ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 981246-EI

FLORIDA POWER & LIGHT COMPANY

1998 DECOMMISSIONING STUDY

TURKEY POINT NUCLEAR UNIT NOS. 3 & 4

October, 1998

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Unit Nos. 3 & 4
Table of Contents

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Unit Nos. 3 & 4
Table of Contents

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Executive Summary

Background Information

By order Nos. 10987 and 12356, entered in Docket No. 810100-EU on July 13, 1982 and August 12, 1983, respectively, the Florida Public Service Commission (FPSC) concluded its investigation concerning the accounting for and recovery of the costs of decommissioning nuclear units. In Docket No. 810100-EU, the FPSC concluded, among other matters, that: decommissioning costs should be accrued in equal annual amounts; decommissioning costs should be accounted for separately; and decommissioning costs should be reviewed and; if necessary, changed no less often than every five years.

By Order No. 21928, entered in Docket No. 870098-EI on September 21, 1989, the FPSC considered the petitions by Florida Power and Light Company (FPL) for an increase in the accrual of nuclear decommissioning costs for the Turkey Point and St. Lucie units. Based upon its decisions regarding decommissioning methodology, the contingency allowance, escalation rates and an assumed fund earnings rate, the FPSC approved an annual accrual and associated jurisdictional revenue requirements for each of FPL's nuclear units. Order No. 21928 also provided that the approved accrual would be subject to subsequent review every five years.

By Order Nos. PSC-95-1531-FOF-EI and PSC-95-1531A-FOF-EI, entered in Docket No. 941350-EI on December 12, 1995 and December 19, 1995 respectively, the FPSC considered the petitions by FPL for an increase in the accrual of nuclear decommissioning costs for the Turkey Point and St. Lucie units. Based upon its decisions regarding decommissioning methodology, including assumptions regarding extended on-site fuel storage, the contingency allowance, escalation rates and an assumed fund earnings rate, the FPSC approved an annual accrual and funding requirements for each of FPL's nuclear units with an effective date of January 1, 1995.

By Order No. PSC-98-0027-FOF-EI, Docket No. 970410-EI issued January 5, 1998, the FPSC authorized FPL to record additional decommissioning expenses to correct historical reserve deficiencies. In addition, FPL was ordered to file updated nuclear decommissioning studies by October 1. 1998.

FPL has now completed new decommissioning cost studies, prepared by TLG Services, Inc. (TLG), and prepared an updated funding and accrual analysis and an updated theoretical reserve calculation as of December 31, 1998. The information contained in this 1998 Decommissioning Study is presented in compliance with the FPSC prior Orders.

Spent Nuclear Fuel Storage

The Nuclear Waste Policy Act of 1982 assigns to the Federal Government responsibility to provide for the permanent disposal of spent nuclear fuel (SNF) and high-level radioactive waste (HLW), and committed the DOE to begin acceptance of SNF/HLW not later than January 31, 1998 under terms of its Standard Disposal Contracts with waste generators. The DOE has not yet provided for SNF storage and is not accepting SNF as committed to under the contract.

In Docket No. 941350-EI, the FPSC previously recognized the impact on the decommissioning process and the potential costs of on-site dry fuel storage resulting from the inability of the DOE to provide for the timely removal of SNF. In Order No. PSC-95-1531-FOF-EI. the FPSC specifically approved the inclusion of costs associated with the dry storage of spent nuclear fuel following the end of each units operating license which were considered necessary to accommodate the timely decommissioning of each unit.

Consistent with the Commission's prior findings, this updated 1998 decommissioning study includes the costs relating to the construction, operation, and dismantlement of an on-site independent spent fuel storage installation (ISFSI) that is required to accommodate the timely decommissioning of the Turkey Point units. The potential cost impact of extended spent fuel storage beyond the current DOE five year minimum that will exist subsequent to the license expiration of the Turkey Point nuclear units is presented in Appendix D of the 1998 Decommissioning Cost Study for the Turkey Point Plant and further discussed in the "General Discussion" section of this filing.

Decommissioning Study

For purposes of this analysis, decommissioning is defined as the activity whereby nuclear facilities are removed safely from service and residual radioactivity is reduced to a level that permits release of the property for unrestricted use and termination of the operating license granted under Title 10 CFR Part 50. Decommissioning also includes the dismantlement, disposal and site restoration activities associated with the non-contaminated portion of the facilities. These activities are not required for termination of the operating license, but are required to address other non-radiological requirements associated with the release of the site.

The Nuclear Regulatory Commission (NRC) has defined three acceptable decommissioning methods: Prompt Removal/Dismantling (DECON); Safe Storage/Deferred Decontamination (SAFSTOR); and Entombment (ENTOMB). The study utilizes the NRC terminology, but also includes the additional activities required to accommodate the non-contaminated portion of the facilities.

The DECON and SAFSTOR alternatives were both examined and presented in the (TLG) Turkey Point Study. The ENTOMB alternative was not considered, because it is considered impractical for a facility which generates significant amounts of long-lived radioactive material due to neutron activation. FPL again selected the DECON alternative because this method provides the lowest cost and utilizes individuals familiar with the facility to support the dismantling effort. The DECON method is consistent with the Prompt/Removal Dismantling method approved by the FPSC in Docket No. 941350-EI.

Funding Method

In Docket No. 810100-EU, Order No. 10987 issued July 13, 1982, the FPSC ordered FPL to establish a funded reserve. Beginning in 1983 FPL began making contributions, on a net of tax basis, to an externally funded reserve. In 1986, the Treasury Department issued temporary regulations under Internal Revenue Code Section 468A relating to the deductibility of contributions made to a qualified decommissioning fund. These regulations, which were finalized in March of 1988, provide for an annual election by the tax payer to make tax deductible contributions to a qualified nuclear decommissioning fund. Qualified nuclear decommissioning funds have been established by FPL for each of the four nuclear units. FPL elected to make contributions to the qualified funds, to the maximum allowed, for the years 1984 through 1987, 1992 through 1997 and is currently making maximum contributions to the qualified funds for the year 1998. For purposes of the funding analysis, maximum contributions to the qualified funds are assumed to continue for each unit through the remainder of the projected funding period which ends with the expiration of the unit's operating license.

In compliance with Order No. PSC-98-0027-FOF-EI, any additional expenses recorded to correct reserve deficiencies will be funded on an after tax basis.

Materials and Supplies Inventories

The decommissioning cost estimates contained in the TLG Decommissioning Cost Estimate section of this study and in the funding analysis contained in Support Schedule G of this filing do not take into consideration the unrecovered value of any Materials and Supplies Inventories that will ultimately exist at the site following shut down of both units. FPL does recognize however that there will be a level of inventories that will remain at the end of life of Unit No. 4, the last unit to reach end of license, that must be recovered prior to the end of site operations. These inventories are unique and will have little value other that scrap value when the units are decommissioned. As such, FPL has included in Support Schedule F of this filing the annual expense accrual and theoretical reserve deficiency calculations associated with the estimated End of Life inventory values.

Since the annual expense/reserve accrual associated with EOL Inventories represents the recovery of amounts already expended, there is no need to fund these amounts and therefore amounts recorded should be accounted for in a separate (unfunded) decommissioning reserve sub-account.

Annual Accrual Requirements

Listed below are the current annual expense accrual requirements for Turkey Point Nuclear Plant Decommissioning costs, including recovery of End of Life Inventory values. Amounts are jurisdictional.

	Last Approved Annual Accrual (1)	Annual Accrual Based on Est./Actual Reserves	Increase (Decrease)in Annual Accrual	Annual Accrual Based on Theoretical Reserves	Increase (Decrease) in Annual Accrual
Turkey Point Unit 3	$17,823,278	$21,148,183	$ 3,324,905	$ 7,380,436	$(10,442,842)
Turkey Point Unit 4	$22,558,722	$25,086,127	$ 2,527,405	$ 9,130,702	$(13,428,020)
Total	$40,382,000	$46,234,310	$ 5,852,310	$16,511,138	$(23,870,862)

(1) As approved in Docket No. 941350-EI, Order No. PSC-95-1531-FOF-EI

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Executive Summary

Major Assumptions

Following is a brief summary of the major assumptions used in our analysis. The "Base Case Assumptions Section" of this filing contains additional detail regarding these and other assumptions used.

	Turkey Point Unit No. 3	Turkey Point Unit No. 4
DECOMMISSIONING FUNDS		
A. Decommissioning Method	DECON (Prompt Removal/ Dismantling)	DECON (Prompt Removal/ Dismantling)
B. Total Decommissioning Cost Per TLG Services, Inc. (Present value @ 12/31/98)	$ 369,477,713	$ 415,261,461
C. FPL's Cost of Decommissioning (Jurisdictional @ 99.258%)	$ 366,736,188	$ 412,180,221
D. Method of Funding (1999 - End)	Qualified	Qualified
E. Qualified Fund Percentage	66.67%	68.57%
F. Funding Periods (Years)	13.50	14.25
G. Assumed Fund Earnings Rate	4.9%	4.9%
H. Escalation rate for Decommissioning Costs (1999 - End)	6.1%	6.1%
I. FPL Ownership Allocation	100%	100%
MATERIALS & SUPPLIES INVENTORIES		
J. Inventory Value at End of Life	N/A	$ 18,183,516
RESERVE DEFICIENCIES @ 12/31/98		
K. 1. Decommissioning	$ 115,545,207	$ 133,027,754
2. Inventories	$ -	$ 11,623,640
L. Method of Funding (1999 - End)		
1. Decommissioning	Non Qualified	Non Qualified
2. Inventories	Non Funded Reserve	Non Funded Reserve

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
General Discussion

DECOMMISSIONING ALTERNATIVES

The Nuclear Regulatory Commission's (NRC) "General Requirements for Decommissioning Nuclear Facilities" defines three decommissioning alternatives acceptable to the NRC, i.e., DECON, SAFSTOR and ENTOMB.

DECON is defined by the NRC as "the alternative in which equipment, structures, and the portions of a facility and site containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations."

SAFSTOR is defined as "the alternative in which the nuclear facility is placed and maintained in a condition that allows the nuclear facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use."

ENTOMB is defined as "the alternative in which radioactive contaminants are encased in a structurally long-lived material, such as concrete; the entombed structure is appropriately maintained and continued surveillance is carried out until the radioactive material decays to a level permitting unrestricted release of the property."

Currently, all three alternatives are limited to an overall duration of 60 years per Title 10 CFR Part 50.82 (a)(3) unless the utility can demonstrate that a longer period is necessary to protect the public health and safety.

On April 3, 1997 the NRC Commissioners requested that the NRC staff provide it with an analysis of whether or not the staff views entombment as a viable decommissioning option and how this option has been dealt with previously by the Commission. The Staff Requirements Memorandum (SRM) state that if the staff concludes that entombment is not a viable option, then the staff should describe the technical requirements and regulatory actions which would be necessary for entombment to become a viable decommissioning option, and that the staff analysis should include the resources involved, potential decommissioning cost savings, and vulnerabilities. To date, the NRC staff have delivered a status report on this effort (SECY-98-099).

ALTERNATIVES CONSIDERED IN STUDY

The DECON and SAFSTOR alternatives were examined for the Turkey Point Study. The ENTOMB alternative was not considered, because it is considered impractical for a

facility which generates significant amounts of long-lived radioactive material due to neutron activation. Specific attributes of the ENTOMB alternative which make it uneconomical when compared to the DECON and SAFSTOR alternatives are:

- a large up-front expenditure is required to encase the contaminated portion of the facility;
- workers incur greater levels of occupational exposure (compared to SAFSTOR);
- the plant must still be decontaminated and dismantled to complete decommissioning prior to the end of the 60 year period; and
- no significant reductions in low level radioactive waste (LLRW) volumes are achieved due to the 60 year time limitation.

DISMANTLEMENT ALTERNATIVE SELECTED

FPL selected an integrated DECON prompt dismantlement option for Turkey Point Units 3 and 4. This option was selected for three reasons.

1. Prompt dismantlement provides the lowest estimated cost in current dollars.
2. This method results in the lowest estimated revenue requirement.
3. Given the current uncertainty of future decommissioning costs, the prompt dismantlement option exposes ratepayers and FPL Group shareholders to the least amount of risk. FPL recommends decontamination and dismantlement of facilities in the shortest practical period of time following the end of commercial operation of Turkey Point Unit 4 in 2013.

Additionally, the integrated DECON prompt decommissioning option selected is consistent with the Prompt Removal/Dismantling method last approved by the Commission for the Turkey Point Units in Docket No. 941350-EI.

STUDY METHODOLOGY

The TLG study for Turkey Point follows the basic approach originally presented in the Atomic Industrial Forum/National Environmental Studies Project report AIF/NESP-036, "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates". The contents of those guidelines were prepared under the review of a task force consisting of representatives from utilities, state regulatory commissions, architect/engineering firms, the Federal Energy Regulatory Commission, the NRC, and the National Association of Regulatory Utility Commissioners. The study also utilizes guidance provided in the Department of Energy (DOE) "Decommissioning Handbook".

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
General Discussion

These references utilize a unit cost factor method for estimating decommissioning activity costs to simplify the estimating calculations. Unit cost factors for concrete removal, steel removal and cutting costs were developed from labor and material cost information provided by FPL. With the item quantity developed from plant drawings, inventory documents and equipment data bases, the activity-dependent costs are estimated. The unit cost factors used in the study reflect the latest available information about worker productivity in actual decommissioning projects, including the Shippingport, Pathfinder, Shoreham, Yankee Rowe and Trojan reactors.

The activity duration critical path was used to determine the total decommissioning program schedule. The program schedule is used to determine the period-dependent costs for program management, administration, engineering, equipment rental, quality assurance and security costs.

The activity and period-dependent costs are combined to develop the total decommissioning costs. Contingency factors are then applied to major cost activities to provide for the types of unforeseeable events that are likely to occur in decommissioning.

FUNDING ALTERNATIVES
QUALIFIED vs NONQUALIFIED

Prior to 1989

In Docket No. 810100-EU, Order No. 10987 issued July 13, 1982, the Florida Public Service Commission ordered FPL to establish an internally funded reserve. FPL made net of tax contributions to the fund from 1983 through 1987. In January 1988, FPL made qualified contributions for tax years 1984 through 1986 and funds were transferred from the nonqualified fund to the qualified funds. The qualified contributions for tax year 1987 were made in March 1988. FPL elected to make contributions to qualified decommissioning funds for the tax years 1984 through 1987 since it believed the advantages of a qualified fund outweighed any disadvantages in those years. The reduction in corporate Federal income tax rates effective July 1, 1987 was a major consideration in reaching this conclusion. The decision to make a qualified election for these years was reviewed and approved by the Commission in Order No. 21928.

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
General Discussion

Present Company Treatment - 1989 to Date

Subsequent to 1988 the Company elected to make qualified contributions for the years 1992 through 1997, and is currently making qualified contributions, to the maximum allowed, for the year 1998. The increase in the corporate Federal income tax rate effective 1/1/93 and the introduction of tax legislation which ultimately resulted in the reduction in the Federal income tax rate applicable to the earnings of the qualified funds from the maximum corporate Federal income tax rate to a rate of 22% for 1994 and 1995 and to 20% for years thereafter, were primary considerations which led to the election of qualified contributions for the years subsequent to 1991.

SPENT FUEL-RELATED COSTS

Background and Regulatory Guidance

Nuclear Waste Policy Act of 1982

The Nuclear Waste Policy Act of 1982 (NWPA) assigns to the Federal Government responsibility to provide for the permanent disposal of spent nuclear fuel (SNF) and high-level radioactive waste (HLW), and committed the DOE to begin acceptance of SNF/HLW not later than January 31, 1998 under the terms of its Standard Disposal Contracts with waste generators. The DOE has not yet provided for SNF storage and is not accepting SNF as committed to under the contract.

The generators of waste are expected to bear the cost of disposal. The operators of commercial reactors fund DOE's efforts through the 1.0 mil per kilowatt-hour charge assessed on the electricity generated by the SNF.

Specific Regulations

Three provisions of current regulations affect decommissioning and SNF storage options.

1. Current NRC policy requires removal of all SNF from a facility licensed under Title 10 CFR Part 50 before decommissioning can be accomplished.
2. Title 10 CFR Part 50.54 (bb) requires the licensee, within 2 years following permanent cessation of operation of the reactor or 5 years before expiration of the reactor operating license, whichever occurs first, to submit written notification to the NRC for its review and preliminary approval of the program by which the licensee

intends to manage and provide funding for the management of all irradiated fuel at the reactor following permanent cessation of operation of the reactor until title to the irradiated fuel and possession of the fuel is transferred to the Secretary of Energy for its ultimate disposal in a repository. However, the NRC does not currently consider SNF management costs after expiration of the operating license, to be decommissioning costs.

3. Title 10 CFR Part 961, Appendix E requires SNF to be cooled in the spent fuel pools for at least five years before it can be accepted by DOE.

Litigation

FPL, along with a number of electric utilities, sued DOE over DOE's denial of its obligation to accept SNF beginning in 1998. On July 23, 1996, the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) held that DOE is required by the Nuclear Waste Policy Act (NWPA) to take title and dispose of SNF from nuclear power plants beginning on January 31, 1998 (Indiana Michigan Power Co. v. Department of Energy). DOE declined to seek further review of the decision, which was remanded to DOE for further proceedings. On December 17, 1996, DOE advised the electric utilities that it would not begin to dispose of SNF by the unconditional deadline.

In response to DOE's letter, FPL, other electric utilities, and state utility commissions filed suit on January 31, 1997 in the D.C. Circuit (Northern States Power Co. v. DOE) requesting that the court authorize the utilities to suspend payments into the Nuclear Waste Fund (NWF) until DOE performs on its unconditional obligation to take title to and dispose of SNF.

On November 14, 1997, a panel of the D.C. Circuit found that DOE did not abide by the Court's earlier ruling that the NWPA imposes an unconditional obligation on DOE to begin disposal of spent fuel by January 31, 1998. The Court's order precludes DOE from excusing its own delay on the grounds that it has not yet prepared a permanent repository or interim storage facility. The Court did not grant the other requests for relief.

On February 19, 1998, 41 utility petitioners asked the federal appellate court to enforce its November 14, 1997 ruling. The utilities requested an enforcement order because DOE had demonstrated that it would manipulate the remedial provisions of its disposal contract with the utilities in a manner that would make the Standard Contract remedy meaningless. Specifically, DOE had indicated intent to pay damages out of the NWF.

On May 5, 1998, a panel of the D.C. Circuit issued a decision that denied the enforcement motion along with other motions and petitions in the proceeding.

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
General Discussion

On June 8, 1998, FPL filed suit in the United States Court of Federal Claims seeking damages from the United States in excess of $300,000,000 for DOE's failure to comply with its statutory obligation to take title to and dispose of SNF. A major element of the damages is the additional decommissioning accrual necessary as a result of DOE's delayed acceptance of SNF.

On August 3, 1998 a number of states and utility commissions petitioned the U. S. Supreme Court to review the November 14, 1997 decision of the D. C. Circuit that it lacked authority to order DOE to begin spent fuel disposal. On September 1, 1998, DOE asked the U. S. Supreme Court to review the November 14, 1997 decision of the D. C. Circuit precluding DOE from excusing its own delay on grounds that it has not prepared a permanent repository or interim storage facility

1998 Decommissioning Study Assumptions

The decommissioning study assumes that FPL will incur additional costs for the storage of SNF. A separate appendix in the study estimates FPL's decommissioning costs if DOE had met its obligation to begin accepting SNF in January 1998.

Impact Of Delayed Acceptance Of SNF

FPL assumes the following in the delayed SNF acceptance scenario.

- Dry storage of SNF is more cost effective than wet storage.
- DOE will not supply multipurpose canisters (MPCs) for on-site storage of SNF. The DOE terminated the MPC program in 1996 due to reduced appropriations for the waste program.
- FPL will pay for storage canisters.
- DOE's geologic repository will begin accepting SNF in 2010.
- The geologic repository will accept fuel at the receipt/emplacement rate projected in the "Analysis of the Total System Life Cycle Cost of the Civilian Radioactive Waste Management Program" (DOE/RW-0479, September 1995). This projection assumes that the repository will reach an annual acceptance rate of 3,000 Metric Tons of Uranium (MTU) in the fifth year of operation.

Both Turkey Point units are projected to run out of full core off-load capacity in the last cycle of operation. FPL expects that an independent spent fuel storage installation (ISFSI) will be developed at the site under the provisions of Title 10 CFR Part 72 with operation beginning in 2010. Approximately 5% of the ISFSI capacity will be required

to enable operation of the Turkey Point units to the end of the respective operating licenses. The remaining 95% of facility capacity will be required to permit transfer of SNF from the spent fuel pools to dry storage from 2012 through 2018. The ISFSI is expected to operate until the transfer to DOE is complete in 2031. Ultimately, the ISFSI will be decommissioned and the Part 72 license associated with the facility will be terminated.

SNF Impact on Decommissioning Schedule and Cost

The movement of the SNF to an ISFSI permits the termination of the Title 10 CFR Part 50 licenses in 2019 for both units. However, the completion of decommissioning for the entire site is delayed until 2031. The impacts of delayed acceptance of SNF by DOE on decommissioning costs are as follows:

1. Capital expenditures are necessary for the portion of the ISFSI facility required to enable complete transfer of the spent fuel pool inventories to dry storage after the mandated 5 year cooling period. This is expected to be approximately 95% of the total facility capacity.
2. ISFSI operation costs are incurred after the shut down of Unit 4 from 2013 through 2031.
3. ISFSI dismantlement and disposal costs are incurred.

