	1,560
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	1,314	-	-	-	-	11	199	1,524	-	-	1,524	-	-	-	-	-	-	6,751	-
3b.2.2	Firing Range Closure	-	166	-	-	-	-	467	95	728	-	-	728	-	-	-	-	-	-	1,999	-
3b.2.3	Mobile Barrier Removal	-	164	-	-	-	-	521	103	788	-	-	788	-	-	-	-	-	-	1,920	-
3b.2.4	Construction Debris	-	-	-	-	-	-	3,090	464	3,554	-	-	3,554	-	-	-	-	-	-	-	-
3b.2	Subtotal Period 3b Additional Costs	-	1,643	-	-	-	-	4,090	860	6,594	-	-	6,594	-	-	-	-	-	-	10,669	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	151	-	-	-	-	-	23	173	-	-	173	-	-	-	-	-	-	-	-
3b.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	1,008	151	1,159	-	1,159	-	-	-	-	-	-	-	-	-
3b.3.3	Legal (License Termination)	-	-	-	-	-	-	1,903	285	2,189	-	-	2,189	-	-	-	-	-	-	-	-
3b.3.4	Corporate A&G	-	-	-	-	-	-	1,702	255	1,957	-	-	1,957	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	151	-	-	-	-	4,613	715	5,478	-	1,159	4,319	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	1,548	155	1,702	1,702	-	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	104	10	115	-	115	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	6,701	-	-	-	-	-	1,005	7,706	-	-	7,706	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	318	48	366	-	-	366	-	-	-	-	-	-	-	-

Table D
River Bend Station
DECON 60 Decommissioning Cost Estimate
(thousands of 2018 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 3b Period-Dependent Costs (continued)																					
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	732	73	805	-	805	-	-	-	-	-	-	-	-	-
3b.4.6	Non-Labor Overhead	-	-	-	-	-	-	513	77	590	-	-	590	-	-	-	-	-	-	-	-
3b.4.7	ISFSI Operating Costs	-	-	-	-	-	-	237	36	273	-	273	-	-	-	-	-	-	-	-	-
3b.4.8	Security Staff Cost	-	-	-	-	-	-	7,659	1,149	8,808	-	6,993	1,814	-	-	-	-	-	-	-	181,673
3b.4.9	Utility Staff Cost	-	-	-	-	-	-	21,121	3,168	24,289	-	2,890	21,399	-	-	-	-	-	-	-	266,870
3b.4	Subtotal Period 3b Period-Dependent Costs	-	6,701	-	-	-	-	32,231	5,721	44,653	1,702	11,076	31,874	-	-	-	-	-	-	-	448,543
3b.0	TOTAL PERIOD 3b COST	-	29,898	-	-	-	-	41,113	10,533	81,544	1,908	12,235	67,401	-	-	-	-	-	-	220,051	450,103
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	11,223	1,683	12,906	-	12,906	-	-	-	-	-	-	-	-	-
3c.3.2	Corporate A&G	-	-	-	-	-	-	7,081	1,062	8,144	-	8,144	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	18,304	2,746	21,050	-	21,050	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	16,073	1,607	17,680	-	17,680	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	1,082	108	1,190	-	1,190	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	7,601	760	8,362	-	8,362	-	-	-	-	-	-	-	-	-
3c.4.5	Non-Labor Overhead	-	-	-	-	-	-	79	12	91	-	91	-	-	-	-	-	-	-	-	-
3c.4.6	ISFSI Operating Costs	-	-	-	-	-	-	2,467	370	2,837	-	2,837	-	-	-	-	-	-	-	-	-
3c.4.7	Security Staff Cost	-	-	-	-	-	-	63,169	9,475	72,644	-	72,644	-	-	-	-	-	-	-	-	1,499,855
3c.4.8	Utility Staff Cost	-	-	-	-	-	-	26,033	3,905	29,938	-	29,938	-	-	-	-	-	-	-	-	326,805
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	116,503	16,238	132,741	-	132,741	-	-	-	-	-	-	-	-	1,826,660
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	134,808	18,983	153,791	-	153,791	-	-	-	-	-	-	-	-	1,826,660
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	600	-	-	6,529	-	1,129	8,258	8,258	-	-	-	-	-	-	1,633	331,931	-	-
3d.1.1	Totals	-	-	600	-	-	6,529	-	1,129	8,258	8,258	-	-	-	-	-	-	1,633	331,931	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	600	-	-	6,529	-	1,129	8,258	8,258	-	-	-	-	-	-	1,633	331,931	-	-
Period 3d Collateral Costs																					
3d.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	12	2	13	-	13	-	-	-	-	-	-	-	-	-
3d.3.2	Corporate A&G	-	-	-	-	-	-	11	2	13	13	-	-	-	-	-	-	-	-	-	-
3d.3	Subtotal Period 3d Collateral Costs	-	-	-	-	-	-	23	3	26	13	13	-	-	-	-	-	-	-	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	26	3	29	29	-	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	2	0	2	2	-	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	13	1	14	-	14	-	-	-	-	-	-	-	-	-
3d.4.5	Non-Labor Overhead	-	-	-	-	-	-	0	0	0	0	-	-	-	-	-	-	-	-	-	-
3d.4.6	ISFSI Operating Costs	-	-	-	-	-	-	4	1	5	-	5	-	-	-	-	-	-	-	-	-
3d.4.7	Security Staff Cost	-	-	-	-	-	-	104	16	120	120	-	-	-	-	-	-	-	-	-	2,472
3d.4.8	Utility Staff Cost	-	-	-	-	-	-	43	6	49	49	-	-	-	-	-	-	-	-	-	539
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	192	27	219	200	18	-	-	-	-	-	-	-	-	3,010
3d.0	TOTAL PERIOD 3d COST	-	-	600	-	-	6,529	215	1,160	8,503	8,472	32	-	-	-	-	-	1,633	331,931	-	3,010
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	Decommissioning of ISFSI	-	262	215	1,194	-	3,793	2,056	1,880	9,400	9,400	-	-	-	50,626	-	-	-	2,702,029	12,647	2,225
3e.2	Subtotal Period 3e Additional Costs	-	262	215	1,194	-	3,793	2,056	1,880	9,400	9,400	-	-	-	50,626	-	-	-	2,702,029	12,647	2,225
Period 3e Collateral Costs																					
3e.3.1	Corporate A&G	-	-	-	-	-	-	99	25	124	124	-	-	-	-	-	-	-	-	-	-
3e.3	Subtotal Period 3e Collateral Costs	-	-	-	-	-	-	99	25	124	124	-	-	-	-	-	-	-	-	-	-