Materials and Supplies Inventories

The decommissioning cost estimates contained in the TLG Decommissioning Cost Estimate section of this study and in the funding analysis contained in Support Schedule G of this filing do not take into consideration the unrecovered value of any Materials and Supplies Inventories that will ultimately exist at the site following shut down of both units. FPL does recognize however that there will be a level of inventories that will remain at the end of life of Unit No. 4, the last unit to reach end of license, that must be recovered prior to the end of site operations. These inventories are unique and will have little value other that scrap value when the units are decommissioned. As such, FPL has included in Support Schedule F of this filing the annual expense accrual and theoretical reserve deficiency calculations associated with the estimated End Of Life (EOL) inventory values.

Since the annual expense/reserve accrual associated with EOL Inventories represents the recovery of amounts already expended, there is no need to fund these amounts and therefore amounts recorded should be accounted for in a separate (unfunded) decommissioning reserve sub-account.

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
General Discussion

Reserve Deficiencies

By Order No. PSC-98-0027-FOF-EI, Docket No. 9710410-EI issued January 5, 1998, the Commission authorized FPL to record additional decommissioning expenses to correct historical reserve deficiencies. In addition, FPL was ordered to file updated nuclear decommissioning studies by October 1. 1998. The amount of reserve deficiency to be recovered by FPL as additional expense would then be determined based on these updated studies. In compliance with the Commission Order, FPL has included in this 1998 Decommissioning Study filing (Support Schedule E) an updated calculation of the theoretical reserve deficiency as of December 31,1998.

Florida Power & Light Company
1998 Nuclear Decommissioning Study
Turkey Point Nuclear Units
Annual Accrual and Revenue Requirements

Given below are the estimated costs of decommissioning, annual accruals, and annual funding requirements. The assumptions upon which these figures are based are given in the "Base Case Assumptions" section of this filing.

	Turkey Point Unit No. 3	Turkey Point Unit No. 4
DECOMMISSIONING COSTS		
Total Decommissioning Costs per TLG Services Inc. (Present Value @ 12/31/98)	$369,477,713	$415,261,461
Total Decommissioning Costs Jurisdictionalized @ 99.258%	$366,736,188	$412,180,221
Inventory Value @ End Of Life	N/A	$18,183,516
Inventory Value Jurisdictionalized @ 99.258%	N/A	$18,048,594
ANNUAL EXPENSE ACCRUALS		
Based on Actual Reserve Balances		
FPL's Total Annual Accrual Including (EOL) Inventories	$21,306,276	$25,273,657
FPL's Total Annual Accrual Including (EOL) Inventories Jurisdictionalized @ 99.258%	$21,148,183	$25,086,127
Based on Theoretical Reserve		
FPL's Total Annual Accrual Including (EOL) Inventories	$7,435,608	$9,198,958
FPL's Total Annual Accrual Including (EOL) Inventories Jurisdictionalized @ 99.258%	$7,380,436	$9,130,702
ANNUAL REVENUE REQUIREMENT		
Based on Actual Reserve Balances		
Total Annual Revenue Requirement to Recover FPL's Cost of Decommissioning and (EOL) Inventories Jurisdictionalized @ 99.258%	$21,546,615	$25,558,750
Based on Theoretical Reserve		
Total Annual Revenue Requirement to Recover FPL's Cost of Decommissioning and (EOL) Inventories Jurisdictionalized @ 99.258%	$7,519,483	$9,302,724

A detailed analysis deriving the annual accruals, and funding may be found in Support Schedule E (Theoretical Reserves) Support Schedule F (M&S Inventories) and Support Schedule G ("Inflation and Funding Analysis").

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Base Case Assumptions

Following is a summary of the assumptions used to derive the annual accrual, and annual funding and revenue requirement amounts sought by FPL. These assumptions are more fully developed on the following pages.

1. Base Case Assumptions Summary

		Unit No 3	Unit No. 4
A.	Decommissioning Method	DECON (Prompt Removal/ Dismantling)	DECON (Prompt Removal/ Dismantling)
B.	Total Decommissioning Cost Per TLG Services, Inc. (Present value @ 12/31/98)	$369,477,713	$415,261,461
C.	Total Decommissioning Cost Jurisdictional @ 99.258%	$366,736,188	$412,180,221
D.	Method of Funding (1999-End)	Qualified	Qualified
E.	Funding Periods (Years)	13.5	14.25
F.	Assumed Fund Earnings Rate	4.9%	4.9%
G.	Escalation Rate for Decommissioning Costs (1999 -End)	6.1%	6.1%
H.	FPL Ownership Allocation(%)	100%	100%
I.	FPSC Jurisdictional Separation Factor (%)	99.258%	99.258%
J.	Estimated Fund Balance - Qualified (1/1/99)	$ 130,618,000	$ 146,890,000
K.	Estimated Fund Balance - Nonqualified (1/1/99)	$ 70,431,000	$ 75,891,000
L.	M&S Inventory Value @ EOL	N/A	$ 18,183,516

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Base Case Assumptions

2. Decommissioning Costs

Below are the estimated costs of Decommissioning the Turkey Point facility as provided by TLG in 1998 dollars.

Turkey Point Unit No. 3		
Labor	$	201,399,210
Materials		72,678,364
Shipping		5,679,461
Burial		72,969,134
Other		16,751,544
Total		369,477,713
Turkey Point Unit No. 4		
Labor	$	235,417,327
Materials		77,773,904
Shipping		5,895,799
Burial		79,697,005
Other		16,477,426
Total		415,261,461

3. Funding Method

Beginning in 1999, it is assumed for both units, contributions will be made to the Qualified Funds for the maximum allowed by the IRS. The Internal Revenue Code and Regulations limit future qualified fund contributions. The Qualified Percentage for any unit is defined as the percentage of that unit's life for which there is established a qualified fund. This Qualified Percentage is applied to the unit's total estimated decommissioning cost to calculate the portion of the decommissioning cost the Internal Revenue (IRS) will consider qualified for a deduction for the tax year. However, after the IRS determines such amounts, they will, in addition, be limited to the amount included in cost of service in each year. The qualifying percentages for each of the two units are:

	Qualifying Percentage
Turkey Point Unit No. 3	66.67%
Turkey Point Unit No. 4	68.57%

The Qualifying Percentage Calculations can be found in Support Schedule H Calculation of Qualifying Percentages".

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Base Case Assumptions

4. Funding Period

The funding period is that period over which revenues are collected from ratepayers for purposes of decommissioning the Turkey Point Units.

The funding period over which the new funding and revenue requirement figures are computed for Turkey Point No. 3 and No. 4 is assumed to begin in 1999.

Funding periods for both units will end on the last day of the month proceeding the month in which the operating license for the unit is due to expire. License expiration dates for the Turkey Point units are as follows.

- Turkey Point Unit No. 3 - July 19, 2012
- Turkey Point Unit No. 4 - April 10, 2013

5. Fund Earnings Rate

In Order No. PSC-95-1531-FOF-EI, Docket No. 941350-EI the Commission found the appropriate fund earnings rate, net of taxes and all other administrative costs charged to the trust fund, to be 4.90%. This rate represented the long term average CPI rate of change as forecasted by DRI for the period over which the funds will be invested, plus an additional 1.10 basis points (3.80% + 1.10%).

For purposes of this 1998 study update the projected annual funds earnings rate, net of taxes and all other administrative costs charged to the trust funds, for Units 3 and 4 qualified and nonqualified fund investments, is assumed to be 4.9%. Consistent with the Commission's prior findings, this rate is 1.10 basis points above the forecasted average annual rate of change in the CPI for the period 1999 through the end of the decommissioning period for each unit. The annual rates of change were taken from the most recently published DRI forecast (Fall/Winter 1997-1998).

Florida Power & Light Company
1998 Nuclear Decommissioning Study
Turkey Point Nuclear Units
Base Case Assumptions

6. Revenue Expansion Factor

		Qualified	Non-Qualified
Decommissioning Revenue Requirement		100.0000%	100.0000%
Less:			
Gross Receipts Tax	1.5000%		
Regulatory Assessment Fee	0.0833%		
Uncollectible Accounts	0.2656%		
		1.8489%	1.8489%
Net Before Income Taxes		98.1511%	98.1511%
Less:			
State Income Tax Rate at 5.5%		0	5.3983%
Net Before Federal Income Taxes		98.1511%	92.7528%
Less:			
Federal Income Tax Rate at 35.0%		0	32.4635%
Net After State and Federal Income Taxes		98.1511%	60.2893%
Revenue Expansion Factor (Revenue Requirements/Net After State and Federal Income Taxes)		1.01884 (a)	1.65867 (b)

(a) Revenue Expansion Factor/Multiplier applicable to funding requirement and accrual.
(b) Revenue Expansion Factor/Multiplier applicable to (after tax) funding requirement. Revenue Expansion Factor/Multiplier applicable to (before tax) accrual requirement is the same as shown for the Qualified fund.

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Base Case Assumptions

7. Escalation Rate

The annual escalation rates used to estimate total future dismantlement costs from January 1, 1999 through the final year of decommissioning are as follows:

	Average Annual Escalation Rate
Turkey Point Unit No. 3	6.1%
Turkey Point Unit No. 4	6.1%

The above rates were derived by applying separate inflation indices to each of the major cost components of Labor, Materials and Equipment, Shipping, Burial, and Other.

Cost Component	Inflation Index
Labor	Compensation per Hour
Materials and Equip.	PPI – Intermediate Materials, Supplies, and Components
Shipping	GDP Deflator-Transportation
Burial	FPL Analysis & CPI
Other	GDP (Implicit)

A near-term (assumed for 1999) escalation rate of 138.20% for LLRW Disposal was developed based on an estimated increase in burial rates required to bring the price at the existing Barnwell S.C. burial facility to a level necessary to reach equilibrium (i.e., to generate sufficient revenues to cover anticipated fixed and variable costs). Burial costs for the years 2000 through the end of the decommissioning period are assumed to increase at a rate similar to general inflation, adjusted for variability historically exhibited by LLRW disposal costs (Forecasted CPI + 3.50%). The rate of increase in LLRW burial cannot be predicted with exact certainty, however, the resulting annual increase is considered reasonable and is below the average annual increase experienced since 1986.

For a more detail calculation of the weighted average Escalation rate and annual rate of change for each component please refer to Support Schedule G ("Inflation and Funding Analysis") on pages 1 through 3.

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Base Case Assumptions

8. FPL Ownership Share of Nuclear Units

FPL has 100% ownership interest in the Turkey Point facility.

9. FPSC Jurisdictional Factors

The factor applicable to both units is 99.258%.

10. Fund Balances

Estimated/actual fund balances (qualified and nonqualified) at December 31, 1998 for each of the two Turkey Point Units are as Follows:

	$(000)	
	Qualified	Nonqualified
Unit No. 3	$ 130,618	$ 70,431
Unit No. 4	$ 146,890	$ 75,891

See support Schedule C ("Projected Fund and Reserve Balances") for detail composition and adjustments to the qualified and nonqualified fund balances.

11. Materials and Supplies Inventory Values

The Materials and Supplies inventory balance, less estimated salvage, that is anticipated to remain at the End of Life of Unit No. 4, the last unit to reach end of license, is projected to be $ 18,183,516.

See Support Schedule F ("End-of-Life Materials and Supplies Inventory) for annual expense accrual and reserve deficiency calculations.

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Nuclear Decommissioning Reserve Balances
December 31, 1995 through August 31, 1998
$000

December 31, 1995	Beginning Balance	Revenues Collected	Earnings to Reserve	Ending Balance	Interest On Tax Benefits Of Qualified Contribution	Adjusted Ending Balance
NONQUALIFIED						
Turkey Point Unit No. 3	77,959	5,177	5,352	88,488	4,453	92,941
Turkey Point Unit No. 4	83,074	6,420	5,765	95,259	3,341	98,600
St. Lucie Unit No. 1	77,611	4,282	1,200	83,094	9,071	92,165
St. Lucie Unit No. 2	46,752	3,872	7,327	57,950	1,107	59,058
TOTAL	285,396	19,751	19,644	324,791	17,973	342,764
QUALIFIED						
Turkey Point Unit No. 3	51,975	12,780	3,902	68,657		68,657
Turkey Point Unit No. 4	50,925	16,307	3,867	71,100		71,100
St. Lucie Unit No. 1	61,265	20,140	4,584	85,990		85,990
St. Lucie Unit No. 2	57,864	15,675	4,308	77,847		77,847
TOTAL	222,029	64,902	16,662	303,593	0	303,593
TOTAL RESERVES						
Turkey Point Unit No. 3	129,934	17,957	9,254	157,144	4,453	161,598
Turkey Point Unit No. 4	134,000	22,727	9,632	166,359	3,341	169,700
St. Lucie Unit No. 1	138,876	24,422	5,785	169,083	9,071	178,154
St. Lucie Unit No. 2	104,616	19,546	11,636	135,798	1,107	136,905
TOTAL	507,425	84,652	36,306	628,384	17,973	646,357

December 31, 1996				
NONQUALIFIED				
Turkey Point Unit No. 3	92,941	501	4,842	98,284
Turkey Point Unit No. 4	98,600	801	5,663	105,065
St. Lucie Unit No. 1	92,165	(482)	5,230	96,913
St. Lucie Unit No. 2	59,058	(3,857)	3,188	58,389
TOTAL	342,764	(3,037)	18,924	358,651
QUALIFIED				
Turkey Point Unit No. 3	68,657	17,456	2,459	88,572
Turkey Point Unit No. 4	71,100	21,927	2,558	95,584
St. Lucie Unit No. 1	85,990	24,904	3,055	113,949
St. Lucie Unit No. 2	77,847	23,403	2,843	104,093
TOTAL	303,593	87,689	10,915	402,198
TOTAL RESERVES				
Turkey Point Unit No. 3	161,598	17,957	7,302	186,856
Turkey Point Unit No. 4	169,700	22,727	8,221	200,649
St. Lucie Unit No. 1	178,154	24,422	8,286	210,862
St. Lucie Unit No. 2	136,905	19,546	6,031	162,482
TOTAL	646,357	84,652	29,840	760,849

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Nuclear Decommissioning Reserve Balances
December 31, 1995 through August 31, 1998
$000

December 31, 1997	Beginning Balance	Revenues Collected	Earnings to Reserve	Ending Balance
NONQUALIFIED				
Turkey Point Unit No. 3	98,284	2,839	5,060	106,183
Turkey Point Unit No. 4	105,065	3,610	5,411	114,086
St. Lucie Unit No. 1	96,913	1,900	4,986	103,799
St. Lucie Unit No. 2	58,389	7	3,010	61,407
TOTAL	358,651	8,357	18,466	385,474
QUALIFIED				
Turkey Point Unit No. 3	88,572	15,118	4,013	107,702
Turkey Point Unit No. 4	95,584	19,117	4,330	119,031
St. Lucie Unit No. 1	113,949	22,522	5,122	141,594
St. Lucie Unit No. 2	104,093	19,539	4,678	128,310
TOTAL	402,198	76,296	18,143	496,637
TOTAL RESERVES				
Turkey Point Unit No. 3	186,856	17,957	9,072	213,885
Turkey Point Unit No. 4	200,649	22,727	9,740	233,116
St. Lucie Unit No. 1	210,862	24,422	10,108	245,393
St. Lucie Unit No. 2	162,482	19,546	7,688	189,717
TOTAL	760,849	84,652	36,609	882,111
August 31, 1998				
NONQUALIFIED				
Turkey Point Unit No. 3	106,183	(3,199)	3,899	106,882
Turkey Point Unit No. 4	114,086	(4,179)	4,144	114,051
St. Lucie Unit No. 1	103,799	(6,275)	3,642	101,165
St. Lucie Unit No. 2	61,407	(6,523)	2,010	56,893
TOTAL	385,474	(20,176)	13,694	378,992
QUALIFIED				
Turkey Point Unit No. 3	107,702	15,170	5,646	128,519
Turkey Point Unit No. 4	119,031	19,330	6,168	144,529
St. Lucie Unit No. 1	141,594	22,557	7,473	171,624
St. Lucie Unit No. 2	128,310	19,554	6,830	154,694
TOTAL	496,637	76,611	26,118	599,366
TOTAL RESERVES				
Turkey Point Unit No. 3	213,885	11,971	9,545	235,401
Turkey Point Unit No. 4	233,116	15,152	10,312	258,580
St. Lucie Unit No. 1	245,393	16,282	11,115	272,789
St. Lucie Unit No. 2	189,717	13,031	8,840	211,587
TOTAL	882,111	56,435	39,812	978,358

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Nuclear Decommissioning Fund Balances
December 31, 1995 through August 31, 1998
$000

	Beginning Balance	Contribution	Fund Earnings	Ending Balance	Tax Benefits and Interest On Qualified Contribution	Adjusted Ending Balance
December 31, 1995						
NONQUALIFIED						
Turkey Point Unit No. 3	43,327	3,180	3,288	49,795	7,014	56,809
Turkey Point Unit No. 4	47,818	3,944	3,541	55,303	5,263	60,565
St Lucie Unit No. 1	42,967	2,630	3,283	48,880	7,732	56,612
St Lucie Unit No. 2	23,644	2,378	1,955	27,978	8,299	36,276
Total	157,757	12,132	12,067	181,955	28,307	210,262
QUALIFIED						
Turkey Point Unit No. 3	51,975	12,780	3,902	68,657		68,657
Turkey Point Unit No. 4	50,925	16,307	3,867	71,100		71,100
St Lucie Unit No. 1	61,265	20,140	4,584	85,990		85,990
St Lucie Unit No. 2	57,864	15,675	4,308	77,847		77,847
Total	222,029	64,902	16,662	303,593	0	303,593
TOTAL						
Turkey Point Unit No. 3	95,302	~~16~~,960	7,190	118,452	7,014	125,466
Turkey Point Unit No. 4	98,744	20,251	7,408	126,402	5,263	131,665
St Lucie Unit No. 1	104,232	22,770	7,868	134,870	7,732	142,602
St Lucie Unit No. 2	81,509	18,053	6,263	105,825	8,299	114,123
Total	379,786	77,034	28,729	485,548	28,307	513,856
December 31, 1996						
NONQUALIFIED						
Turkey Point Unit No. 3	56,809	308	3,255	60,371		
Turkey Point Unit No. 4	60,565	492	3,479	64,536		
St Lucie Unit No. 1	56,612	(296)	3,213	59,529		
St Lucie Unit No. 2	36,276	(2,369)	1,958	35,866		
Total	210,262	(1,865)	11,904	220,301		
QUALIFIED						
Turkey Point Unit No. 3	68,657	17,456	2,459	88,572		
Turkey Point Unit No. 4	71,100	21,927	2,558	95,584		
St Lucie Unit No. 1	85,990	24,904	3,055	113,949		
St Lucie Unit No. 2	77,847	23,403	2,843	104,093		
Total	303,593	87,690	10,915	402,198		
TOTAL						
Turkey Point Unit No. 3	125,466	17,763	5,714	148,943		
Turkey Point Unit No. 4	131,665	22,419	6,037	160,120		
St Lucie Unit No. 1	142,602	24,608	6,268	173,478		
St Lucie Unit No. 2	114,123	21,034	4,801	139,958		
Total	513,856	85,824	22,820	622,499		

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Nuclear Decommissioning Fund Balances
December 31, 1995 through August 31, 1998
$000

	Beginning Balance	Contribution	Fund Earnings	Ending Balance
December 31, 1997				
NONQUALIFIED				
Turkey Point Unit No. 3	60,371	1,744	3,108	65,223
Turkey Point Unit No. 4	64,536	2,218	3,324	70,077
St Lucie Unit No. 1	59,529	1,167	3,063	63,759
St Lucie Unit No. 2	35,866	5	1,849	37,719
Total	220,301	5,133	11,343	236,777
QUALIFIED				
Turkey Point Unit No. 3	88,572	15,118	4,013	107,702
Turkey Point Unit No. 4	95,584	19,117	4,330	119,031
St Lucie Unit No. 1	113,949	22,522	5,122	141,594
St Lucie Unit No. 2	104,093	19,539	4,678	128,310
Total	402,198	76,296	18,143	496,637
TOTAL				
Turkey Point Unit No. 3	148,943	16,861	7,121	172,925
Turkey Point Unit No. 4	160,120	21,335	7,653	189,108
St Lucie Unit No. 1	173,478	23,689	8,185	205,352
St Lucie Unit No. 2	139,958	19,543	6,527	166,029
Total	622,499	81,429	29,486	733,414
August 31, 1998				
NONQUALIFIED				
Turkey Point Unit No. 3	65,223	(1,965)	2,395	65,652
Turkey Point Unit No. 4	70,077	(2,567)	2,545	70,056
St Lucie Unit No. 1	63,759	(3,855)	2,237	62,141
St Lucie Unit No. 2	37,719	(4,007)	1,234	34,947
Total	236,777	(12,393)	8,411	232,796
QUALIFIED				
Turkey Point Unit No. 3	107,702	15,170	5,646	128,519
Turkey Point Unit No. 4	119,031	19,330	6,168	144,529
St Lucie Unit No. 1	141,594	22,557	7,473	171,624
St Lucie Unit No. 2	128,310	19,554	6,830	154,694
Total	496,637	76,611	26,118	599,366
TOTAL				
Turkey Point Unit No. 3	172,925	13,205	8,041	194,171
Turkey Point Unit No. 4	189,108	16,763	8,714	214,585
St Lucie Unit No. 1	205,352	18,702	9,710	233,765
St Lucie Unit No. 2	166,029	15,547	8,064	189,641
Total	733,414	64,218	34,530	832,162

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Projected Fund and Reserve Balance at December 31, 1998
$000

	TURKEY POINT UNIT 3	TURKEY POINT UNIT 4	ST. LUCIE UNIT 1	ST. LUCIE UNIT 2 (Note 1)	TOTALS
NON-QUALIFIED FUND					
Actual Fund Balance @8/31/98	65,652	70,056	62,141	34,947	232,796
Add: Contributions Sept. - Dec.1998	3,677	4,653	5,000	4,002	17,333
Income Sept. - Dec. 1998 (after tax) Note (2)	1,102	1,182	1,056	603	3,944
Est/Actual Fund Balance @12/31/98	70,431	75,891	68,197	39,552	254,072
QUALIFIED FUND					
Actual Fund Balance @8/31/98	128,519	144,529	171,624	154,694	599,366
Add: Contributions Sept. - Dec.1998	0	0	0	0	0
Income Sept. - Dec. 1998 (after tax) Note (2)	2,099	2,361	2,803	2,527	9,790
Est/Actual Fund Balance @12/31/98	130,618	146,890	174,427	157,221	609,156
TOTAL FUND					
Actual Fund Balance @8/31/98	194,171	214,585	233,765	189,641	832,162
Add: Contributions Sept. - Dec.1998	3,677	4,653	5,000	4,002	17,333
Income Sept. - Dec. 1998 (after tax) Note (2)	3,201	3,543	3,859	3,130	13,734
Est/Actual Fund Balance @12/31/98	201,049	222,781	242,624	196,773	863,228
NON-QUALIFIED RESERVE					
Actual Reserve Balance@8/31/98	106,882	114,051	101,165	56,893	378,992
Add: Contributions Sept. - Dec.1998	5,986	7,576	8,141	6,515	28,217
Income Sept. - Dec. 1998 Note (2)	1,795	1,925	1,719	982	6,421
Est./Actual Reserve Balance@12/31/98	114,662	123,551	111,025	64,392	413,631
QUALIFIED RESERVE					
Actual Reserve Balance@8/31/98	128,519	144,529	171,624	154,694	599,366
Add: Contributions Sept. - Dec.1998	0	0	0	0	0
Income Sept. - Dec. 1998 Note (2)	2,099	2,361	2,803	2,527	9,790
Est./Actual Reserve Balance@12/31/98	130,618	146,890	174,427	157,221	609,156
TOTAL RESERVE					
Actual Reserve Balance@8/31/98	235,401	258,580	272,789	211,587	978,358
Add: Contributions Sept. - Dec.1998	5,986	7,576	8,141	6,515	28,217
Income Sept. - Dec. 1998 Note (2)	3,894	4,285	4,522	3,509	16,210
Est./Actual Reserve Balance@12/31/98	245,280	270,441	285,452	221,612	1,022,785

Note (1): Amounts for St Lucie Common are included with Unit No. 2
Note (2): calculated @ .0490/3 * Average fund balance Sept. - Dec. 1998.

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Projected Fund and Reserve Balance at December 31, 1998
$000

FUNDING ASSUMPTIONS (September - December 31, 1998)

Accrual/Funding For the Period Sept. - Dec. 1998		Qualified Fund/Reserve	Non-Qualified Fund	Non-Qualified Defrd Tax	Non-Qualified Reserve
Turkey Point	Unit No. 3	0	3,677	2,309	5,986
	Unit No. 4	0	4,653	2,922	7,576
St. Lucie	Unit No. 1	0	5,000	3,140	8,141
	Unit No. 2 & Commom	0	4,002	2,513	6,515
Total TPN and PSL		0	17,333	10,885	28,217

Amounts are based on current (1998) requested Ruling Amounts and Qualified Election for 1998.

Assumed Fund (after-tax) Earnings Rate
For the Period Sept. - Dec. 1998

4.9% annual / 12 = .40833% per month

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Reconciliation of Projected Fund and Reserve Balance at December 31, 1998
$000

RECONCILIATION FUND/RESERVE
Projected 12/31/98

	TURKEY POINT UNIT 3	TURKEY POINT UNIT 4	ST. LUCIE UNIT 1	ST. LUCIE UNIT 2 (Note 1)	TOTALS
NON-QUALIFIED					
Projected Fund Balance @12/31/98	70,431	75,891	68,197	39,552	254,072
Deferred Tax @ 12/31/98	44,231	47,660	42,828	24,839	159,558
Projected Reserve Balance @ 12/31/98	114,662	123,551	111,025	64,391	413,630
QUALIFIED					
Projected Fund Balance @12/31/98	130,618	146,890	174,427	157,221	609,156
Deferred Tax @ 12/31/98	0	0	0	0	0
Projected Reserve Balance @ 12/31/98	130,618	146,890	174,427	157,221	609,156
TOTAL					
Projected Fund Balance @12/31/98	201,049	222,781	242,624	196,773	863,228
Deferred Tax @ 12/31/98	44,231	47,660	42,828	24,839	159,558
Projected Reserve Balance @ 12/31/98	245,280	270,441	285,452	221,612	1,022,785

DEFERRED TAXES
Projected Balance At 12/31/98

NON-QUALIFIED FUND					
Balance @8/31/98 (Fed. & State)	41,230	43,995	39,024	21,947	146,196
Add: Tax on Gross Contributions Sept. - Dec.	2,309	2,922	3,140	2,513	10,885
Tax on Earnings Sept. - December	692	742	663	379	2,477
Balance @12/31/98 (Fed. & State)	**44,231**	**47,660**	**42,828**	**24,839**	**159,558**

Note (1): Amounts for St Lucie Common are included with Unit No. 2

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Nuclear Decommissioning Theoretical Reserves

Total System Amounts

	Turkey Point Unit 3	Turkey Point Unit 4	St. Lucie Unit 1	St. Lucie Unit 2	Total	FAS 115
Theoretical Reserve Balance @ 12/31/98	382,953,699	427,776,035	482,448,497	339,451,873	1,632,630,104	
Est/Act. Reserve @ 12/98	245,279,783	270,440,672	285,451,827	221,611,720	1,022,784,002	91,969,769
Allocation of Unrealized Gains (FAS 115) @ 8/31/98	22,128,710	24,307,610	25,513,809	20,019,640	91,969,769	(91,969,769)
Funded Reserve Deficiency (Excess)	115,545,207	133,027,754	171,482,861	97,820,512	517,876,334	0
End of Life Inventories Unfunded Reserve Deficiency (Excess)	0	11,623,640	0	6,281,742	17,905,382	0
Total Reserve Deficiencies @ 12/31/98	115,545,207	144,651,394	171,482,861	104,102,254	535,781,716	0

Assumptions:
1 1998 Decommissioning Costs per TLG Study
2 Discount rate = Assumed after tax earnings of 4.9% (CPI + 110 basis points) approved by FPSC Order No.PSC-95-1531-FOF-EI
3 Escalation Factors 1999 to End = DRI Fall/Winter 1997-1998
4 Burial = Historical Analysis plus CPI Growth
5 Theoretical Reserve Funding began the month following the In-Service Date
Qualifying percentage = 100%

Annual Accrual Using Theoretical Reserves					
Calculation: - DECOM	7,435,608	8,738,616	12,402,326	15,032,670	43,609,220
- EOL Innentories		460,342		409,679	870,021
Less:Last Approved (effective1/95)	17,956,515	22,727,359	24,422,287	19,546,295	84,652,456
Difference	(10,520,907)	(13,528,401)	(12,019,961)	(4,103,946)	(40,173,215)

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Nuclear Decommissioning Theoretical Reserves

TURKEY POINT UNIT 3 ANNUAL SUMMARY
Using In Service Year Date in Service Dec. 1972

YEAR	BEG BAL	CONTRIBUTION 100% QUALIFIED	EARNINGS @ 4.900%	EXPENDITURE QUALIFIED NOMINAL $'s 1,159,092,053	END BAL	CUMULATIVE EARNINGS TO LAST FUNDING YEAR
1973-1995	0	171,018,989	139,999,104		311,018,093	
1996	311,018,093	7,435,608	15,405,436		333,859,137	
1997	333,859,137	7,435,608	16,524,647		357,819,392	
1998	357,819,392	7,435,608	17,698,699		382,953,699	
1999	382,953,699	7,435,608	18,930,280		409,319,588	
2000	409,319,588	7,435,608	20,222,209		436,977,405	
2001	436,977,405	7,435,608	21,577,442		465,990,455	
2002	465,990,455	7,435,608	22,999,081		496,425,145	
2003	496,425,145	7,435,608	24,490,381		528,351,134	
2004	528,351,134	7,435,608	26,054,755		561,841,497	
2005	561,841,497	7,435,608	27,695,782	1,653,595	595,319,293	
2006	595,319,293	7,435,608	29,336,194	1,754,464	630,336,631	
2007	630,336,631	7,435,608	31,052,044	4,653,716	664,170,567	
2008	664,170,567	7,435,608	32,709,907	7,406,390	696,909,692	
2009	696,909,692	7,435,608	34,314,124	8,905,937	729,753,488	
2010	729,753,488	7,435,608	35,923,470		773,112,566	
2011	773,112,566	7,435,608	38,048,065		818,596,239	
2012	818,596,239	3,717,804	40,239,440	53,737,669	808,815,814	593,221,061
2013	808,815,814	0	39,631,975	119,466,612	728,981,177	
2014	728,981,177	0	35,720,078	129,664,001	635,037,253	
2015	635,037,253	0	31,116,825	127,341,968	538,812,111	
2016	538,812,111	0	26,401,793	113,053,485	452,160,419	
2017	452,160,419	0	22,155,861	104,620,629	369,695,651	
2018	369,695,651	0	18,115,087	110,222,406	277,588,332	
2019	277,588,332	0	13,601,828	116,339,016	174,851,144	
2020	174,851,144	0	8,567,706	43,346,228	140,072,622	
2021	140,072,622	0	6,863,558	10,025,636	136,910,545	
2022	136,910,545	0	6,708,617	4,735,032	138,884,129	
2023	138,884,129	0	6,805,322	5,023,869	140,665,582	
2024	140,665,582	0	6,892,614	5,344,932	142,213,263	
2025	142,213,263	0	6,968,450	5,655,475	143,526,238	
2026	143,526,238	0	7,032,786	6,000,459	144,558,564	
2027	144,558,564	0	7,083,370	6,366,487	145,275,447	
2028	145,275,447	0	7,118,497	6,773,354	145,620,590	
2029	145,620,590	0	7,135,409	7,166,888	145,589,110	
2030	145,589,110	0	7,133,866	7,604,069	145,118,908	
2031	145,118,908	0	7,110,826	152,229,734	0	
		293,706,524	865,385,529	1,159,092,053		593,221,061

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Nuclear Decommissioning Theoretical Reserves

TURKEY POINT UNIT NO. 4 ANNUAL SUMMARY
Using In Service Year

Date in Service Sept. 1973

YEAR	BEG BAL	CONTRIBUTION 100% QUALIFIED	EARNINGS @ 4.900%	EXPENDITURE QUALIFIED NOMINAL $'s 1,357,036,010	END BAL	CUMULATIVE EARNINGS TO LAST FUNDING YEAR
1973-1995	0	194,434,208	151,779,717		346,213,925	
1996	346,213,925	8,738,616	17,159,042		372,111,583	
1997	372,111,583	8,738,616	18,428,027		399,278,226	
1998	399,278,226	8,738,616	19,759,193		427,776,035	
1999	427,776,035	8,738,616	21,155,585		457,670,237	
2000	457,670,237	8,738,616	22,620,401		489,029,254	
2001	489,029,254	8,738,616	24,156,993		521,924,863	
2002	521,924,863	8,738,616	25,768,878		556,432,357	
2003	556,432,357	8,738,616	27,459,745		592,630,719	
2004	592,630,719	8,738,616	29,233,465		630,602,800	
2005	630,602,800	8,738,616	31,094,097	1,653,595	668,781,918	
2006	668,781,918	8,738,616	32,964,874	1,754,464	708,730,943	
2007	708,730,943	8,738,616	34,922,376	4,653,716	747,738,219	
2008	747,738,219	8,738,616	36,833,732	7,406,390	785,904,178	
2009	785,904,178	8,738,616	38,703,864	8,905,937	824,440,722	
2010	824,440,722	8,738,616	40,592,155		873,771,493	
2011	873,771,493	8,738,616	43,009,363		925,519,472	
2012	925,519,472	8,738,616	45,545,014		979,803,102	
2013	979,803,102	2,184,654	48,099,213	76,513,199	953,573,771	709,285,735
2014	953,573,771	0	46,725,115	122,390,757	877,908,129	
2015	877,908,129	0	43,017,498	154,052,899	766,872,728	
2016	766,872,728	0	37,576,764	159,569,932	644,879,560	
2017	644,879,560	0	31,599,098	161,103,741	515,374,917	
2018	515,374,917	0	25,253,371	154,873,418	385,754,870	
2019	385,754,870	0	18,901,989	163,477,627	241,179,232	
2020	241,179,232	0	11,817,782	77,488,275	175,508,740	
2021	175,508,740	0	8,599,928	17,789,539	166,319,129	
2022	166,319,129	0	8,149,637	7,761,551	166,707,215	
2023	166,707,215	0	8,168,654	8,235,006	166,640,863	
2024	166,640,863	0	8,165,402	8,761,282	166,044,983	
2025	166,044,983	0	8,136,204	9,270,319	164,910,868	
2026	164,910,868	0	8,080,633	9,835,809	163,155,692	
2027	163,155,692	0	7,994,629	10,435,793	160,714,528	
2028	160,714,528	0	7,875,012	11,102,715	157,486,824	
2029	157,486,824	0	7,716,854	11,747,791	153,455,887	
2030	153,455,887	0	7,519,338	12,464,407	148,510,819	
2031	148,510,819	0	7,277,030	155,787,849	0	
		345,175,336	1,011,860,674	1,357,036,010		709,285,735

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Nuclear Decommissioning Theoretical Reserves

ST. LUCIE UNIT NO. 1 ANNUAL SUMMARY
Using In Service Year

Date in Service Dec. 1976

YEAR	BEG BAL	CONTRIBUTION 100% QUALIFIED	EARNINGS @ 4.900%	EXPENDITURE QUALIFIED NOMINAL $'s 2,418,555,683	END BAL	CUMULATIVE EARNINGS TO LAST FUNDING YEAR
1976-1995	0	235,644,185	147,714,596		383,358,781	
1996	383,358,781	12,402,326	19,060,710		414,821,817	
1997	414,821,817	12,402,326	20,602,399		447,826,541	
1998	447,826,541	12,402,326	22,219,630		482,448,497	
1999	482,448,497	12,402,326	23,916,106		518,766,929	
2000	518,766,929	12,402,326	25,695,709	665,276	556,199,688	
2001	556,199,688	12,402,326	27,529,915	707,854	595,424,074	
2002	595,424,074	12,402,326	29,451,909	1,882,891	635,395,417	
2003	635,395,417	12,402,326	31,410,505	3,005,095	676,203,153	
2004	676,203,153	12,402,326	33,410,084	3,623,744	718,391,819	
2005	718,391,819	12,402,326	35,477,329		766,271,473	
2006	766,271,473	12,402,326	37,823,432		816,497,231	
2007	816,497,231	12,402,326	40,284,494		869,184,050	
2008	869,184,050	12,402,326	42,866,148		924,452,524	
2009	924,452,524	12,402,326	45,574,304		982,429,153	
2010	982,429,153	12,402,326	48,415,158		1,043,246,637	
2011	1,043,246,637	12,402,326	51,395,215		1,107,044,178	
2012	1,107,044,178	12,402,326	54,521,295		1,173,967,798	
2013	1,173,967,798	12,402,326	57,800,552		1,244,170,676	
2014	1,244,170,676	12,402,326	61,240,493		1,317,813,494	
2015	1,317,813,494	12,402,326	64,848,991		1,395,064,811	
2016	1,395,064,811	2,067,054	68,446,538	136,758,810	1,328,819,593	989,705,514
2017	1,328,819,593	0	65,112,160	54,786,039	1,339,145,714	
2018	1,339,145,714	0	65,618,140	35,889,952	1,368,873,902	
2019	1,368,873,902	0	67,074,821	36,071,268	1,399,877,455	
2020	1,399,877,455	0	68,593,995	54,223,777	1,414,247,673	
2021	1,414,247,673	0	69,298,136	55,780,177	1,427,765,632	
2022	1,427,765,632	0	69,960,516	161,850,860	1,335,875,288	
2023	1,335,875,288	0	65,457,889	190,414,427	1,210,918,750	
2024	1,210,918,750	0	59,335,019	201,802,174	1,068,451,595	
2025	1,068,451,595	0	52,354,128	167,385,224	953,420,500	
2026	953,420,500	0	46,717,604	115,405,592	884,732,513	
2027	884,732,513	0	43,351,893	118,628,765	809,455,641	
2028	809,455,641	0	39,663,326	126,566,816	722,552,152	
2029	722,552,152	0	35,405,055	134,299,150	623,658,057	
2030	623,658,057	0	30,559,245	197,985,139	456,232,163	
2031	456,232,163	0	22,355,376	129,120,152	349,467,387	
2032	349,467,387	0	17,123,902	46,666,987	319,924,302	
2033	319,924,302	0	15,676,291	13,999,116	321,601,477	
2034	321,601,477	0	15,758,472	14,895,059	322,464,891	
2035	322,464,891	0	15,800,780	15,848,343	322,417,327	
2036	322,417,327	0	15,798,449	16,908,828	321,306,948	
2037	321,306,948	0	15,744,040	17,941,846	319,109,143	
2038	319,109,143	0	15,636,348	19,090,124	315,655,368	
2039	315,655,368	0	15,467,113	20,311,892	310,810,589	
2040	310,810,589	0	15,229,719	326,040,308	0	
		485,757,750	1,932,797,933	2,418,555,683		989,705,514

Florida Power & Light Company
1998 Decommissioning Study
Support Schedule: Nuclear Decommissioning Theoretical Reserves

ST. LUCIE UNIT NO. 2 ANNUAL SUMMARY
Using In Service Year

Date in Service Aug.. 1983

YEAR	BEG BAL	CONTRIBUTION 100% QUALIFIED	EARNINGS @ 4.900%	QUALIFIED NOMINAL $'s 2,368,707,762	END BAL	CUMULATIVE EARNINGS TO LAST FUNDING YEAR
1976-1995	0	185,402,927	66,740,086		252,143,012	
1996	252,143,012	15,032,670	12,689,700		279,865,383	
1997	279,865,383	15,032,670	14,048,097		308,946,149	
1998	308,946,149	15,032,670	15,473,054		339,451,873	
1999	339,451,873	15,032,670	16,967,835		371,452,377	
2000	371,452,377	15,032,670	18,535,859	1,048,487	403,972,419	
2001	403,972,419	15,032,670	20,129,341	1,113,493	438,020,936	
2002	438,020,936	15,032,670	21,797,719	2,956,325	471,895,000	
2003	471,895,000	15,032,670	23,457,548	4,709,426	505,675,791	
2004	505,675,791	15,032,670	25,112,807	5,668,265	540,153,003	
2005	540,153,003	15,032,670	26,802,190		581,987,862	
2006	581,987,862	15,032,670	28,852,098		625,872,630	
2007	625,872,630	15,032,670	31,002,452		671,907,751	
2008	671,907,751	15,032,670	33,258,173		720,198,594	
2009	720,198,594	15,032,670	35,624,424		770,855,687	
2010	770,855,687	15,032,670	38,106,621		823,994,979	
2011	823,994,979	15,032,670	40,710,447		879,738,095	
2012	879,738,095	15,032,670	43,441,859		938,212,624	
2013	938,212,624	15,032,670	46,307,111		999,552,405	
2014	999,552,405	15,032,670	49,312,761		1,063,897,836	
2015	1,063,897,836	15,032,670	52,465,687		1,131,396,192	
2016	1,131,396,192	15,032,670	55,773,106		1,202,201,968	
2017	1,202,201,968	15,032,670	59,242,589		1,276,477,227	
2018	1,276,477,227	15,032,670	62,882,077		1,354,391,974	
2019	1,354,391,974	15,032,670	66,699,900		1,436,124,543	
2020	1,436,124,543	15,032,670	70,704,795		1,521,862,008	
2021	1,521,862,008	15,032,670	74,905,931		1,611,800,609	
2022	1,611,800,609	15,032,670	79,312,923		1,706,146,202	
2023	1,706,146,202	3,758,167	83,754,028	116,666,837	1,676,991,560	1,214,111,217
2024	1,676,991,560	0	82,172,586	186,282,112	1,572,882,034	
2025	1,572,882,034	0	77,071,220	226,799,994	1,423,153,260	
2026	1,423,153,260	0	69,734,510	233,625,713	1,259,262,057	
2027	1,259,262,057	0	61,703,841	247,700,582	1,073,265,316	
2028	1,073,265,316	0	52,590,000	233,928,911	891,926,405	
2029	891,926,405	0	43,704,394	249,208,962	686,421,837	
2030	686,421,837	0	33,634,670	263,437,453	456,619,054	
2031	456,619,054	0	22,374,334	174,053,472	304,939,916	
2032	304,939,916	0	14,942,056	59,995,267	259,886,705	
2033	259,886,705	0	12,734,449	11,421,280	261,199,873	
2034	261,199,873	0	12,798,794	12,129,399	261,869,268	
2035	261,869,268	0	12,831,594	12,881,422	261,819,440	
2036	261,819,440	0	12,829,153	13,717,548	260,931,045	
2037	260,931,045	0	12,785,621	14,528,234	259,188,431	
2038	259,188,431	0	12,700,233	15,428,985	256,459,679	
2039	256,459,679	0	12,566,524	16,385,582	252,640,622	
2040	252,640,622	0	12,379,390	265,020,011	1	
		595,043,177	1,773,664,585	2,368,707,762		1,214,111,217

Florida Power and Light Company
1998 Decommissioning Study
Support Schedule: End-of-Life Materials and Supplies Inventory
Expense Accrual and Reserve Deficiency