Table D
River Bend Station
DECON 60 Decommissioning Cost Estimate
(thousands of 2018 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																					
3e.4.1	Insurance	-	-	-	-	-	-	80	20	101	101	-	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	15	4	19	19	-	-	-	-	-	-	-	-	-	-
3e.4.3	Plant energy budget	-	-	-	-	-	-	47	12	59	59	-	-	-	-	-	-	-	-	-	-
3e.4.4	Non-Labor Overhead	-	-	-	-	-	-	1	0	1	1	-	-	-	-	-	-	-	-	-	-
3e.4.5	Security Staff Cost	-	-	-	-	-	-	215	54	269	269	-	-	-	-	-	-	-	-	-	4,999
3e.4.6	Utility Staff Cost	-	-	-	-	-	-	311	78	388	388	-	-	-	-	-	-	-	-	-	3,792
3e.4	Subtotal Period 3e Period-Dependent Costs	-	-	-	-	-	-	670	167	837	837	-	-	-	-	-	-	-	-	-	8,792
3e.0	TOTAL PERIOD 3e COST	-	262	215	1,194	-	3,793	2,825	2,072	10,362	10,362	-	-	-	50,626	-	-	-	2,702,029	12,647	11,017
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	Demolition of ISFSI	-	2,868	-	-	-	-	396	490	3,753	-	-	3,753	-	-	-	-	-	-	32,263	160
3f.2	Subtotal Period 3f Additional Costs	-	2,868	-	-	-	-	396	490	3,753	-	-	3,753	-	-	-	-	-	-	32,263	160
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	40	-	-	-	-	-	6	46	-	-	46	-	-	-	-	-	-	-	-
3f.3.2	Corporate A&G	-	-	-	-	-	-	49	7	57	-	-	57	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	40	-	-	-	-	49	13	103	-	-	103	-	-	-	-	-	-	-	-
Period 3f Period-Dependent Costs																					
3f.4.2	Property taxes	-	-	-	-	-	-	8	1	8	-	-	8	-	-	-	-	-	-	-	-
3f.4.3	Heavy equipment rental	-	115	-	-	-	-	-	17	132	-	-	132	-	-	-	-	-	-	-	-
3f.4.4	Plant energy budget	-	-	-	-	-	-	23	3	27	-	-	27	-	-	-	-	-	-	-	-
3f.4.5	Non-Labor Overhead	-	-	-	-	-	-	1	0	1	-	-	1	-	-	-	-	-	-	-	-
3f.4.6	Security Staff Cost	-	-	-	-	-	-	107	16	123	-	-	123	-	-	-	-	-	-	-	2,479
3f.4.7	Utility Staff Cost	-	-	-	-	-	-	132	20	152	-	-	152	-	-	-	-	-	-	-	1,539
3f.4	Subtotal Period 3f Period-Dependent Costs	-	115	-	-	-	-	270	57	443	-	-	443	-	-	-	-	-	-	-	4,018
3f.0	TOTAL PERIOD 3f COST	-	3,024	-	-	-	-	715	560	4,299	-	-	4,299	-	-	-	-	-	-	32,263	4,178
PERIOD 3 TOTALS		-	33,184	815	1,194	-	10,322	179,676	33,308	258,499	20,741	166,058	71,700	-	50,626	-	-	1,633	3,033,960	264,960	2,294,967
TOTAL COST TO DECOMMISSION		15,425	127,183	27,142	15,322	49,239	90,133	706,457	190,520	1,221,421	875,743	267,482	78,196	555,980	319,967	1,619	1,234	1,633	41,166,120	1,962,964	6,627,463