	Turkey Point Unit 4
Adjusted Ending Inventory Value @ End of License	18,415,552
Estimated Salvage	(232,036)
Inventory Subject to Write-off	**18,183,516**
FPL's Ownership Share (100%)	**18,183,516**
Total Number of Months From:	
In-Service Date to End of Licence	474
In-Service Date to 12/31/98	303
12/31/98 to End of License	171
Required Accrual From 1/1/99 to End of License	
Monthly	106,336
Annual	1,276,036
Theoretical Accrual From In-Service Date to End of License	
Monthly	38,362
Annual	460,342
Reserve Deficiency at 12/31/98	
Theoretical Reserve at 12/31/98	11,623,640
Actual Reserve at 12/31/98	0
Reserve Deficiency	11,623,640

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Support Schedule : Inflation and Funding Analysis

INFLATION FORECAST

Fall/Winter 1997 - 1998 DRI

YEAR	GDP	HRLY COMP	PPI INT M&S	GDP Transport	Burial	CPI	CPI MULTIPLIER
1998	1.8%	3.8%	-0.5%	2.9%		1.7%	1.000
1999	1.9%	3.2%	0.8%	3.0%	138.2%	2.6%	1.026
2000	2.2%	3.3%	1.3%	3.1%	6.4%	2.9%	1.056
2001	2.1%	3.2%	1.3%	3.1%	6.3%	2.8%	1.085
2002	2.2%	3.1%	1.4%	3.0%	6.3%	2.8%	1.116
2003	2.4%	3.4%	1.8%	3.2%	6.4%	2.9%	1.148
2004	2.5%	3.6%	1.7%	3.3%	6.5%	3.0%	1.183
2005	2.6%	3.6%	1.9%	3.4%	6.6%	3.1%	1.219
2006	2.8%	3.7%	1.8%	3.5%	6.8%	3.3%	1.259
2007	2.8%	3.8%	2.0%	3.6%	6.9%	3.4%	1.302
2008	2.9%	3.9%	2.1%	3.6%	6.9%	3.4%	1.346
2009	3.0%	4.0%	2.1%	3.7%	7.0%	3.5%	1.394
2010	3.1%	4.1%	2.2%	3.8%	7.1%	3.6%	1.444
2011	3.2%	4.2%	2.3%	3.9%	7.2%	3.7%	1.497
2012	3.3%	4.2%	2.3%	3.9%	7.2%	3.7%	1.553
2013	3.3%	4.3%	2.3%	3.9%	7.3%	3.8%	1.612
2014	3.4%	4.3%	2.4%	4.0%	7.3%	3.8%	1.673
2015	3.4%	4.3%	2.5%	4.0%	7.3%	3.8%	1.736
2016	3.5%	4.3%	2.5%	4.1%	7.4%	3.9%	1.804
2017	3.5%	4.3%	2.6%	4.1%	7.4%	3.9%	1.874
2018	3.6%	4.4%	2.7%	4.2%	7.5%	4.0%	1.949
2019	3.7%	4.4%	2.7%	4.2%	7.5%	4.0%	2.027
2020	3.8%	4.5%	2.8%	4.3%	7.6%	4.1%	2.111
2021	3.8%	4.5%	2.8%	4.3%	7.6%	4.1%	2.197
2022	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	2.289
2023	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	2.386
2024	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	2.486
2025	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	2.590
2026	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	2.699
2027	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	2.812
2028	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	2.930
2029	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	3.053
2030	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	3.182
2031	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	3.315
2032	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	3.455
2033	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	3.600
2034	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	3.751
2035	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	3.908
2036	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	4.073
2037	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	4.244
2038	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	4.422
2039	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	4.608
2040	3.9%	4.6%	2.9%	4.4%	7.7%	4.2%	4.801

3.7% = AVERAGE COMPOUND CPI INFLATION MULTILPLIER 1998-2031

3.8% = AVERAGE COMPOUND CPI INFLATION MULTILPLIER 1998-2040

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Support Schedule : Inflation and Funding Analysis

TURKEY POINT UNIT 3

AVERAGE INFLATION RATE =			6.100%			
	4.100%	2.300%	3.900%	9.900%	3.300%	
	LABOR	MATERIAL	SHIPPING	BURIAL	OTHER	TOTAL
	HRLY COMP	PPI INT M&S	GDP Transp		GDP	
1998	201,399,210	72,678,364	5,679,461	72,969,134	16,751,544	369,477,713
1999	207,843,985	73,259,791	5,849,845	173,812,477	17,069,823	477,835,921
2000	214,702,836	74,212,168	6,031,190	184,936,476	17,445,359	497,328,030
2001	221,573,327	75,176,926	6,218,157	196,587,474	17,811,712	517,367,596
2002	228,442,100	76,229,403	6,404,702	208,972,485	18,203,570	538,252,259
2003	236,209,132	77,601,533	6,609,652	222,346,724	18,640,455	561,407,495
2004	244,712,660	78,920,759	6,827,771	236,799,261	19,106,467	586,366,917
2005	253,522,316	80,420,253	7,059,915	252,428,012	19,603,235	613,033,731
2006	262,902,642	81,867,818	7,307,012	269,593,117	20,152,125	641,822,713
2007	272,892,942	83,505,174	7,570,064	288,195,042	20,716,385	672,879,607
2008	283,535,767	85,258,783	7,842,587	308,080,499	21,317,160	706,034,796
2009	294,877,198	87,049,217	8,132,762	329,646,134	21,956,675	741,661,986
2010	306,967,163	88,964,300	8,441,807	353,051,010	22,637,332	780,061,612
2011	319,859,783	91,010,479	8,771,038	378,470,683	23,361,726	821,473,709
2012	333,293,894	93,103,720	9,113,108	405,720,572	24,132,663	865,363,958
2013	347,625,532	95,245,105	9,468,519	435,338,174	24,929,041	912,606,371
2014	362,573,430	97,530,988	9,847,260	467,117,860	25,776,629	962,846,167
2015	378,164,087	99,969,263	10,241,151	501,217,464	26,653,034	1,016,244,998
2016	394,425,143	102,468,494	10,661,038	538,307,556	27,585,890	1,073,448,121
2017	411,385,424	105,132,675	11,098,140	578,142,316	28,551,396	1,134,309,951
2018	429,486,383	107,971,257	11,564,262	621,502,989	29,579,247	1,200,104,138
2019	448,383,784	110,886,481	12,049,961	668,115,714	30,673,679	1,270,109,618
2020	468,561,054	113,991,303	12,568,110	718,892,508	31,839,279	1,345,852,252
2021	489,646,301	117,183,059	13,108,538	773,528,338	33,049,171	1,426,515,408
2022	512,170,031	120,581,368	13,685,314	833,090,020	34,338,089	1,513,864,822
2023	535,729,852	124,078,227	14,287,468	897,237,952	35,677,274	1,607,010,774
2024	560,373,426	127,676,496	14,916,116	966,325,274	37,068,688	1,706,360,000
2025	586,150,603	131,379,114	15,572,425	1,040,732,320	38,514,367	1,812,348,830
2026	613,113,531	135,189,109	16,257,612	1,120,868,709	40,016,427	1,925,445,388
2027	641,316,753	139,109,593	16,972,947	1,207,175,600	41,577,068	2,046,151,961
2028	670,817,324	143,143,771	17,719,757	1,300,128,121	43,198,574	2,175,007,546
2029	701,674,921	147,294,940	18,499,426	1,400,237,986	44,883,318	2,312,590,592
2030	733,951,967	151,566,494	19,313,401	1,508,056,311	46,633,767	2,459,521,940
2031	767,713,758	155,961,922	20,163,190	1,624,176,647	48,452,484	2,616,468,002

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Support Schedule : Inflation and Funding Analysis

TURKEY POINT UNIT 4

AVERAGE INFLATION RATE =			6.100%			
	4.100%	2.300%	3.900%	9.900%	3.300%	
	LABOR	MATERIAL	SHIPPING	BURIAL	OTHER	TOTAL
	HRLY COMP	PPI INT M&S	GDP Transp		GDP	
1998	235,417,327	77,773,904	5,895,799	79,697,005	16,477,426	415,261,461
1999	242,950,681	78,396,095	6,072,673	189,838,266	16,790,497	534,048,213
2000	250,968,054	79,415,244	6,260,926	201,987,915	17,159,888	555,792,027
2001	258,999,032	80,447,643	6,455,015	214,713,154	17,520,246	578,135,088
2002	267,028,002	81,573,910	6,648,665	228,240,082	17,905,691	601,396,350
2003	276,106,954	83,042,240	6,861,422	242,847,448	18,335,428	627,193,491
2004	286,046,804	84,453,958	7,087,849	258,632,532	18,793,813	655,014,956
2005	296,344,489	86,058,583	7,328,836	275,702,279	19,282,453	684,716,640
2006	307,309,235	87,607,638	7,585,345	294,450,034	19,822,361	716,774,613
2007	318,986,986	89,359,791	7,858,418	314,767,086	20,377,387	751,349,668
2008	331,427,478	91,236,346	8,141,321	336,486,015	20,968,332	788,259,492
2009	344,684,578	93,152,309	8,442,550	360,040,036	21,597,381	827,916,854
2010	358,816,645	95,201,660	8,763,367	385,602,878	22,266,900	870,651,451
2011	373,886,944	97,391,298	9,105,138	413,366,286	22,979,441	916,729,107
2012	389,590,196	99,631,298	9,460,238	443,128,658	23,737,763	965,548,154
2013	406,342,574	101,922,818	9,829,188	475,477,050	24,521,109	1,018,092,739
2014	423,815,305	104,368,966	10,222,355	510,186,875	25,354,827	1,073,948,328
2015	442,039,363	106,978,190	10,631,249	547,430,517	26,216,891	1,133,296,210
2016	461,047,056	109,652,645	11,067,130	587,940,375	27,134,482	1,196,841,688
2017	480,872,079	112,503,613	11,520,883	631,447,963	28,084,189	1,264,428,727
2018	502,030,451	115,541,211	12,004,760	678,806,560	29,095,219	1,337,478,201
2019	524,119,791	118,660,824	12,508,960	729,717,052	30,171,743	1,415,178,369
2020	547,705,181	121,983,327	13,046,845	785,175,548	31,318,269	1,499,229,170
2021	572,351,914	125,398,860	13,607,859	844,848,890	32,508,363	1,588,715,886
2022	598,680,102	129,035,427	14,206,605	909,902,254	33,776,189	1,685,600,578
2023	626,219,387	132,777,454	14,831,696	979,964,728	35,093,461	1,788,886,726
2024	655,025,479	136,628,000	15,484,290	1,055,422,012	36,462,106	1,899,021,887
2025	685,156,651	140,590,212	16,165,599	1,136,689,507	37,884,128	2,016,486,097
2026	716,673,857	144,667,329	16,876,886	1,224,214,599	39,361,609	2,141,794,279
2027	749,640,854	148,862,681	17,619,469	1,318,479,123	40,896,711	2,275,498,838
2028	784,124,334	153,179,699	18,394,725	1,420,002,015	42,491,683	2,418,192,456
2029	820,194,053	157,621,910	19,204,093	1,529,342,171	44,148,859	2,570,511,086
2030	857,922,980	162,192,946	20,049,073	1,647,101,518	45,870,664	2,733,137,180
2031	897,387,437	166,896,541	20,931,232	1,773,928,335	47,659,620	2,906,803,165

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Support Schedule : Inflation and Funding Analysis

GENERAL ASSUMPTIONS

JURISDICTIONAL FACTOR =	99.258%
FPL'S SHARE OF ST. LUCIE 2 COST (NET OF PARTICIPANTS)	85.18243%
CORPORATE TAX RATE	38.575%

	ANNUAL	MONTHLY
EARNINGS RATE QUALIFIED FUND	4.900%	0.399440%
EARNINGS RATE NON-QUALIFIED FUND	4.900%	0.399440%

	TP3	TP4	SL1	SL2
QUALIFYING %	66.670%	68.570%	77.140%	97.560%
FUND BALANCES ($000's)				
A. QUALIFIED FUND BALANCE 8/31/98	128,519	144,529	171,624	154,694
B. CONTRIBUTIONS THRU 12/98	-	-	-	-
C. EARNINGS THRU 12/98 (A)*(MONTHLY RATE)	2,099	2,361	2,803	2,527
D.	-	-	-	-
E. QUALIFIED FUND BALANCE 12/31/98	130,618	146,890	174,427	157,221
F. JURISDICTIONAL FACTOR	99.258%	99.258%	99.258%	99.258%
G. JURIS. QUAL. FUND BAL. 12/31/98	129,649	145,800	173,133	156,054
A. NON-QUALIFIED FUND BALANCE 8/31/98	65,652	70,056	62,141	34,947
B. CONTRIBUTIONS THRU 12/98	3,677	4,653	5,000	4,002
C. EARNINGS THRU 12/98 (A)*(MONTHLY RATE)	1,102	1,182	1,056	603
D.	-	-	-	-
E. NON-QUALIFIED FUND BALANCE 12/31/98	70,431	75,891	68,197	39,552
F. JURISDICTIONAL FACTOR	99.258%	99.258%	99.258%	99.258%
G. JURIS. NON-QUAL. FUND BAL. 12/31/98	69,908	75,328	67,691	39,259

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Support Schedule : Inflation and Funding Analysis

TURKEY POINT UNIT 3

INFLATION RATE 6.100%

	NOMINAL ANNUAL	NOMINAL MONTHLY
EARNINGS RATE QUALIFIED FUND	4.900%	0.399440%
EARNINGS RATE NON-QUALIFIED FUND	4.900%	0.399440%

CORPORATE TAX RATE 38.575%

JURISDICTIONAL FACTOR 99.258%

QUALIFYING % 66.670%

LICENSE ENDS 19-Jul-12
MONTHS TO FUND 162

YEAR	SPENDING CURVE	ESTIMATED COST IN ($1998)	ESTIMATED COST IN NOMINAL $	JURISDICTIONAL AMOUNT	QUALIFIED AMOUNT	NON-QUAL AMOUNT	TAX SAVINGS	PV @ 4.9% QUALIFIED AMOUNT	PV @ 4.9% NON-QUAL AMOUNT
2005	0.2957%	1,092,500	1,653,595	1,641,325	1,094,272	336,028	211,026	782,883	240,407
2006	0.2957%	1,092,500	1,754,464	1,741,446	1,161,022	356,525	223,899	791,838	243,157
2007	0.7392%	2,731,250	4,653,716	4,619,186	3,079,611	945,684	593,891	2,002,242	614,846
2008	1.1088%	4,096,875	7,406,390	7,351,434	4,901,201	1,505,056	945,177	3,037,719	932,820
2009	1.2567%	4,643,125	8,905,937	8,839,855	5,893,531	1,809,779	1,136,544	3,482,132	1,069,289
2010	0.0000%	-	-	-	-	-	-	-	-
2011	0.0000%	-	-	-	-	-	-	-	-
2012	6.3486%	23,456,513	53,737,669	53,338,936	35,561,068	10,920,055	6,857,812	18,201,952	5,589,436
2013	13.3023%	49,149,125	119,466,612	118,580,170	79,057,399	24,276,862	15,245,909	38,575,379	11,845,686
2014	13.6077%	50,277,454	129,664,001	128,701,895	85,805,553	26,349,078	16,547,264	39,912,376	12,256,250
2015	12.5957%	46,538,248	127,341,968	126,397,090	84,268,940	25,877,216	16,250,934	37,366,656	11,474,513
2016	10.5395%	38,940,995	113,053,485	112,214,628	74,813,493	22,973,648	14,427,488	31,624,316	9,711,161
2017	9.1926%	33,964,485	104,620,629	103,844,344	69,233,024	21,260,003	13,351,317	27,898,383	8,567,006
2018	9.1280%	33,725,796	110,222,406	109,404,556	72,940,017	22,398,343	14,066,196	28,019,224	8,604,113
2019	9.0806%	33,550,757	116,339,016	115,475,780	76,987,703	23,641,302	14,846,776	28,192,664	8,657,373
2020	3.1888%	11,781,833	43,346,228	43,024,599	28,684,500	8,808,406	5,531,693	10,013,515	3,074,939
2021	0.6951%	2,568,373	10,025,636	9,951,246	6,634,495	2,037,314	1,279,436	2,207,861	677,988
2022	0.3094%	1,143,283	4,735,032	4,699,899	3,133,422	962,208	604,268	994,048	305,251
2023	0.3094%	1,143,283	5,023,869	4,986,592	3,324,561	1,020,903	641,129	1,005,419	308,743
2024	0.3103%	1,146,416	5,344,932	5,305,273	3,537,026	1,086,146	682,101	1,019,707	313,131
2025	0.3094%	1,143,283	5,655,475	5,613,512	3,742,528	1,149,252	721,732	1,028,554	315,847
2026	0.3094%	1,143,283	6,000,459	5,955,936	3,970,822	1,219,356	765,758	1,040,320	319,460
2027	0.3094%	1,143,283	6,366,487	6,319,248	4,213,043	1,293,737	812,469	1,052,220	323,115
2028	0.3103%	1,146,416	6,773,354	6,723,095	4,482,288	1,376,416	864,392	1,067,174	327,707
2029	0.3094%	1,143,283	7,166,888	7,113,710	4,742,711	1,456,387	914,613	1,076,432	330,550
2030	0.3094%	1,143,283	7,604,069	7,547,646	5,032,016	1,545,226	970,404	1,088,746	334,331
2031	5.8385%	21,572,070	152,229,734	151,100,190	100,738,497	30,934,670	19,427,023	20,778,029	6,380,495
	100.0000%	369,477,712	1,159,092,053	1,150,491,590	767,032,743	235,539,597	147,919,250	302,259,786	92,817,613

	QUALIFIED	NON-QUAL	TOTAL
NPV @12/31/98	302,259,786	92,817,613	395,077,399
LESS BALANCE @ 12/31/98	129,648,814	69,908,402	199,557,216
PV OF FUNDING REQUIREMENTS	172,610,972	22,909,211	195,520,183
MONTHLY FUNDING REQUIREMENT	1,449,215	192,342	1,641,558
ANNUAL FUNDING REQUIREMENT	17,390,584	2,308,107	19,698,691
MONTHLY ACCRUAL	1,449,215	313,133	1,762,349
ANNUAL ACCRUAL	17,390,584	3,757,600	21,148,183

Florida Power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Units
Support Schedule : Inflation and Funding Analysis

TURKEY POINT UNIT 4

INFLATION RATE 6.100%

	NOMINAL ANNUAL	NOMINAL MONTHLY
EARNINGS RATE QUALIFIED FUND	4.900%	0.399440%
EARNINGS RATE NON-QUALIFIED FUND	4.900%	0.399440%

CORPORATE TAX RATE 38.575%

JURISDICTIONAL FACTOR 99.258%

QUALIFYING % 68.570%

LICENSE ENDS 10-Apr-13
MONTHS TO FUND 171

YEAR	SPENDING CURVE	ESTIMATED COST IN ($1998)	ESTIMATED COST IN NOMINAL $	JURISDICTIONAL AMOUNT	QUALIFIED AMOUNT	NON-QUAL AMOUNT	TAX SAVINGS	PV @ 4.9% QUALIFIED AMOUNT	PV @ 4.9% NON-QUAL AMOUNT
2005	0.2631%	1,092,500	1,653,595	1,641,325	1,125,457	316,872	198,996	805,194	226,702
2006	0.2631%	1,092,500	1,754,464	1,741,446	1,194,110	336,201	211,135	814,405	229,296
2007	0.6577%	2,731,250	4,653,716	4,619,186	3,167,376	891,774	560,036	2,059,303	579,796
2008	0.9866%	4,096,875	7,406,390	7,351,434	5,040,878	1,419,259	891,297	3,124,290	879,644
2009	1.1181%	4,643,125	8,905,937	8,839,855	6,061,488	1,706,611	1,071,755	3,581,368	1,008,334
2010	0.0000%	-	-	-	-	-	-	-	-
2011	0.0000%	-	-	-	-	-	-	-	-
2012	0.0000%	-	-	-	-	-	-	-	-
2013	7.5803%	31,477,889	76,513,199	75,945,471	52,075,809	14,661,940	9,207,722	25,409,944	7,154,167
2014	11.4283%	47,457,240	122,390,757	121,482,617	83,300,631	23,453,285	14,728,701	38,747,214	10,909,275
2015	13.5577%	56,299,994	154,052,899	152,909,826	104,850,268	29,520,584	18,538,975	46,492,858	13,090,060
2016	13.2359%	54,963,471	159,569,932	158,385,924	108,605,228	30,577,792	19,202,903	45,908,377	12,925,500
2017	12.5948%	52,301,402	161,103,741	159,908,351	109,649,156	30,871,710	19,387,484	44,184,609	12,440,173
2018	11.4116%	47,388,090	154,873,418	153,724,257	105,408,723	29,677,817	18,637,717	40,491,773	11,400,455
2019	11.3531%	47,144,959	163,477,627	162,264,623	111,264,852	31,326,609	19,673,162	40,744,852	11,471,709
2020	5.0720%	21,061,900	77,488,275	76,913,312	52,739,458	14,848,790	9,325,064	18,410,896	5,183,586
2021	1.0975%	4,557,334	17,789,539	17,657,540	12,107,775	3,408,943	2,140,822	4,029,286	1,134,445
2022	0.4513%	1,874,042	7,761,551	7,703,961	5,282,606	1,487,317	934,038	1,675,855	471,837
2023	0.4513%	1,874,042	8,235,006	8,173,902	5,604,845	1,578,044	991,014	1,695,026	477,234
2024	0.4525%	1,879,177	8,761,282	8,696,273	5,963,035	1,678,892	1,054,347	1,719,114	484,016
2025	0.4513%	1,874,042	9,270,319	9,201,533	6,309,491	1,776,437	1,115,605	1,734,028	488,216
2026	0.4513%	1,874,042	9,835,809	9,762,827	6,694,370	1,884,799	1,183,657	1,753,865	493,800
2027	0.4513%	1,874,042	10,435,793	10,358,359	7,102,727	1,999,772	1,255,860	1,773,928	499,449
2028	0.4525%	1,879,177	11,102,715	11,020,333	7,556,642	2,127,572	1,336,119	1,799,137	506,547
2029	0.4513%	1,874,042	11,747,791	11,660,623	7,995,689	2,251,186	1,413,748	1,814,746	510,941
2030	0.4513%	1,874,042	12,464,407	12,371,921	8,483,426	2,388,508	1,499,987	1,835,505	516,786
2031	5.3162%	22,076,281	155,787,849	154,631,904	106,031,096	29,853,046	18,747,761	21,869,666	6,157,402
	100.0000%	415,261,458	1,357,036,010	1,346,966,803	923,615,137	260,043,761	163,307,905	352,475,237	99,239,372

	QUALIFIED	NON-QUAL	TOTAL
NPV @12/31/98	352,475,237	99,239,372	451,714,609
LESS BALANCE @ 12/31/98	145,800,076	75,327,889	221,127,965
PV OF FUNDING REQUIREMENTS	206,675,161	23,911,483	230,586,644
MONTHLY FUNDING REQUIREMENT	1,670,348	193,253	1,863,600
ANNUAL FUNDING REQUIREMENT	20,044,175	2,319,030	22,363,205
MONTHLY ACCRUAL	1,670,348	314,615	1,984,963
ANNUAL ACCRUAL	20,044,175	3,775,384	23,819,559

Florida power & Light Company
1998 Decommissioning Study
Turkey Point Nuclear Nuclear Units
Support Schedule: Calculation of Qualifying Percentages

		Turkey Point Unit No. 3	Turkey Point Unit No. 4
Numerator			
A.	Year for which deductible payment was deemed made to a Qualified Decommissioning Fund	1984	1984
B.	Last year unit is to be included in rate base	2007	2007
	Number of years in numerator	24	24
Denominator			
C.	Year the nuclear unit began commercial operations	1972	1973
D.	Last year the unit is top be included in rate base	2007	2007
	Number of years in denominator	36	35
	Qualifying Percentage (Years in Numerator) / (Years in Denominator)	66.67%	68.57%

Florida power & Light Company
1998 Decommissioning Study
Support Schedule: Calculation of Qualifying Percentages

Under Internal Revenue Code Section 468A, the qualifying percentage for any nuclear decommissioning fund is equal to the fraction in which the numerator is the number of taxable years in the estimated period for which the nuclear decommissioning fund is in effect and the denominator is the number of taxable years in the estimated useful life of the applicable nuclear plant.

The estimated period for which a nuclear decommissioning fund is to be in effect begins on the later of:

A. The first day of the first taxable year for which a deductible payment is made or deemed made to a nuclear decommissioning fund; or

   The first day of the first taxable year that includes the date that the nuclear power plant to which the fund relates begins commercial operations.

The period for which a nuclear decommissioning fund is to be in effect ends:

B. On the last day of the taxable year that includes the estimated date on which the nuclear power plant to which the fund relates will no longer be included in the Company's rate base for rate making purposes. *

The estimated useful life of the nuclear power plant:

C. Begins on the first day of the taxable year that includes the date that the nuclear power plant begin commercial operations, and

D. Ends on the last day of the taxable year that includes the estimated date on which the nuclear power plant will no longer be included in taxpayer's rate base for rate making purposes. *

* The estimated date that the nuclear power plant will not be included in rate base is established in the first rate making proceeding which included the nuclear unit in the taxpayer's rate base.

DECOMMISSIONING COST STUDY
for the
TURKEY POINT PLANT, UNITS 3 AND 4

Prepared for

Florida Power and Light

prepared by

TLG Services, Inc.
Bridgewater, Connecticut

September, 1998

APPROVALS

Project Manager	Geoffrey M. Griffiths	9/22/98 Date
Technical Manager	William A. Cloutier, Jr. FOR	9/23/98 Date
Quality Assurance Manager	Carolyn A. Palmer	9/22/98 Date

TABLE OF CONTENTS

SECTION - PAGE

TABLE OF CONTENTS
(continued)

SECTION-PAGE

TABLES

FIGURES

TABLE OF CONTENTS
(continued)

SECTION-PAGE

APPENDICES

REVISION LOG

No.	CRA No.	Date	Item Revised	Reason for Revision
0		9/22/98		Original Issue

EXECUTIVE SUMMARY

This study, prepared for Florida Power and Light by TLG Services, Inc., evaluates four different decommissioning alternatives for the Turkey Point Plant (Turkey Point), following the final cessation of plant operations. The costs associated with the DECON and SAFSTOR scenarios (with on-site dry fuel storage) are provided in a summary table at the end of this section. The major contributors to the overall decommissioning costs are labor, radioactive waste disposal, and on-site fuel storage costs. The costs are based on several key assumptions, including regulatory requirements, contingency provisions, the disposal of low-level radioactive waste, the management of high-level radioactive waste, and the need for site restoration. A complete discussion of the assumptions used in this estimate is presented in Section 3.

A detailed breakdown of the contributors to the decommissioning cost is reported in Section 6. Schedules of annual expenditures are provided in Section 3. The detailed activity costs, waste volumes, and removal man-hours are provided in Appendices C (on-site dry fuel storage) and D (no fuel storage). Unless otherwise noted, the information provided in this report refers to the alternative with on-site dry fuel storage. The four alternatives are defined as follows:

DECON (With On-Site Dry Fuel Storage): This alternative assumes that an on-site Independent Spent Fuel Storage Facility (ISFSI) is constructed with adequate capacity to transfer all fuel to dry storage within 5 years and 2 months of plant shutdown. This allows the fuel handling buildings to be decontaminated and dismantled at an earlier date than would be otherwise possible. On-site storage is assumed to be provided by Dual Purpose Canister and Storage Modules. All fuel is assumed to be transferred to a DOE facility by the year 2031.

DECON (No Fuel Storage): This alternative assumes that an on-site ISFSI facility is not required and that the DOE takes physical possession of the fuel within 5 years and 2 months of plant shutdown. This alternative is intended to provide an "avoided cost" value if there were no requirement for long-term fuel storage. All other DECON assumptions are included in this alternative.

SAFSTOR (With On-Site Dry Fuel Storage): The station is placed in protective storage for a period of approximately 52 years. This alternative assumes that an on-site ISFSI facility is constructed with adequate capacity to transfer all fuel to dry storage within 5 years and 2 months of plant shutdown. This allows the fuel handling buildings to be

decontaminated and dismantled at an earlier date than would be otherwise possible. On-site storage is assumed to be provided by Dual Purpose Canister and Storage Modules. All fuel is assumed to be transferred to a DOE facility by the year 2031.

SAFSTOR (No Fuel Storage): This alternative assumes that an on-site ISFSI facility is not required and that the DOE takes physical possession of the fuel within 5 years and 2 months of plant shutdown. This alternative is intended to provide an "avoided cost" value if there were no requirement for long-term fuel storage. All other SAFSTOR assumptions are included in this alternative.

Alternatives and Regulations

The Nuclear Regulatory Commission (NRC) provided general decommissioning guidance in the rule adopted on June 27, 1988 [1]. In this rule the NRC set forth technical and financial criteria for decommissioning licensed nuclear facilities. The regulations addressed planning needs, timing, funding methods, and environmental review requirements for decommissioning. The rule also defined three decommissioning alternatives as being acceptable to the NRC - DECON, SAFSTOR and ENTOMB.

DECON was defined as "the alternative in which the equipment, structures, and portions of a facility and site containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations." [2]

SAFSTOR was defined as "the alternative in which the nuclear facility is placed and maintained in a condition that allows the nuclear facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use." [3]

ENTOMB was defined as "the alternative in which radioactive contaminants are encased in a structurally long-lived material, such as concrete; the entombed structure is appropriately maintained and continued surveillance is carried out until the radioactive material

---

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

2 Ibid. Page FR24022, Column 3.

3 Ibid.

> decays to a level permitting unrestricted release of the property." [4] However, this process is restricted in overall duration to 60 years and therefore impractical for use at a Part 50 licensee which generates significant amounts of long-lived radioactive material. Due to neutron activation it cannot be demonstrated that items such as the reactor vessel and internals will decay to unrestricted levels within 60 years of shutdown.

In 1996, the NRC published revisions to the general requirements for decommissioning nuclear power plants to clarify ambiguities and codify procedures and terminology as a means of enhancing efficiency and uniformity in the decommissioning process. The amendments allow for greater public participation and better define the transition process from operations to decommissioning. The costs and schedules presented in this estimate follow the general guidance and sequence in the amended regulations.

Methodology

The methodology used to develop the decommissioning cost estimates for Florida Power and Light follows the basic approach originally presented in the cost estimating guidelines[5] developed by the Atomic Industrial Forum (now Nuclear Energy Institute). This reference describes a unit cost factor method for estimating decommissioning activity costs. The unit cost factors used in this study reflect site-specific costs, as well as the latest available information about worker productivity in decommissioning. Field experience acquired in the dismantling of the Shippingport and Cintichem reactor facilities, disposition of the Trojan steam generators, as well as experience from TLG's involvement in the planning and engineering for decommissioning the Shoreham, Yankee Rowe, Pathfinder and Rancho Seco nuclear units, is reflected within this estimate.

An activity duration critical path is used to determine the total decommissioning program schedule required for calculating the carrying costs which include program management, administration, field engineering, equipment rental, quality assurance, and security. This systematic approach for assembling decommissioning estimates has ensured a high degree of confidence in the reliability of the resulting costs.

---

4 Ibid. Page FR24023, Column 2.

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

Contingency

Consistent with industry practice, contingencies are applied to the decontamination and dismantling costs developed as, "specific provision for unforeseeable elements of cost within the defined project scope, particularly important where previous experience relating estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur."[6] The cost elements in this estimate are based on ideal conditions; therefore, the types of unforeseeable events that are almost certain to occur in decommissioning, based on industry experience, are addressed through a percentage contingency applied on a line-item basis. This contingency factor is a nearly universal element in all large-scale construction and demolition projects. It should be noted that contingency, as used in this estimate, does not account for price escalation and inflation in the cost of decommissioning over the remaining operating life of the units.

The use and role of contingency within decommissioning estimates is not a safety factor issue. Safety factors provide additional security and address situations that may never occur. Contingency funds, by contrast, are expected to be fully expended throughout the program. Inclusion of contingency is necessary to provide assurance that sufficient funding will be available to accomplish the intended tasks.

Low-Level Radioactive Waste Disposal

The contaminated and activated material generated in the decontamination and dismantling of a commercial nuclear reactor is classified as low-level radioactive waste (LLW), although not all of the material is suitable for "shallow-land" disposal. With the passage of the "Low-Level Radioactive Waste Disposal Act" in 1980, and its Amendments of 1985[7], the states became ultimately responsible for the disposition of low-level radioactive waste generated within their own borders.

Due to the lack of progress in siting the Southeast Compact regional burial facility within the host state of North Carolina, all LLW generated in the decontamination and dismantling of the Turkey Point Plant is assumed destined for disposal at the existing Chem Nuclear Systems, Inc., Barnwell Low-Level Waste Management Facility (Barnwell) in South Carolina. Prior to disposal, much of the metallic radioactive waste shipped from Turkey Point site is assumed to be routed to a recycling vendor. This vendor will apply decontamination and segmentation processes which will release much of the material as clean scrap. Other waste processors may be used, to minimize the total cost of waste disposal.

---

[6] Project and Cost Engineers' Handbook, Second Edition, American Association of Cost Engineers, Marcel Dekker, Inc., New York, New York, p. 239.

[7] "Low-Level Radioactive Waste Policy Amendments Act of 1985," Public Law 99-240, 1/15/86.

High-Level Waste

Congress passed the "Nuclear Waste Policy Act" in 1982[8], assigning the responsibility for disposal of spent nuclear fuel created by the commercial nuclear generating plants to the Department of Energy (DOE). This legislation also created a Nuclear Waste Fund to cover the cost of the program, which is funded by the sale of electricity from nuclear reactors, and an estimated equivalent for assemblies irradiated prior to April, 1983. The target date for startup of the Federal Waste Management System was originally 1998.

Site Restoration

The efficient removal of the contaminated materials at the site may result in damage to many of the site structures. Blasting, coring, drilling and the other decontamination activities will substantially damage power block structures, potentially weakening the footings and structural supports. Prompt demolition after license termination is clearly the most appropriate and cost-effective option. It is unreasonable to anticipate that these structures would be repaired and preserved after the radiological contamination is removed. The cost to dismantle site structures with a work force already mobilized on site is more efficient and less costly than if the process is deferred. Experience at shutdown generating stations has shown that plant facilities quickly degrade without continual maintenance, adding additional expense and creating potential hazards to the public, as well as to the demolition work force. Consequently, this study assumes that site structures will be removed to a nominal depth of three feet below the local grade level whenever possible. Foundation grade slabs greater than three feet in thickness will be abandoned in place and covered over with a three-foot layer of backfill. The intake and discharge canals will be backfilled to grade with existing site rubble or soil. The site will then be graded and stabilized.

Recommendations

In most situations, the DECON alternative is the preferred mode of decommissioning. This alternative is favored because it eliminates the costs for caretaking and prevents the site from becoming a potential long-term safety hazard. More importantly, the individuals familiar with the operation of the nuclear facility are available to support the dismantling effort; plant systems and services are fully functional; structural integrity is intact; and the licensee has a comprehensive management organization available to oversee/conduct the orderly decontamination and termination of the NRC licenses of the site. For Florida Power and Light, the DECON alternative is a valid

[8] "Nuclear Waste Policy Act of 1982 and Amendments," U.S. Department of Energy's Office of Civilian Radioactive Management, 1982.

and cost-effective option; it is also the least expensive option prior to any time-value of money considerations.

The construction of barriers and the general decontamination of plant areas in preparation for long-term storage (SAFSTOR) does not necessarily alleviate the need for continued surveillance. Therefore SAFSTOR would require a full-time preventive and corrective maintenance staff to maintain essential site services and prevent the deterioration of the facilities. Maintenance would be required on security systems, area lighting, and on-site facilities supporting the fuel storage activity. These facilities include power centers, administrative offices, and fuel transfer/repackaging facilities. Active supporting systems and components include plant fire protection, site drainage/monitoring and sewage, plant transformers and switchyard, plant grounding and lightning protection, communications, liquid collection, sampling and processing, seismic monitoring, etc. The NRC's review of currently dormant facilities has resulted in a general increase in the level of maintenance the agency is requiring, as well as a greater on-site presence by the licensee. As a result, estimates for the caretaking of a dormant facility have increased significantly from earlier projections.

Summary

The DECON alternatives involve removal of all radioactive material from the site following permanent shutdown. The facility operator may then have unrestricted use of the site with no further requirement for a license. This study also assumes that the remainder of the plant systems and structures on site, not previously removed in support of license termination, are dismantled and the site restored. For comparison, SAFSTOR decommissioning alternatives are also evaluated for a 52 year safe-storage period.

This study provides estimates for decommissioning Turkey Point under current requirements and is based on present-day costs and available technology. The schedule and sequence of decommissioning activities for the DECON and SAFSTOR alternatives are identified in Section 4. Cost summaries are provided in Section 6. Detailed cost tables are provided in Appendices C and D.

COST AND SCHEDULE ESTIMATE SUMMARY

	Costs 98$ (thousands)[1]	Schedule (months)
DECON (WITH ON-SITE DRY FUEL STORAGE)		
Unit 3	369,478	228
Unit 4	415,261	220
Total	**784,739**	
SAFSTOR (WITH ON-SITE DRY FUEL STORAGE)		
Unit 3		
Preparations	90,181	18
52.31 year maintenance cost	159,951	628
Delayed dismantling	238,967	87
Subtotal Unit 3	489,098	
Unit 4		
Preparations	87,445	18
52.93 year maintenance cost	101,885	635
Delayed dismantling	243,631	71
Subtotal Unit 4	432,962	
TOTAL	**922,060**	

1. Columns may not add due to rounding.

1. INTRODUCTION

This cost estimate analysis, prepared by TLG Services, Inc., (TLG) is designed to provide Florida Power and Light (FP&L) with sufficient information to prepare financial planning documents required by the Nuclear Regulatory Commission (NRC). It is not a detailed engineering document, but a cost estimate prepared in advance of the detailed engineering preparations required to carry out the decommissioning of Turkey Point Plant (Turkey Point) Units 3 and 4.

1.1 OBJECTIVE OF STUDY

The objective of this study is to prepare an estimate of the cost, schedule, and waste volume generated to decommission Turkey Point, including all common and supporting facilities. The study considers extended on-site, dry fuel storage and the integration of two-unit dismantling, as discussed below. Unless otherwise noted, the information provided in this report refers to the alternative with on-site dry fuel storage.

The operating license for Unit 3 was issued on July 19, 1972, and currently expires at the end of 40 years on July 19, 2012. The operating license for Unit 4 was issued on April 10, 1973, and expires at the end of 40 years on April 10, 2013. For the purposes of this study, final shutdown of each of the two units is assumed to occur on the expiration date of each unit's operating license.

1.2 SITE DESCRIPTION

Turkey Point is located on the shore of Biscayne Bay approximately 25 miles south of Miami, Florida, 8 miles east of Florida City and 9 miles southeast of Homestead, Florida. Units 3 and 4 are two essentially identical 795 MWe (gross electrical output at rated power) pressurized water reactors with supporting facilities. Two nuclear units are located adjacent to oil and gas fired Units 1 and 2. Turkey Point Units 3 and 4 were designed and constructed by Bechtel Energy Corporation.

The Nuclear Steam Supply Systems (NSSS) consist of a pressurized water reactor system designed by Westinghouse Electric Corporation. The Reactor Coolant System (RCS) consists of three similar heat transfer loops connected in parallel to the reactor pressure vessel. Each loop contains a reactor coolant pump, steam generator, and associated piping and valves. In addition, the system includes a pressurizer, a pressurizer relief tank, interconnecting piping, and the instrumentation necessary for operational control. All of the system equipment, except for the digital pressure indicator, three wide range pressure

transmitters, and the containment isolation and process actuated valves located in the lines connected to the pressurizer relief tank, are located in the Containment Building. The total primary heat output is 2300 Megawatts thermal (MWt).

The Containment is a fully continuous steel lined, post-tensioned, reinforced-concrete structure consisting of a vertical cylinder with a hemispherical dome, supported on a flat foundation mat. The cylinder and dome are post-tensioned with high-strength unbounded wire tendons.

Heat produced in the reactor is converted to electrical energy by the Steam and Power Conversion System (SPCS). The function of the turbine generator is to receive steam from the steam generators, economically convert a portion of the thermal energy contained in the steam to electrical energy, and provide extract steam for six stages of feedwater heating. The turbine generator serves no safety function and has two reheaters before entering the low pressure turbines. The exhaust steam from the two low pressure turbines is condensed in the condenser.

Heat rejected in the main condensers is removed by the Circulating Water System(CWS) The circulating water system provides cooling water for removal of heat loads developed in the plant's main condenser which condenses the steam exhaust from the turbine. Cooling water for the condenser is supplied by a network of cooling canals.

1.3 REGULATORY GUIDANCE

The NRC provided decommissioning guidance in the rule "General Requirements for Decommissioning Nuclear Facilities," (Ref. 1) published and adopted on June 27, 1988. This rule amended NRC regulations to set forth technical and financial criteria for decommissioning licensed nuclear facilities. The regulation addressed decommissioning planning needs, timing, funding methods, and environmental review requirements. The intent of the rule was to ensure that decommissioning would be accomplished in a safe and timely manner and that adequate licensee funds would be available for this purpose. Subsequent to the rule, the NRC issued Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," (Ref. 2) which provided guidance to the licensees of nuclear facilities on methods acceptable to the NRC staff for complying with the requirements of the rule. The regulatory guide addressed the funding requirements and provided guidance on the content and form of the financial assurance mechanisms indicated in the rule amendments.

The rule defined three decommissioning alternatives as being acceptable to the NRC: DECON, SAFSTOR and ENTOMB. It also placed limits on the time allowed to complete the decommissioning process. For SAFSTOR, the process is restricted in overall duration to 60 years unless it can be shown that a longer duration is necessary to protect public health and safety. The guidelines for ENTOMB are similar, providing the NRC with both sufficient leverage and flexibility to ensure that these deferred options are only used in situations where it is reasonable and consistent with the definition of decommissioning. Consequently, with these restrictions, the SAFSTOR and ENTOMB options are no longer decommissioning alternatives in themselves, as neither terminates the license for the site. At the conclusion of a 60-year dormancy period (or longer for ENTOMB if the NRC approves such a case), the site would still require significant remediation to meet the definition of unrestricted release and license termination. Further, the NRC does not believe that ENTOMB is generally a viable option for a power reactor due to the long-lived nature of the radionuclides involved.

In 1996 the NRC published revisions to the general requirements for decommissioning nuclear power plants (Ref. 3). When the decommissioning regulations were adopted in 1988, it was assumed that the majority of licensees would decommission at the end of the operating license life. Since that time, several licensees have permanently and prematurely ceased operations without having submitted a decommissioning plan. In addition, these licensees requested exemptions from certain operating requirements as being unnecessary once the reactor is defueled. Each case has been handled individually without clearly defined generic requirements. The NRC amended the decommissioning regulations in 1996 to clarify ambiguities and codify procedures and terminology as a means of enhancing efficiency and uniformity in the decommissioning process. The new amendments allow for greater public participation and better define the transition process from operations to decommissioning.

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

decommissioning, the licensee would be required to submit an application to the NRC to terminate the license, along with a license termination plan.

1.3.1 Nuclear Waste Policy Act

Congress passed the Nuclear Waste Policy Act in 1982 (Ref. 4), assigning the responsibility for disposal of spent nuclear fuel from the commercial generating plants to the Department of Energy (DOE). Two permanent disposal facilities were envisioned as well as an interim facility. To recover the cost of permanent spent fuel disposal, this legislation created a Nuclear Waste Fund through which money was to be collected from the consumers of the electricity generated by commercial nuclear power plants. The date targeted for start-up of the Federal Waste Management System was 1998.