TOTAL COST TO DECOMMISSION WITH 18.48% CONTINGENCY:	**$1,221,421**	**thousands of 2018 dollars**
TOTAL NRC LICENSE TERMINATION COST IS 71.7% OR:	**$875,743**	**thousands of 2018 dollars**
SPENT FUEL MANAGEMENT COST IS 21.9% OR:	**$267,482**	**thousands of 2018 dollars**
NON-NUCLEAR DEMOLITION COST IS 6.4% OR:	**$78,196**	**thousands of 2018 dollars**
TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC):	**322,820**	**cubic feet**
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	**1,633**	**cubic feet**
TOTAL SCRAP METAL REMOVED:	**58,607**	**tons**
TOTAL CRAFT LABOR REQUIREMENTS:	**1,962,964**	**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 ANALYSIS

ISFSI

Table E-1
River Bend Station
ISFSI Decommissioning Cost Estimate
DECON 40 Decommissioning Alternative
(thousands of 2018 dollars)

Activity Description	Removal Costs	Packaging Costs	Transport Costs	LLRW Disposal Costs	Other Costs	Total Costs	Burial Volume Class A (cubic feet)	Craft Hours	Oversight and Contractor Hours
Decommissioning Contractor									
Planning (characterization, specs and procedures)	-	-	-	-	300	300	-	-	1,096
Decontamination (overpack disposition)	262	215	1,194	3,794	25	5,490	50,626	2,965	-
License Termination (radiological surveys)	-	-	-	-	1,289	1,289	-	9,948	-
Subtotal	**262**	**215**	**1,194**	**3,794**	**1,614**	**7,078**	**50,626**	**12,913**	**1,096**
Supporting Costs									
NRC and NRC Contractor Fees and Costs	-	-	-	-	506	506	-	-	1,153
Insurance	-	-	-	-	80	80	-	-	-
Property Taxes	-	-	-	-	15	15	-	-	-
Plant Energy	-	-	-	-	47	47	-	-	-
Non-Labor Overhead	-	-	-	-	1	1	-	-	-
Corporate A&G	-	-	-	-	99	99	-	-	-
Security Staff Cost	-	-	-	-	215	215	-	-	4,999
Oversight Staff	-	-	-	-	311	311	-	-	3,792
Subtotal	-	-	-	-	1,275	1,275	-	-	9,945
Total (w/o contingency)	**262**	**215**	**1,194**	**3,794**	**2,889**	**8,353**	**50,626**	**12,913**	**11,041**
Total (w/25% contingency)	**328**	**268**	**1,492**	**4,742**	**3,611**	**10,441**			

The application of contingency (25%) is consistent with the evaluation criteria referenced by the NRC in NUREG-1757 ("Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. NRC's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Vol. 3, Rev. 1, February 2012)

Table E-2
River Bend Station
ISFSI Decommissioning Cost Estimate
DECON 60 Decommissioning Alternative
(thousands of 2018 dollars)

Activity Description	Removal Costs	Packaging Costs	Transport Costs	LLRW Disposal Costs	Other Costs	Total Costs	Burial Volume Class A (cubic feet)	Craft Hours	Oversight and Contractor Hours
Decommissioning Contractor									
Planning (characterization, specs and procedures)	-	-	-	-	281	281	-	-	1,072
Decontamination (overpack disposition)	262	215	1,194	3,794	25	5,490	50,626	2,965	-
License Termination (radiological surveys)	-	-	-	-	1,245	1,245	-	9,682	-
Subtotal	**262**	**215**	**1,194**	**3,794**	**1,551**	**7,015**	**50,626**	**12,647**	**1,072**
Supporting Costs									
NRC and NRC Contractor Fees and Costs	-	-	-	-	505	505	-	-	1,153
Insurance	-	-	-	-	80	80	-	-	-
Property Taxes	-	-	-	-	15	15	-	-	-
Plant Energy	-	-	-	-	47	47	-	-	-
Non-Labor Overhead	-	-	-	-	1	1	-	-	-
Corporate A&G	-	-	-	-	99	99	-	-	-
Security Staff Cost	-	-	-	-	215	215	-	-	4,999
Oversight Staff	-	-	-	-	311	311	-	-	3,792
Subtotal	-	-	-	-	1,274	1,274	-	-	9,945
Total (w/o contingency)	**262**	**215**	**1,194**	**3,794**	**2,825**	**8,289**	**50,626**	**12,647**	**11,017**
Total (w/25% contingency)	**328**	**268**	**1,492**	**4,742**	**3,531**	**10,362**			

The application of contingency (25%) is consistent with the evaluation criteria referenced by the NRC in NUREG-1757 ("Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. NRC's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Vol. 3, Rev. 1, February 2012)