After pursuing a national site selection process, the Act was amended in 1987 to designate Yucca Mountain, Nevada, as the only site to be evaluated for geologic disposal of high-level waste. Also in 1987, the DOE announced a five-year delay in the opening date for the repository, from 1998 to 2003. Two years later, in 1989, an additional 7-year delay was announced, primarily due to problems in obtaining the required permits from the state of Nevada to perform the required characterization of the site. The DOE has projected additional delays as a result of proposed Congressional reductions in appropriations for the program.

Utilities have responded to this impasse by initiating legal action and constructing supplemental storage as a means of maintaining operating margins. On November 14, 1997, the U.S. Court of Appeals for the District of Columbia Circuit issued a decision in Northern States Power Company, et al., v. U.S. Department of Energy. In the decision, the Court reaffirmed its earlier Indiana Michigan ruling that DOE has an unconditional obligation to begin disposal of the utilities' spent nuclear fuel (SNF) by January 31, 1998. Since the agency was not in default at the time the decision was issued, the court declined to prescribe "remedies" in the likely event DOE failed to uphold its obligation. However, even with the ruling, DOE's position has remained unchanged. The agency continues to maintain that its delayed performance is unavoidable because it does not have an operational repository and does not have authority to provided storage in the interim. Consequently, DOE has no plans to receive spent fuel before the year 2010.

Both the DECON and SAFSTOR alternatives assume that the DOE begins accepting spent fuel in 2010. FP&L will therefore incur ISFSI - related construction, canister/module acquisition, and decommissioning costs. The ISFSI will be sized to accommodate 120 storage modules and will be in operation from 2010 through 2031.

1.3.2 Low-Level Radioactive Waste Policy Amendments Act

Congress passed the "Low-Level Radioactive Waste Disposal Act" in 1980, declaring the states as being ultimately responsible for the disposition of low-level radioactive waste generated within their own borders. The federal law encouraged the formation of regional groups or compacts to implement this objective safely, efficiently and economically, and set a target date of 1986. With little progress, the "Amendments Act" of 1985 (Ref. 5) extended the target, with specific milestones and stiff sanctions for non-compliance. However, more than 10 years later, no new sites have been developed and even the most advanced program is far behind schedule.

Due to the lack of progress in siting the Southeast Compact regional burial facility within the host state of North Carolina, all LLW generated in the decontamination and dismantling of Turkey Point is assumed destined for disposal at the existing Chem Nuclear Systems, Inc., Barnwell LLW Management Facility (Barnwell) in South Carolina. Prior to disposal, much of the metallic radioactive waste shipped from the Turkey Point site is assumed to be routed to a recycling vendor. This vendor will apply decontamination and segmentation processes which will release much of the material as clean scrap. Other waste processors may be used to minimize the total cost of waste disposal.

1.3.3 Radiological Criteria for License Termination

In 1997, 10 CFR 20 Subpart E Radiological Criteria for License Termination (Ref. 6), was published. This subpart provided radiological criteria for releasing a facility for unrestricted use. The criteria specifically defined a basis [Total Effective Dose Equivalent (TEDE) not to exceed 25 mrem per year to an average member of a critical group] by which levels of acceptable established residual radioactivity can be established, provided that residual radioactivity has been reduced to levels that are as low as reasonably achievable.

This subpart provides a well-defined license termination criteria, but does create uncertainties in predicting the total disposal volume of slightly contaminated materials (such as soil and silt which may require removal and disposal). The volume of contaminated soil/silt required to be decontaminated or disposed of may vary significantly depending on the levels of soil contamination, the radioactive isotopes causing the contamination, and the geographic distribution of the contamination.

2. DECOMMISSIONING ALTERNATIVES

Cost studies were developed to decommission Turkey Point for two of the NRC-approved decommissioning alternatives: DECON and SAFSTOR. The duration of dormancy periods selected for the SAFSTOR alternatives are within the maximum allowable interval (60 years) between cessation of operations and termination of the site license(s). Although the alternatives differ with respect to technique, process, cost, and schedule, the two alternatives attain the same result: removal of all regulated radioactive material from the site and ultimate release of the site for unrestricted and/or alternative use.

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

2.1 DECON

The DECON alternative, as defined by the NRC, is "the alternative in which the equipment, structures, and portions of a facility and site containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations." This study does not address the cost to remove spent fuel from the site; such costs are assumed to be funded through the surcharge on electrical generation (1 mill/kWhr). However, the study does recognize the constraint imposed by the spent fuel residing on site during the decommissioning process and also the costs associated with extended on-site caretaking of the fuel.

The approach that the NRC has chosen in its recently amended regulations is to divide decommissioning into three phases. The initial phase commences with the effective date of permanent cessation of operations and involves the transition of both plant and licensee from reactor operations, i.e., power production to facility de-activation and closure. During Phase I, notification is to be provided to the NRC certifying the permanent cessation of operations and the removal of fuel from the reactor vessel. The licensee is then prohibited from reactor operation. Within two years of notification to cease reactor operations, the licensee is required to provide a Post-Shutdown Decommissioning Activities Report (PSDAR). This report provides a description of the licensee's planned decommissioning activities, a corresponding schedule, and an estimate of expected costs. The PSDAR also addresses whether environmental impacts

associated with the proposed decommissioning scenario have already been considered in a previously prepared environmental statement(s). Ninety days following the NRC's receipt of the PSDAR, the licensee may initiate certain decommissioning activities, without specific NRC approval, under a modified Title 10 of the Code of Federal Regulations, Section 50.59 review process (all subsequent references to Title 10 of the Code will be by section number only, i.e. §50.59). The amended regulations permit the licensee to expend/recover up to 3% of the generic decommissioning cost for planning, with an additional 20% available following the 90-day waiting period and certification of permanent defueling. Remaining funds would be available to the licensee with submittal of a detailed, site-specific cost estimate.

The second phase identified by the NRC addresses licensed activities during a storage period, applicable to the dormancy phases of the deferred decommissioning alternative SAFSTOR.

Phase three pertains to the activities involved in license termination. The submittal of an application to terminate the license, along with a termination plan, marks the commencement of this phase. The termination plan contains a detailed site characterization, i.e., location, type, and amount of radioactivity, a description of any remaining dismantling activities to be accomplished, detailed plans for a final survey, and any planned use of the site. An updated cost to complete is required along with the reporting of any new or altered environmental consequences.

The TLG methodology divides the decommissioning project into periods based upon major milestones in the project. Phase I of the NRC's 1996 amended regulations corresponds roughly to Period 1 of DECON, with Phase III corresponding to Period 2. The NRC Phase II has no corresponding period in the DECON mode, being applicable only to the dormancy period of SAFSTOR (Period 2). DECON Period 3 and SAFSTOR Period 5, Site Restoration, are not addressed in the amended regulations.

2.1.1 Period 1 - Preparations

In anticipation of the cessation of plant operations, detailed preparations are undertaken to provide a smooth transition from plant operations to site decommissioning. The organization required to manage the intended decommissioning activities is assembled from available plant staff and outside resources, as required. Preparations include the planning for permanent defueling of the reactor, revision of technical specifications applicable to the operating conditions and

requirements, a characterization of the facility and major components, and the development of the PSDAR.

Engineering and Planning

Prior to the commencement of decommissioning operations the licensee will certify the permanent cessation of operations and the removal of fuel from the reactor vessel. The PSDAR, required within two years of the notice to cease operations, provides a description of the licensee's planned decommissioning activities, a timetable, and the associated financial requirements of the decommissioning program. Upon receipt of the PSDAR, the NRC will make the document available to the public for comment in a local hearing to be held in the vicinity of the reactor site. Ninety days following submittal and NRC receipt of the PSDAR, the licensee may begin to perform major decommissioning activities under a modified §50.59 procedure, i.e., without specific NRC approval. Major activities are defined as any activity that results in permanent removal of major radioactive components (primary coolant system components/ piping), permanently modifies the structure of the containment (removal of the bioshield), or results in dismantling components containing Greater-than-Class C waste (GTCC as defined under §61). Major radioactively-contaminated components are further defined as comprising the reactor vessel and internals, steam generators, pressurizer, large bore reactor coolant system piping, and other large components. The NRC includes the following additional criteria for use of the §50.59 process in decommissioning: the proposed activity must not 1) foreclose release of the site for possible unrestricted use, 2) significantly increase decommissioning costs, 3) cause any significant environmental impact, or 4) violate the terms of the licensee's existing license. Consequently, in conjunction with the development of the PSDAR, activity specifications, cost-benefit and safety analyses, work packages and procedures, etc. must be assembled in support of the proposed decontamination and dismantling activities.

The decommissioning program outlined in the PSDAR will be designed to accomplish the required tasks within the As-Low-As-Reasonably-Achievable (ALARA, as defined in §20) guidelines for protection of personnel from exposure to radiation hazards. It will also address the continued protection of the health and safety of the public and the environment during the dismantling activity.

The NRC recognizes that the existing operational technical specifications will require review and modifications to reflect plant

conditions and the safety concerns associated with permanent cessation of operations. The environmental impact associated with the planned decommissioning activities must also be considered; an environmental report on specific and unique concerns must be submitted to the NRC for consideration and possible preparation of an environmental impact statement.

Much of the work in preparing the PSDAR is also relevant to the development of the detailed engineering plans and procedures. This work includes, but is not limited to:

1. Site preparation plans for the proposed decommissioning activities.

2. Detailed procedures and sequences for removal of systems and components.

3. Evaluation of the disposition alternatives for the reactor vessel and its internals.

4. Plans for decontamination of structures and systems.

5. Design/procurement and testing of tooling and equipment.

6. Identification/selection of specialty contractors.

7. Procedures for removal and disposal of radioactive materials.

8. Sequential planning of activities to minimize conflicts with simultaneous tasks.

Site Preparations

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

1. Prepare site support and storage facilities, as required.

2. Perform a site characterization study to determine extent of site contamination.

3. Transfer fuel to dry storage at an on-site ISFSI constructed with adequate capacity to transfer all fuel on-site within 5 years and 2 months of plant shutdown. This allows the fuel handling buildings

to be decontaminated and dismantled at an earlier date than would be otherwise possible.

4. Clean all plant areas of loose contamination and process all liquid and solid wastes.

5. Conduct radiation surveys of work areas, major components (including the reactor vessel and its internals), sampling of internal piping contamination levels, and primary shield cores.

6. Correlate survey data and normalize for development of packaging and transportation procedures.

7. Determine transport and disposal container requirements for activated materials and/or hazardous materials, including shielding and stabilization. Fabricate or procure such containers.

8. Develop procedures for occupational exposure control, control and release of liquid and gaseous effluent, processing of radwaste including DAW, resins, filter media, metallic and non-metallic components generated in decommissioning, site security and emergency programs, and industrial safety.

Following submittal of the PSDAR and certification of permanent fuel removal from the reactor vessel, the licensee may commence major decommissioning activities. Full access to the decommissioning fund will require the preparation of a detailed site-specific cost estimate for submittal to the NRC. In addition, a license termination plan must be prepared at least two years prior to the license termination date.

2.1.2 Period 2 - Operations

Decommissioning Activities

For the DECON alternative, significant decommissioning activities involve the following steps:

1. Construct temporary facilities and modify existing storage facilities to support the dismantling activities. These may include additional changing rooms and contaminated laundry facilities for increased work force, establishment of laydown areas to facilitate equipment removal and preparation for off-site transfer, upgrading roads to

facilitate hauling and transportation, and modifications to the Reactor Building to facilitate access of large/heavy equipment.

2. Design and fabricate shielding in support of removal and transportation activities as well as contamination control envelopes; specify/procure specialty tooling and remotely operated equipment. Modify the refueling facilities to support segmentation activities and prepare rigging for segmentation and extraction of heavy components, including the reactor vessel and its internals.

3. Procure (lease or purchase) required shipping canisters, cask liners, and Industrial Packages (IPs) from suppliers.

4. Conduct decontamination of components and piping systems as required to control (minimize) worker exposure. Remove, package, and dispose of all piping and components that are no longer essential to support decommissioning operations.

5. Remove control rod drive housings and the head service structure from reactor vessel head and package for controlled disposal.

6. Segment reactor vessel closure head and vessel flange for shipment in cask liners. Load overpack liners into shielded casks or place in shielded vans for transport.

7. Segment upper internals assemblies; package segments in shielded casks. These operations are performed remotely by cutting equipment located underwater in the refueling facilities. Package and dispose of items that meet §61 "Class C" criteria or less.

8. Disassemble/segment remaining reactor internals in shielded casks. The operations are also conducted under water using remotely operated tooling and contamination controls. Package and dispose of items that meet §61 "Class C" criteria or less.

9. Package §61 GTCC components into fuel bundle containers for handling and storage along with the spent fuel assemblies. Transfer fuel bundle containers to the fuel handling facilities or suitable storage location.

10. Segment/section the reactor vessel, placing segments into shielded containers. The operation is performed remotely in air using a contamination control envelope. Sections are placed in containers

stored under water (for example in an isolated area of the refueling canal or spent fuel pool) using a remote or shielded crane. Transport the containers using shielded truck casks.

11. Remove the reactor coolant pumps. Package the piping in IPs; the reactor coolant pumps are sealed with steel plate so as to serve as their own containers. Ship piping and pumps for controlled disposal.

12. Remove systems and associated components as they become non-essential to the vessel removal operation, related decommissioning activities, or worker health and safety (e.g., waste collection and processing systems, electrical and ventilation systems, etc.).

13. The station diesel generators will remain available to provide emergency power to the spent fuel cooling and cleanup systems during the required heat decay phase for the last core off-load. The fuel handling buildings' handling and transfer equipment, which supports the transfer of the assemblies either off-site or to dry storage on-site, may also require the station diesel generators to be available.

14. Remove activated concrete biological/sacrificial shield and accessible contaminated concrete (excluding steam generator and pressurizer cubicles). If dictated by the steam generator and pressurizer removal scenarios, remove those portions of the associated cubicles necessary for access and component extraction.

15. Remove steam generators and pressurizer for shipment and controlled disposal. Decontaminate exterior surfaces, as required, and seal-weld openings (nozzles, inspection hatches, and other penetrations). These components can serve as their own burial containers provided that all penetrations are properly sealed and the internal contaminants are stabilized. Add steel shields to those external areas of the steam generators to meet transportation limits and regulations.

License Termination

The preparation of a termination plan is required at least two years prior to the anticipated date of license termination. The plan must include a site characterization, description of the remaining dismantling activities, plans for site remediation, procedures for the final radiation

survey, designation of any reuse of the site, an updated cost estimate to complete the decommissioning, and any associated environmental concerns. The NRC will publish notice of a receipt of the plan and make the plan available for public comment. A local hearing will also be scheduled. Plan approval may be subject to conditions and limitations as deemed appropriate by the NRC. The licensee may then commence with the final remediation of site facilities and services, including:

1. Remove steel liners from the refueling canal, and containment, including any contaminated concrete behind liners, and route for controlled disposition.

2. Remove contaminated equipment and material from all the remaining auxiliary structures. Remediate until radiation surveys indicate that the structure can be released for unrestricted access.

3. Remove contaminated equipment and material from the fuel handling facilities following the transfer of all residual spent fuel to the on-site storage facility. Remediate fuel handling facilities areas until radiation surveys indicate that the structure can be released for unrestricted access.

4. Decontaminate remaining site buildings and facilities with residual contaminants. Remove all remaining LLW along with any remaining hazardous and toxic materials. Material removed in the decontamination and dismantling of the nuclear units will be routed to an on-site central processing area. Material certified to be free of contamination will be released for unrestricted disposition, e.g., as scrap, recycle, or general disposal. Contaminated material will be characterized and segregated for additional on-site decontamination, off-site processing (disassembly, chemical cleaning, volume reduction, waste treatment, etc.) and/or packaged for controlled disposal at the regional low-level radioactive waste disposal facility.

5. Remediate site areas which contain concentrations of radionuclides exceeding NRC release limits.

6. Remove remaining components, equipment, and plant services in support of the area release survey(s).

7. Conduct final radiation survey to ensure that all radioactive materials in excess of permissible residual levels have been remediated. This survey may coincide with the confirmatory NRC

site inspection. These activities are scheduled at the end of Period 2, the operations phase.

8. Unit 3 decontamination and dismantling activities are assumed to be completed prior to Unit 4 decontamination and dismantling activities. This study assumes that the demolition of the Unit 3 non-contaminated facilities will be delayed such that the demolition effort for the station is integrated. As such, Unit 3 structural demolition will be delayed until the completion of the Unit 4 decontamination and dismantling activities.

Incorporated into the License Termination Plan, the Final Survey Plan details the radiological surveys to be performed once the decontamination activities are completed. The Final Survey Plan is developed using the guidance provided in NUREG/CR-5849, "Manual for Conducting Radiological Surveys in Support of License Termination." This document delineates the statistical approaches to survey design and data interpretation used by the Environmental Protection Agency (EPA). It also identifies state-of-the-art, commercially available, instrumentation and procedures for conducting radiological surveys. Use of this guidance ensures that survey design and implementation are conducted in a manner that provides a high degree of confidence that applicable NRC criteria are satisfied. Once the survey is complete, the results are provided to the NRC in a format that can be verified. The NRC then reviews and evaluates the information, performs an independent confirmation of radiological site conditions, and makes a determination on final termination of the license.

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

2.1.3 Period 3 - Site Restoration

Following completion of decommissioning operations, site restoration activities may begin. Efficient removal of the contaminated materials and verification that residual radionuclide concentrations are below the NRC limits will result in substantial damage to many of the structures. Blasting, coring, drilling, scarification (surface removal), and the other decontamination activities will substantially damage power block structures including the Reactor, Auxiliary, Radwaste and

Turbine Buildings. Verifying that subsurface radionuclide concentrations meet NRC site release requirements may require removal of grade slabs and lower floors, potentially weakening footings and structural supports. This removal activity will be necessary for those facilities and plant areas where historical records, when available, indicate the potential for radionuclides having been present in the soil, where system failures have been recorded, or where it is required to confirm that subsurface process and drain lines were not breached over the operating life of the station.

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

This cost study presumes that non-essential structures and site facilities will be dismantled as a continuation of the decommissioning activity. Foundations and exterior walls are assumed to be removed to a nominal depth of three feet below grade whenever possible. Foundation grade slabs greater than three feet in thickness are abandoned in place and covered over with a three-foot layer of backfill. The three-foot depth allows for the placement of both gravel for drainage, as well as topsoil so that vegetation can be established for erosion control. Site areas affected by the dismantling activities are cleaned and the plant area graded as required to prevent ponding and inhibit the refloating of subsurface materials. Activities include:

1. Perform demolition of the remaining portions of the containment structure and interior portions of the Reactor Building. Internal floors and walls are removed from the lower levels upward, using controlled blasting techniques. Concrete rubble and clean fill produced by demolition activities are used on-site to backfill voids. Suitable materials can be used on site for fill; otherwise the rubble is trucked off-site for disposal as construction debris.

2. Remove remaining buildings using conventional demolition techniques for above ground structures, including the Radwaste

Building, Turbine Building, Auxiliary Building, Control Building, Fuel Handling Building, Service Building and other site structures.

3. Throughout Period 3, FP&L will maintain an on-site ISFSI. The transfer of assemblies to a DOE facility is expected to continue until 2031. After all of the spent fuel has been shipped to the DOE, the ISFSI will be decontaminated (if needed) to levels permitting termination of the Part 72 license.

4. Following notification by FP&L, the NRC will verify that the Part 72 license termination criteria are satisfied. When the requirements are deemed satisfactory for the ISFSI, the NRC can terminate the remaining license(s) for the site. The ISFSI would then be dismantled by conventional means.

5. Prepare the final dismantling program report.

2.2 SAFSTOR

The NRC defines SAFSTOR as "the alternative in which the nuclear facility is placed and maintained in a condition that allows the nuclear facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use." The facility is left intact, (during the SAFSTOR period) with structures maintained in a sound condition. Systems not required to operate in support of the spent fuel pool or site surveillance and security are drained, de-energized, and secured. Minimal cleaning/removal of loose contamination and/or fixation and sealing of remaining contamination is performed. Access to contaminated areas is secured to provide controlled access for inspection and maintenance.

The engineering and planning requirements are similar to those for the DECON alternative, although a shorter time period is expected for these activities due to the more limited work scope. Site preparations are also similar to those for the DECON alternative. However, with the exception of the required radiation surveys and site characterizations, the mobilization and preparation of site facilities is less extensive.

2.2.1 Period 1 - SAFSTOR Operations

The NRC three phase approach to decommissioning is described in detail in Sections 2.1, 2.1.1, and 2.1.2.

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

The program outlined in the PSDAR will be designed to accomplish the required tasks within the ALARA guidelines for protection of personnel from exposure to radiation hazards. It also addresses the continued protection of the health and safety of the public and the environment.

The NRC recognizes that the existing operational technical specifications will require review and modifications to reflect plant conditions and the safety concerns associated with permanent cessation of operations. The environmental impact associated with the planned decommissioning activities must be considered; an environmental report on those concerns not already assessed must be submitted to the NRC for consideration and possible preparation of an environmental impact statement.

The process of placing the plant in safe-storage includes, but is not limited to, the following activities:

1. Isolate spent fuel storage services and fuel handling systems located in the fuel handling facilities from the power block so that safe-storage operations may commence on the balance of the plant. This activity may be carried out by plant personnel in accordance with existing operating technical specifications. Activities are assumed to be scheduled around the fuel handling systems to the greatest extent possible. All remaining spent fuel on site will be stored in the existing spent fuel pools until transfer to an on-site ISFSI can be completed.

2. Drain/de-energize/secure all non-contaminated systems not required to support dormancy operations.

3. Dispose of contaminated filter elements and resin beds not required for processing wastes from decontamination activities.

4. Drain reactor vessel; internals will remain in place.

5. Drain/de-energize/secure all contaminated systems. Decontaminate systems as required for future maintenance and inspection.

6. Prepare lighting and alarm systems whose continued use is required. De-energize and/or secure portions of fire protection, electric power, and HVAC systems whose continued use is not required.

7. Clean loose surface contamination from building access pathways.

8. Perform an interim radiation survey of plant; post warning signs as appropriate.

9. Erect physical barriers and/or secure all access to radioactive or contaminated areas, except as required for controlled access, i.e., inspection and maintenance.

10. Transfer spent fuel to the ISFSI, or a DOE or intermediate facility - continuously throughout Period 1 and into the dormancy period.

11. Install security and surveillance monitoring equipment and relocate security fence around secured structures, as required.

12. This study assumes that demolition would be delayed for those structures which are located outside the secured area until after the termination of the license.

2.2.2 Period 2 - SAFSTOR Dormancy

The second phase identified by the NRC in its rule addresses licensed activities during a storage period and is applicable to the dormancy phases of the deferred decommissioning alternative SAFSTOR. After an optional period of storage (such that license termination is accomplished within 60 years of final shutdown), it is required that the licensee submit an application to terminate the license, along with a termination plan (described in Section 2.1.2), thereby initiating the third phase.

Activities required during the planned dormancy period for the SAFSTOR alternative include a 24-hour guard force, preventive and corrective maintenance on security systems, area lighting, general building maintenance, heating and ventilation of buildings, routine radiological inspections of contaminated structures, maintenance of structural integrity, and a site environmental and radiation monitoring program.

The SAFSTOR alternative assumes that an on-site ISFSI facility is constructed with adequate capacity to transfer all fuel to dry storage within 5 years and 2 months of plant shutdown. This allows the fuel handling buildings to be decontaminated and dismantled at an earlier date than would be otherwise possible. All fuel is assumed to be transferred to a DOE facility by the year 2031.

Equipment maintenance, inspection activities and routine service are performed by resident maintenance personnel. This work force will maintain the structures in a safe condition, provide adequate lighting, heating, and ventilation, and perform periodic preventive maintenance on essential site services.

An environmental surveillance program is carried out during the dormancy period to ensure that potential releases of radioactive material to the environment are detected and controlled. Appropriate emergency procedures are established and initiated for potential releases that exceed prescribed limits. The environmental surveillance program constitutes an abbreviated version of the program in effect during normal plant operations.

Security during the dormancy period is conducted primarily to prevent unauthorized entry and to protect the public from the consequences of their own actions. Security will be provided by the security fence, sensors, alarms, surveillance equipment, etc., which must be maintained in good condition for the duration of this period. Fire and radiation alarms are also to be monitored and maintained. While remote surveillance is an option, it does not offer the immediate response time of a physical presence.

Variations in the length of the dormancy period are expected to have little effect upon the quantities of radioactive wastes generated from system and structure removal operations. While there will be a decrease in the contamination levels present on all surfaces due to radioactive decay over an increased dormancy duration, it is not expected that any material that is non-releasable at the time of shutdown will decay to a releasable state over the permissible time frame (i.e. 60 years maximum). Without detailed contamination characterization information, it is not possible to make any further assumptions concerning contamination levels.

Given the levels of radioactivity and spectrum of radionuclides expected from forty years of plant operation, no plant process system identified as

being contaminated upon final shutdown will become releasable due to the decay period alone, i.e., there is no significant reduction in waste volume in delaying decommissioning. In fact, SAFSTOR estimates can show a slight increase in the total projected waste volume, due primarily to initial preparation activities for placing the units in safe-storage, as well as from follow-up housekeeping tasks over the caretaking period for the station. Since the SAFSTOR option does not require system flushes for decontamination purposes, the waste volumes associated with the liquid waste processing have been eliminated. In this case, the cost estimate showed a small increase in the total low-level waste volume in the SAFSTOR mode relative to DECON.

The delay in decommissioning yields lower working area radiation levels. As such, the difference between the prompt and delayed scenarios is moderated by reduced ALARA controls for the SAFSTOR's lower occupational exposure potential. Because this alternative provides a period of decay for the residual radioactive material, lower radiation fields are encountered than with the DECON alternative. Some of the dismantling activities may employ manual techniques rather than remote procedures. Thus, dismantling operations may be simplified for some tasks. However, this study does not attempt to quantify this effect, because it would have an immaterial impact on overall costs.

2.2.3 Periods 3 and 4 - Deferred Decommissioning

A termination plan must be prepared at least two years prior to the anticipated date of license termination. Submitted as a supplement to the FSAR, or equivalent, the plan must include a site characterization, description of the remaining dismantling activities, plans for site remediation, detailed plans for the final radiation survey, designation of the end-use of the site, an updated cost estimate to complete the decommissioning, and any associated environmental concerns. The NRC will publish notice of a receipt of the plan and make the plan available for public comment. A local hearing will also be scheduled. Plan approval will be subject to any conditions and limitations deemed appropriate by the NRC. The licensee may then commence with the final remediation of site facilities and plant services.

Although the initial radiation levels due to ^{60}Co will decrease significantly during the dormancy period, the internal components of the reactor vessel will still exhibit sufficiently high radiation dose rates to require remote sectioning under water due to the presence of long-lived radionuclides such as ^{94}Nb, ^{59}Ni, and ^{63}Ni. Therefore, the dismantling

procedures described for the DECON alternative would still be employed during SAFSTOR. Portions of the biological shield will still be radioactive due to the presence of activated trace elements with long half-lives (^{152}Eu and ^{154}Eu). Decontamination will require controlled removal and disposal. It is assumed that radioactive corrosion products on inner surfaces of piping and components will not have decayed to levels that will permit unrestricted use or allow conventional removal. These systems and components are surveyed as they are removed and disposed of in accordance with the existing radioactive release criteria.

Prior to the commencement of decommissioning operations, preparations are undertaken to reactivate site services and prepare for decommissioning. Preparations include engineering and planning, a detailed site characterization, as well as the assembly of a decommissioning management organization. Final planning for activities and writing of activity specifications and detailed procedures are also initiated at this time.

Much of the work in developing a termination plan is relevant to the development of the detailed engineering plans and procedures. The activities associated with this phase, as well as the follow-on decontamination and dismantling processes are detailed in Sections 2.1.1 and 2.1.2. The primary difference between the sequences anticipated for the DECON and SAFSTOR scenarios is the absence, in the latter, of any constraint on the availability of the fuel handling facilities for decommissioning. The timing for the SAFSTOR scenario is such that the spent fuel inventory has been removed from the site prior to the initiation of decontamination and dismantling activities, eliminating a significant scheduling hindrance. Any GTCC material generated in the segmentation of the reactor vessel internals is assumed to be directly routed to the DOE's geological facility without the need to provide for interim storage on site.

Incorporated into the License Termination Plan, the Final Survey Plan details the radiological surveys to be performed once the decontamination activities are completed. The Final Survey Plan is developed using the guidance provided in NUREG/CR-5849, "Manual for Conducting Radiological Surveys in Support of License Termination." This document delineates the statistical approaches to survey design and data interpretation used by the EPA. It also identifies state-of-the-art, commercially available, instrumentation and procedures for conducting radiological surveys. Use of this guidance ensures that survey design and implementation are

conducted in a manner that provides a high degree of confidence that applicable NRC criteria are satisfied. Once the survey is complete, the results are provided to the NRC in a format that can be verified. The NRC then reviews and evaluates the information, performs an independent confirmation of radiological site conditions, and makes a determination on final termination of the license. The NRC will terminate the license if it determines that site remediation has been performed in accordance with the license termination plan, and the terminal radiation survey and associated documentation demonstrate that the facility is suitable for release.

2.2.4 Period 5 - Site Restoration

For the SAFSTOR alternative, the site restoration activities are the same as those for DECON Period 3, without restriction on the availability of the ISFSI for spent fuel or GTCC waste.

3. COST ESTIMATE

The site-specific cost estimate prepared for decommissioning Turkey Point accounts for the unique features of the site, including the primary coolant systems, electric power generation systems, site buildings, and structures. The basis of the estimate and its sources of information, methodology, site-specific considerations, assumptions, and total costs are described in this section.

3.1 BASIS OF ESTIMATE

A site-specific cost estimate was developed using the Turkey Point drawings and plant documents provided by FP&L. Components were inventoried from the mechanical and electrical Piping & Instrument Diagrams (P&ID). Structural drawings and design documents were used to analyze the general arrangement of the facility and to determine estimates of building concrete volumes, steel quantities, numbers and sizes of major components, and areas of the plant to be addressed in remediation of the site.

Representative labor rates for each designated craft and salaried worker were provided by FP&L for use in construction of the unit removal factors, as well as for estimating the carrying costs for site management, worker supervision, and essential support services, e.g., health physics and security.

For estimating purposes, all LLW generated in the decontamination and dismantling of Turkey Point , with the exception of certain metallic waste, is assumed destined for disposal at the existing Barnwell facility. Certain metallic waste is assumed to be sent to an off-site licensed waste processing facility.

3.2 METHODOLOGY

The methodology used to develop this cost estimate follows the basic approach originally presented in the AIF/NESP-036 study report, "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates," (Ref. 7) and the US DOE "Decommissioning Handbook" (Ref. 8). These documents present a unit cost factor method for estimating decommissioning activity costs, which simplifies the estimating calculations. Unit cost factors for concrete removal ($/cubic yard), steel removal ($/ton), and cutting costs ($/inch) were developed from the labor cost information provided by FP&L. The activity-dependent costs are estimated with the item quantities (cubic yards, tons, inches, etc.) developed from plant drawings and inventory documents.

The unit cost factors used in this study reflect the latest available information about worker productivity in decommissioning, including the Shippingport Station Decommissioning Project completed in 1989, as well as from TLG's involvement in the decommissioning planning and engineering for the Shoreham, Yankee Rowe, Trojan, Rancho Seco, Pathfinder, and Cintichem reactor facilities.

The unit cost factor method provides a demonstrable basis for establishing reliable cost estimates. The detail of activities provided in the unit cost factors for activity time, labor costs (by craft), and equipment and consumable costs provides assurance that cost elements have not been omitted. These detailed unit cost factors, coupled with the plant-specific inventory of piping, components and structures, provide a high degree of confidence in the reliability of the cost estimates.

An activity duration critical path was used to determine the total decommissioning program schedule. The program schedule is used to determine the period-dependent costs for program management, administration, field engineering, equipment rental, quality assurance, and security. The study used typical salary and hourly rates for personnel associated with period-dependent costs for the region in which the station is located. Some of the costs for removal of radioactive components/structures were based on information obtained from the "Building Construction Cost Data," published by R. S. Means (Ref. 9). Examples of unit cost factor development are presented in the AIF/NESP-036 study. Appendix A presents the detailed development of a typical site-specific unit cost factor. Appendix B provides the values contained within one set of factors developed for the Turkey Point analyses.

3.3 FINANCIAL COMPONENTS OF THE COST MODEL

TLG's proprietary decommissioning cost model, DECCER, is composed of a number of distinct cost line items, calculated using the unit cost factor methodology described earlier, as well as additional cost elements in support of the field activities. These calculated costs in and of themselves, however, do not comprise the total cost to accomplish the project goal, i.e., the license termination and site restoration of Turkey Point.

Inherent in any cost estimate that does not rely on historical data is the inability to specify the precise source of costs imposed by factors such as tool breakage, accidents, illnesses, weather delays, labor stoppages, etc. In the DECCER cost model, contingency fulfills this role. Contingency is added to

each line item to account for costs that are difficult or impossible to develop analytically. Such costs are historically inevitable over the duration of a job of this magnitude; therefore, this cost analysis includes moneys to cover these types of expenses. Further discussion of this subject is presented below.

In addition to the routine uncertainties that contingency addresses, another cost element that is necessary to consider when answering the question of decommissioning costs relates to other types and levels of uncertainties. These consist of changes in work scope, pricing, job performance, and other variations that could conceivably, but not necessarily, occur. Consideration of such items may be necessary to address the question concerning how costly the decommissioning project could become, within a range of probabilities. TLG considers these types of costs under the broad term "financial risk." This cost study, however, does not add any additional costs to the estimate for financial risk.

3.3.1 Contingency

The activity- and period-dependent costs are combined to develop the total decommissioning costs. A contingency is then applied on a line-item basis, using one or more of the contingency types listed in the AIF/NESP-036 study. "Contingencies" are defined in the American Association of Cost Engineers "Project and Cost Engineers' Handbook" (Ref. 10) as "specific provision for unforeseeable elements of cost within the defined project scope; particularly important where previous experience relating estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur." The cost elements in this estimate are based upon ideal conditions and maximum efficiency; therefore, consistent with industry practice, a contingency factor has been applied. In the AIF/NESP-036 study, the types of unforeseeable events that are likely to occur in decommissioning are discussed and guidelines are provided for percentage contingency in each category. It should be noted that contingency, as used in this estimate, does not account for price escalation and inflation in the cost of decommissioning over the remaining operating life of the units.

The use and role of contingency within decommissioning estimates is not a "safety factor issue." Safety factors provide additional security and address situations that may never occur. Contingency funds are expected to be fully expended throughout the program. They also provide assurance that sufficient funding is available to accomplish the intended tasks. Some of the rationale for (and need to incorporate) contingency within any estimate is offered in the following discussion.

An estimate without contingency, or from which contingency has been removed, can disrupt the orderly progression of events and jeopardize a successful conclusion to the decommissioning process.

The most technologically challenging task in decommissioning a commercial nuclear station will be the disposition of the reactor vessel and internal components, which have become highly radioactive after a lifetime of exposure to radiation produced in the core. The disposition of these highly radioactive components forms the basis for the critical path (schedule) for decommissioning operations. Cost and schedule are interdependent and any deviation in schedule has a significant impact on cost for performing a specific activity.

Disposition of the reactor vessel internals involves the underwater cutting of complex components that are highly radioactive. Costs are based upon optimum segmentation, handling, and packaging scenarios. The schedule is primarily dependent upon the turnaround time for the heavily shielded shipping casks, including preparation, loading, and decontamination of the containers for transport. The number of casks required is a function of the pieces generated in the segmentation activity, a value calculated on optimum performance of the tooling employed in cutting the various subassemblies. The risk and uncertainties associated with this task are that the expected optimization may not be achieved, resulting in delays and additional program costs. For this reason, contingency must be included to mitigate the consequences of the expected inefficiencies inherent in this complex activity, along with related concerns associated with specialty tooling modifications and repairs, field changes, discontinuities in the coordination of plant services, system failure, water clarity, lighting, computer-controlled cutting software corrections, etc. Experience in decommissioning other plants in the past has shown that many of these problem areas have occurred during, and in support of, the segmentation process. Contingency dollars are an integral part of the total cost to complete this task. Exclusion of this component puts at risk a successful completion of the intended tasks and, potentially, subsequent related activities.

The following list is a composite of some of the activities, assembled from past decommissioning programs, in which contingency dollars were needed to respond to, compensate for, and/or provide adequate funding of decontamination and dismantling tasks:

Incomplete or Changed Conditions:

- Unavailable/incomplete operational history which led to a recontamination of a work area, because a sealed cubicle (incorrectly identified as being non-contaminated) was breached without controls.

- Surface coatings covering contamination which, due to an incomplete characterization, required additional cost and time to remediate.

- Additional decontamination, controlled removal, and disposition of previously undetected (although at some sites, suspected) contamination due to access gained to formerly inaccessible areas and components.

- Unrecorded construction modifications, facility upgrades, maintenance, enhancements, etc., which precipitated scheduling delays, more costly removal scenarios, additional costs (e.g., for re-engineering, shoring, structural modifications), and compromised worker safety.

Adverse Working Conditions:

- Lower than expected productivity due to high temperature environments, resulting in a change in the working hours (shifting to cooler periods of the day) and additional manpower.

- Confined space, low-oxygen environments where supplied air was necessary and additional safety precautions prolonged the time required to perform required tasks.

Maintenance, Repairs and Modifications

- Facility refurbishment required to support site operations, including those needed to provide new site services, as well as to maintain the integrity of existing structures.

- Damage control, repair, and maintenance from bird nestings and their fouling of equipment and controls.

- Building modification, i.e., re-supporting of floors to enhance loading capacity for heavily shielded casks.

- Roadway upgrades on site to handle heavier and wider loads; roadway rerouting, excavation, and reconstruction.

- Requests for additional safety margins by a vendor.

- Requests to analyze accident scenarios beyond those defined by the removal scenario (requested by the NRC to comply with "total scope of regulation").

- Additional collection of site runoff and processing of such due to disturbance of natural site contours and drainage.

- Concrete coring for removal of embedments and internal conduit, piping, and other potentially contaminated material not originally identified as being contaminated.

- Modifications required to respond to higher than expected worker exposure, water clarity, water disassociation, and hydrogen generation from high temperature cutting operations.

- Additional waste containers needed to accommodate cutting particulates (fines), inefficient waste geometries, and excess material.

Labor

- Turnover of personnel, e.g., craft and health physics. Replacement of labor is costly, involving additional training, badging, medical exams, and associated processing procedures. Recruitment costs are incurred for more experienced personnel and can include relocation and living expense compensation.

- Additional personnel required to comply with NRC mandates and requests.

- Replacement of personnel due to non-qualification and/or incomplete certification (e.g., welders).

Schedule

- Schedule slippage due to a conflict in required resources, i.e., the licensee was forced into a delay until prior (non-licensee) commitments of outside resources were resolved.

- Rejection of material by NRC inspectors, requiring refabrication and causing program delays in activities required to be completed prior to decommissioning operations.

Weather

- Weather-related delays in the construction of facilities required to support site operations (with compensation for delayed mobilization made to vendor).

- Frozen crane hydraulics prior to a major lift.

The cost model incorporates considerations for items such as those described above, generating contingency dollars (at varying percentages of total line-item cost) with every activity.

3.3.2 Financial Risk

Financial risk refers to the possibility and associated probabilities of certain events occurring that could increase or decrease costs for decommissioning.

Included within the category of financial risk are:

- Transition activities and costs: ancillary expenses associated with eliminating 50% to 80% of the site labor force shortly after the cessation of plant operations, added cost for worker separation packages throughout the decommissioning program, state- or company-mandated retraining, and retention incentives for key personnel.

- Delays in approval of the decommissioning plan due to intervention, public participation in local community meetings, legal challenges, state and local hearings, etc.

- Changes in the project work scope from the baseline estimate, involving the discovery of unexpected levels of contaminants, contamination in places not previously expected, contaminated soil previously undiscovered (either radioactive or hazardous material contamination), variations in plant inventory or configuration not indicated by the as-built drawings.

- Regulatory changes, e.g., affecting worker health and safety, site release criteria, waste transportation, and disposal.

- Policy decisions altering federal and state commitments, e.g., in the ability to accommodate certain waste forms for disposition, or in the timetable for such.

- Pricing changes for basic inputs, such as labor, energy, materials, and burial. Some of these inputs may vary slightly, e.g. -10% to +20%; burial could vary from -50% to +200% or more.

It has been TLG's experience that the results of a risk analysis, when compared with the base case estimate for decommissioning, indicate that the chances of the base decommissioning estimate's being too high is a low probability, and the chances that the estimate is too low is a much higher probability. This is mostly due to the pricing uncertainty for LLW burial, and to a lesser extent due to schedule increases from changes in plant conditions and to pricing variations in the cost of labor (both craft and staff). TLG did not perform a risk analysis for the Turkey Point study and therefore the estimates in this report do not include any increase as a result of any risk analysis performed for FP&L or any other TLG client.

3.4 SITE-SPECIFIC CONSIDERATIONS

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

3.4.1 Spent Fuel Disposition

The spent fuel assemblies stored in the spent fuel pool and in dry storage at the site will be transferred to the DOE as per the existing contract between FP&L and the DOE.

Both the DECON and SAFSTOR alternatives assume that the DOE begins accepting spent fuel in 2010 at the rates assumed in the "Analysis of the Total System Life Cycle Cost of the Civilian Radioactive Waste Management Program" (DOE/RW-0479) issued in September 1995 (TSLCC). As a result of this acceptance schedule, FP&L will incur ISFSI-related construction, canister/module acquisition and decommissioning costs.

FP&L is assumed to develop an ISFSI at Turkey Point to prevent a loss of full core off-load reserve capacity in 2010 for Unit 3 and 2011 for Unit 2. The ISFSI will be sized to accommodate 120 storage modules and will be in operation from 2010 through 2031. Six modules (5%) are necessary to permit the plant to operate to the end of the operating licenses of each unit. The remaining capacity (95%) is necessary to facilitate timely decommissioning of the plant. As such, only 95% of the total capital/construction costs have been included in the cost estimates. Likewise, only the canister/module acquisition costs necessary to accommodate the transfer of fuel subsequent to plant shut down have been included. The cost estimates do not include the costs associated with construction and canister/module acquisition which is required to reach end of license.

3.4.2 Reactor Vessel and Internal Components

The reactor pressure vessel and reactor internal components are segmented for disposal in shielded transportation casks. Segmentation and packaging of the internals' packages are performed in the refueling canal where a turntable and remote cutter will be installed. The vessel is segmented in place, using a mast-mounted cutter supported off the lower head and directed from a shielded work platform installed overhead in the reactor cavity. Transportation cask specifications and Department of Transportation (DOT) regulations dictate segmentation and packaging methodology. All packages must meet the current physical and radiological limitations and regulations. Cask shipments will be made in DOT-approved, currently available, truck casks.

The dismantling of reactor internals at Turkey Point will generate radioactive waste generally unsuitable for shallow land disposal (GTCC). Although the material is not classified as high-level waste, the DOE has indicated it will accept title to this waste for disposal at the future high-level waste repository. However, the DOE has not yet established an acceptance criteria or a disposition schedule for this material, and numerous questions remain as to the ultimate disposal cost and waste form requirements. As such, for purposes of this study, the GTCC waste has been packaged and disposed of as high-level waste, at a cost equivalent to that envisioned for the spent fuel.

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

3.4.3 Steam Generators and Other Large System Components

The following discussion deals with the steam generators, but the techniques involved are also applicable to other large components, such as feedwater heaters.

The steam generators' size and weight, as well as their configuration and limited access in the Reactor Building itself, place constraints on the intact removal of these components. Determination of the removal strategy requires several different considerations, including modifications to the Reactor Building, for removal of the generators, rigging needed to maneuver and extract the generators from the structure, and the component preparations needed to transport the generators to a disposal site.

A potential method for removal (and the one used as the basis in this estimate) is the extraction of the generators through an opening located in the side of the Reactor Building. Removal of sections of the steam generator cubicle walls, adjoining floor slabs, and floor grating will be accomplished to allow for the generators to be maneuvered to the opening.

A trolley crane will be set up for removal of the generators. By setting the trolley crane first, it can be used to lower portions of the steam generator cubicle walls and floor slab that will have to be removed as

part of the modification effort. Figure 3.1 shows removal of cubicle walls for removal of a primary coolant system component. Figure 3.2 shows the rigging process used for removal of steam generators from the reactor building.

The generators will be rigged for removal, disconnected from the surrounding piping and supports, and maneuvered into the open area where they will be lowered onto a dolly. The dolly will allow the lower end of the steam generator to rotate through the opening as it is being lowered. Nozzles and other openings will be welded closed (see Figure 3.3). When this stage has been completed, the generator will be lifted onto a multi-wheeled transporter (see Figure 3.4) and moved to an on-site steam generator processing area. The remaining steam generators will be removed using the same technique.

Once at the steam generator processing area, final preparations for shipment will be completed. The following is a list of these significant "package preparation activities:

- Install radiation shielding [of sufficient thickness to meet DOT transportation requirements] around the exterior of the primary side.
- Inject low-density cellular concrete into the primary side and secondary side voids to "fix" loose surface contamination.
- Place and secure the "primary side" package onto a transportation cradle, compatible with a public highway transporter and an ocean-going barge.

Each generator will then be loaded onto a multi-wheeled transporter and driven onto an exclusive-use barge located near the site. Figure 3.4 shows the typical overland transport used to move a steam generator on public highways. The generator-transporter package will be secured to the barge for transport to a pier-facility located near the Barnwell burial facility. Figure 3.5 shows a typical steam generator loaded on a barge. The package will be taken off the barge and proceed the short distance by road transport to the burial facility. The generator will remain on the transporter until it is unloaded at the disposal site.

3.4.4 Transportation Methods

For the purposes of the cost estimate, it was assumed that the LLW produced in the decontamination and dismantling of the nuclear units will be moved overland by truck, shielded van, railcar, exclusively-use barge, and/or multi-wheeled transporter to the burial facility. Transport costs were derived assuming Barnwell, SC as the destination for all Turkey Point wastes destined for direct burial from the site. For wastes shipped to an off-site recovery vendor, these transport costs were derived assuming Oak Ridge, TN as the destination for Turkey Point wastes.

3.4.5 Low-Level Radioactive Waste Disposal

All LLW generated in the decontamination and dismantling of Turkey Point is assumed disposed of by:

- direct burial at the existing Barnwell facility at a representative burial charge of $4.40 per pound.
- off-site processing for metallic wastes by a recovery vendor at a rate of $1.15 per pound.

To the greatest extent practical, non-compactable LLW is treated to reduce the total volume of radioactive material requiring controlled disposal. The treated material meeting the regulatory and/or site release criteria is released as clean scrap, requiring no further cost consideration.

3.4.6 Site Conditions Following Decommissioning

Following the decommissioning effort, the structures and remaining systems will meet the specified NRC site release limit. The NRC involvement in the decommissioning process typically will end at this point. Local building codes, state environmental regulations, and FP&L's own future plans for the site will dictate the next step in the decommissioning process. TLG assumed the total removal of all plant systems and all of the above-grade structures from the site. These non-radiological costs are a part of this study.

3.5 ASSUMPTIONS

The following are the major assumptions made in the development of the cost estimates for decommissioning Turkey Point.

1. Costs are calculated in 1998 dollars. A present-value economic analysis is not included, nor is escalation or general inflation reflected within the costs reported.

2. Common systems are assumed to be assigned to the unit as shown on the plant drawings (P&ID's). Common structures are assumed to be assigned exclusively to Unit 4. ISFSI-related decontamination and demolition costs are assumed to be equally divided between Unit 3 and Unit 4.

3. Plant drawings, equipment and structural specifications, including construction details, were provided by FP&L.

4. Employee salary and craft labor rates for site administration, operations, construction, and maintenance personnel were provided by FP&L for positions identified by TLG.

5. FP&L provides for any necessary electrical power required to decommission the plant to be brought on site. Energy costs are included in the estimate.

6. Material and heavy equipment rental and operating costs were taken from R.S. Means Building Construction Cost Data.

7. Radioactive contamination is considered to be within selected secondary steam cycle components in Units 3 and 4. FP&L provided the status of contamination by plant process system; TLG used this information to categorize the inventory for removal and disposition.

8. Radioactively contaminated piping, components, and structures other than the reactor vessel and internals are assumed to meet DOT limits for Low Specific Activity (LSA) or Surface Contaminated Object (SCO) material. For transportation calculations, the trucking distance from the plant site to the Barnwell site is 624 miles and 957 miles to a recycle facility. Rates for shipping radioactive wastes were provided by Tri-State Motor Transit in published tariffs for this cargo (Ref. 11).

9. The reactor vessel and internals' disposal costs were based on remote in-place segmentation, packaging in shielded casks, and shipping by truck to the burial ground. A maximum normal road weight limit of 80,000 pounds is assumed for all truck shipments, with the exception of several overweight cask shipments. Cask shipments may exceed 95,000 pounds, including vessel segment(s), supplementary shielding, cask tie-downs

and tractor trailer. The maximum curies per shipment assumed permissible is based upon the license limits of available shielded shipping casks. The number and curie content of vessel segments were selected to meet these limits.

10. The average number of cask shipments out of the Reactor Building is expected to average three every two weeks.

11. Reactor vessel and internals packages' conditions:

    Any fuel cladding failure that has occurred or may occur during the lifetime of the plant is assumed:

    - to have released fission products at sufficiently low levels that the buildup of quantities of long-lived isotopes (e.g. cesium-137, strontium-90, or transuranics) has been prevented from reaching levels exceeding those which permit the major primary coolant system components to be shipped as LSA or SCO waste and to be buried within the requirements of 10 CFR 61 or the regional burial ground; or
    - to have necessitated systematic decontamination during the operating life of the plant; therefore, the radionuclide levels will be acceptable for transport as LSA or SCO waste and burial within the requirements of 10 CFR 61.

12. The estimated curie content of the vessel and internals at final shutdown was derived from those listed in NUREG/CR-3474 (Ref. 12). Actual estimates will be derived from the Ci/gram values in NUREG/CR-3474 and adjusted for the different mass of components and projected operating life, as well as for different periods of decay. Additional short-lived isotopes were derived from NUREG/CR-0130 (Ref. 13) and NUREG/CR-0672 (Ref. 14), and benchmarked to the long-lived values from NUREG/CR-3474.

13. This study estimates that there will be some radioactive waste generated which is greater than 10 CFR 61 Class C quantities (GTCC), resulting from disposal of the highly activated sections of the reactor vessel internals. This waste will most likely be disposed of as high-level waste in the DOE's deep geological repository unless an alternative solution is approved by the NRC. The cost of disposal, unlike that for the spent fuel, is not addressed by the DOE's 1 mill/kWhr surcharge, and has been estimated from equivalent disposal costs for spent nuclear fuel.

14. Reactivity control elements will be removed and disposed of along with the spent fuel assemblies.

15. GTCC waste generated through segmentation of the reactor vessel internals will be transferred to the on-site ISFSI or to the DOE high-level waste repository. If the DOE were to default on its obligations to accept spent fuel and GTCC material, decommissioning costs would almost certainly increase.

16. This study does not address the cost for the removal and disposal of spent fuel from the site. Ultimate disposition of the spent fuel is the province of the DOE's Waste Management System, as defined by the Nuclear Waste Policy Act and funded through the 1 mill/kWhr electrical generation surcharge. If the DOE were to delay its obligations to accept spent fuel later than a time consistent with the DOE initial pickup of spent fuel from Turkey Point, then decommissioning costs would increase.

17. Scrap generated during decommissioning is not included as a salvage credit line item in this study. It is difficult to estimate the potential salvage value of a decommissioned nuclear power plant for the following reasons:

    - The acceptability of nuclear plant equipment to potential salvage equipment buyers is highly speculative, regardless of the ability to free release this material.
    - Much of the equipment at a nuclear plant, especially from older units, is too specific to that plant to be of use to potential salvage buyers.
    - The cost for removal of equipment to a configuration that is attractive to a salvage dealer is variable. Dismantling techniques assumed for equipment by TLG for this estimate are not consistent with removal techniques required for salvage (resale) of equipment. Yankee Rowe experience indicated that some buyers wanted equipment stripped down to very specific requirements before they would consider purchase. This required expensive rework after the equipment had been removed from its installed location.

    For these reasons, it has generally been considered that the salvage value inherent in free-releasable nuclear plant equipment is sufficient to pay for the cost of removal of this equipment from the site, (i.e., clean equipment that has been removed from its installed location and placed in a laydown area is considered to be removed from the site at no additional charge by salvage dealers). This assumption is an implicit recognition of scrap value in the disposal of clean metallic waste at no cost to the project.

18. The FP&L staffing requirements during decommissioning vary with the level of effort associated with the various phases of the project. Once the decommissioning program commences, only those staff positions necessary to support the decommissioning program are included. There are no costs included in this study for staff transition from plant operations to decommissioning.

19. FP&L will hire a Decommissioning Operations Contractor (DOC), providing contract management of the decommissioning labor force and subcontractors. Engineering services for such items as writing activity specifications, detailed procedures, detailed activation analyses, and structural modifications, etc. are assumed to be provided by the DOC.

20. FP&L will remove items such as furniture, tools, forklifts, trucks, bulldozers, other similar mobile equipment and other such items of company property that can be removed without the use of special equipment.

21. FP&L is assumed to purchase or rent 20% of the scaffolding required to support the decommissioning project. The majority of required scaffolding (80%) is available on site.

22. Existing warehouses will remain for use by FP&L and its subcontractors and will be dismantled as they are no longer needed to support the decommissioning program.

23. FP&L will perform the following activities at no cost or credit to the project:

    - Fuel oil tanks will be emptied. Tanks will be cleaned by flushing or steam cleaning as required prior to disposal.
    - Acid and caustic tanks will be emptied through normal usage; any excess acid or caustics removed to support disposal of the storage container(s) are returned to the vendor.
    - Lubricating and transformer oils will be drained and removed from site by a waste disposal vendor.

24. The decommissioning activities will be performed in accordance with current regulations, which are assumed to still be in place at the time of decommissioning. Changes in current regulations may have a cost impact on decommissioning.

25. This study follows the principles of ALARA through the use of work duration adjustment factors which incorporate such items as radiological protection instruction, mock-up training, the use of respiratory protection, and personnel protective clothing. These items lengthen a task's duration, which increases the costs and lengthens the

schedule. ALARA planning is considered in the costs for engineering and planning, and in the development of activity specifications and detailed procedures. Changes to §20 worker exposure limits may impact the decommissioning cost and project schedule.

26. Nuclear liability insurance provides coverage for damage or injuries due to radiation exposure from equipment, material, etc. used during decommissioning. Nuclear liability insurance is phased out upon final decontamination of the site. FP&L provided current nuclear liability and property insurance premiums which were factored to reflect lower coverage limits and return of premiums during decommissioning activities.

27. Nuclear property insurance currently carried by FP&L for the site will continue throughout the decommissioning period at a rate discounted from that in effect during operations. The nuclear property insurance will cease for the station upon termination of the §72 license.

28. Only existing site structures will be considered in the decommissioning cost.

29. The perimeter fence and in-plant security barriers will be moved as appropriate to conform with the site's Security Plan in force at the various stages in the project.

30. The existing electrical switchyard will remain after decommissioning in support of the utility's electrical transmission and distribution system.

31. Underground metal and concrete piping will either be surveyed in place and released, or excavated and removed for survey. Any piping that exceeds the site release criteria will be removed.

32. Water drain holes will be drilled in the bottom of all subgrade structures to be abandoned.

33. Non-contaminated road and parking areas with asphalt or concrete surfacing will be broken up into rubble and used for backfill.

34. Structures and site improvements will be removed to a depth of three feet below local grade wherever possible and backfilled to the local grade level. At-grade foundation slabs greater than three feet thick will be abandoned in place and covered over with a three-foot thick layer of backfill.

35. Property tax costs were supplied by FP&L. Property taxes were assumed to be a constant annual cost as long as the FP&L building or equipment were located on the property.

36. Intake and Discharge canals were left in place. Circulating water structures were removed and the canal bank restored.

37. Six old steam generator lower assemblies, currently stored at the site, will be transported to and disposed of at the Barnwell disposal facility as part of the decommissioning work.

38. The remediation and disposal of 4,300 cubic feet of contaminated soil/grass like material will be required.

39. Costs for Steam Generator and old steam generator lower assemblies removal, packaging, shipping, and disposal were based on "actual" costs and vendor quotes associated with performing similar work for FP&L.

3.6 DECOMMISSIONING VERSUS SITE RESTORATION

Approximately 90% of the total cost for the DECON and SAFSTOR cases that were evaluated is attributable to the planning, engineering and the actual disposition of the residual radioactivity at the facility. It should be noted, however, that this accounting of costs includes not only those costs directly attributable to "decommissioning" as defined by the NRC, but those clean "cascading" costs necessary to be expended in order to execute the decontamination processes.

Nuclear power plants are designed to contain the radioactivity inherent in the normal operation of the facility. Accordingly, radioactive and potentially radioactive systems are located in shielded labyrinths, tunnels, and pipe chases. This inaccessibility, while essential during operation, serves to impede decommissioning activities. Consequently, disposition of these components often requires that additional access (and working space) be developed. This access is achieved by dismantling structures and components along the intended path of egress and in the immediate working area; material which in some cases is non-radioactive and therefore not normally perceived as a necessary constituent in facility decontamination. Failure to establish adequate working room will increase the residence times for decontamination and dismantling activities resulting in increases in the incurred occupational exposure. Therefore, the clean "cascading" costs necessary to perform decontamination activities are reported as decommissioning costs.

3.7 COST ESTIMATE SUMMARY

Summaries of the decommissioning costs and annual expenditures are provided in Tables 3.1 through 3.2. Appendix D provides a summary of decommissioning costs similar to Appendix C, with the assumption that long-term spent fuel storage is not required (the DOE acceptance dates and rates permitted unhindered plant decommissioning). These costs were extracted from the detailed cost tables in Appendix C and D. The following should be considered when reviewing these tables:

- "Decon" as used in the headings of these tables, refers to decontamination activities, as opposed to the NRC term DECON, which refers to the prompt removal decommissioning scenario.

- "Total" as used in the headings of these tables, is the sum of Decon, Remove, Pack, Ship, Bury, and Contingency, as well as other miscellaneous items not listed (such as engineering and preparations).

- The subtotal reported for the major cost categories does not include contingency, which is reported in a separate column.

- "Other" includes different types of costs which are not easily categorized. For instance, in systems removal and structures decontamination, the "Other" cost consists of the off-site recycling costs for low-level radioactive waste. In most of the engineering preparatory activities the "Other" cost is strictly engineering labor; however, "Other" also includes taxes, insurance, plant energy budgets, and regulatory fees.

- Decontamination and removal costs associated with common plant systems are assigned to either Unit 3 or Unit 4, in accordance with the component designation shown on plant drawings. Costs associated with common plant buildings were assigned to Unit 4, since these buildings will be required to support Unit 4 operations after the shutdown of Unit 3.

FIGURE 3.1

Reactor Building Modification for Pressurizer Removal

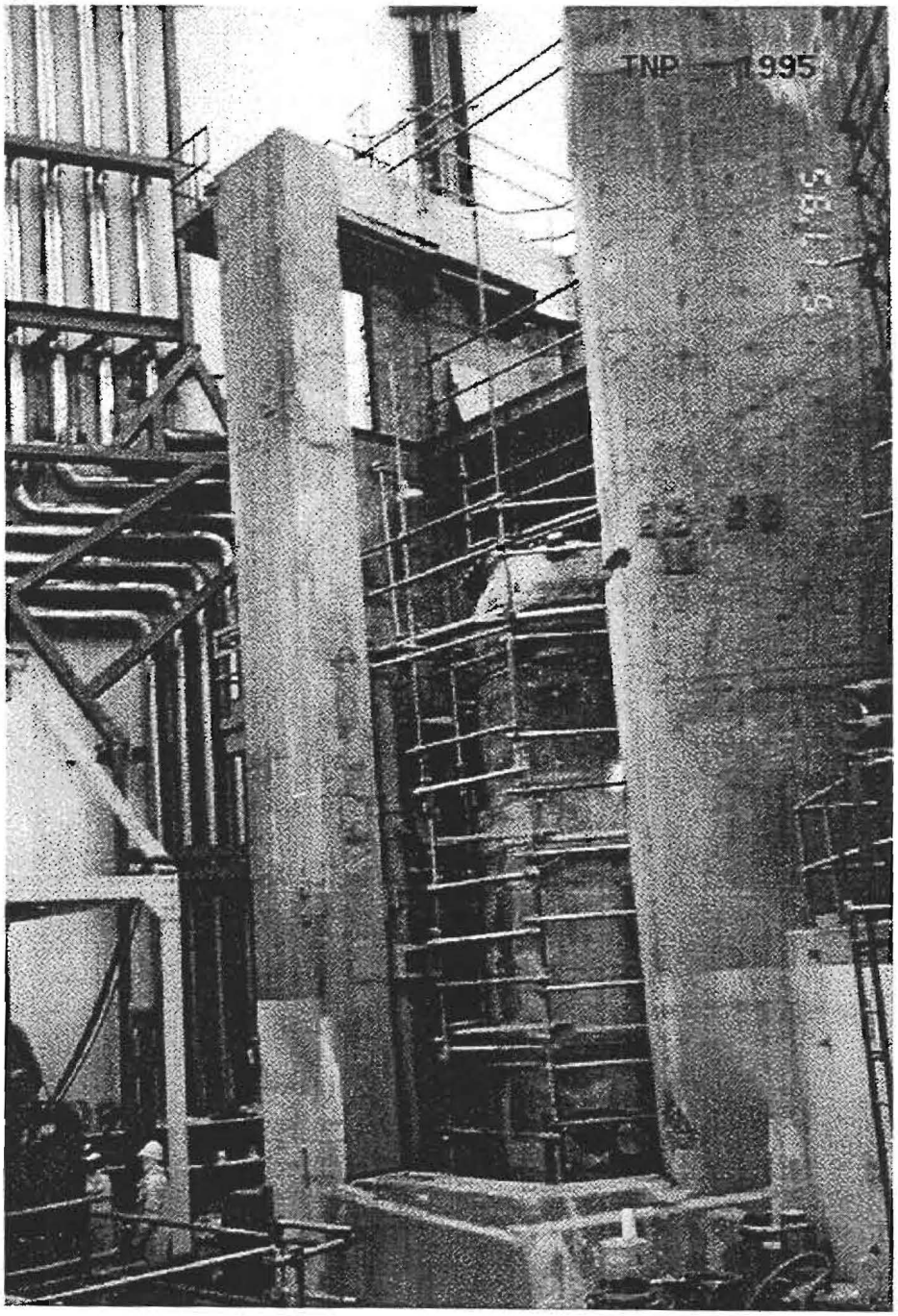


FIGURE 3.2
Removal of Steam Generator from Reactor Building

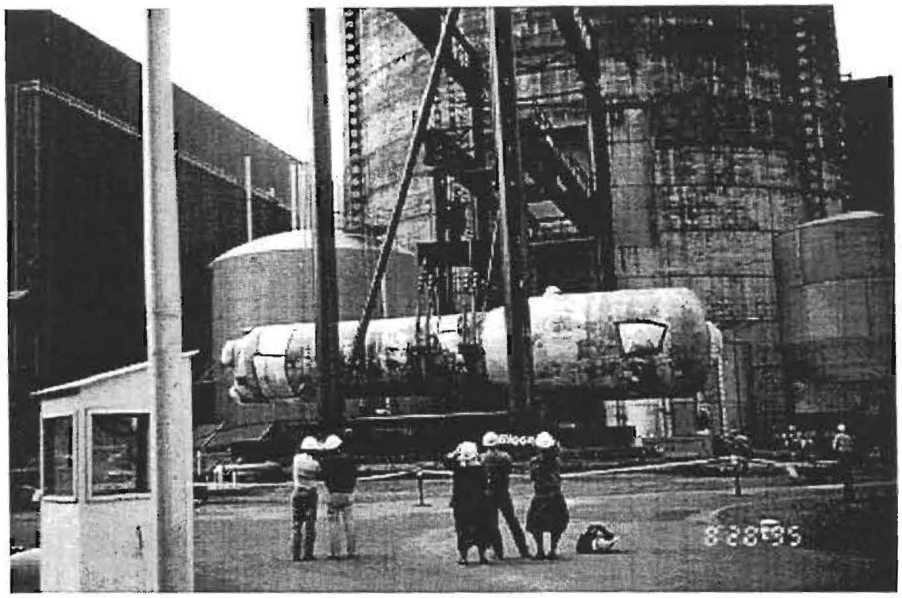


FIGURE 3.3
Preparation of Steam Generator for Transport

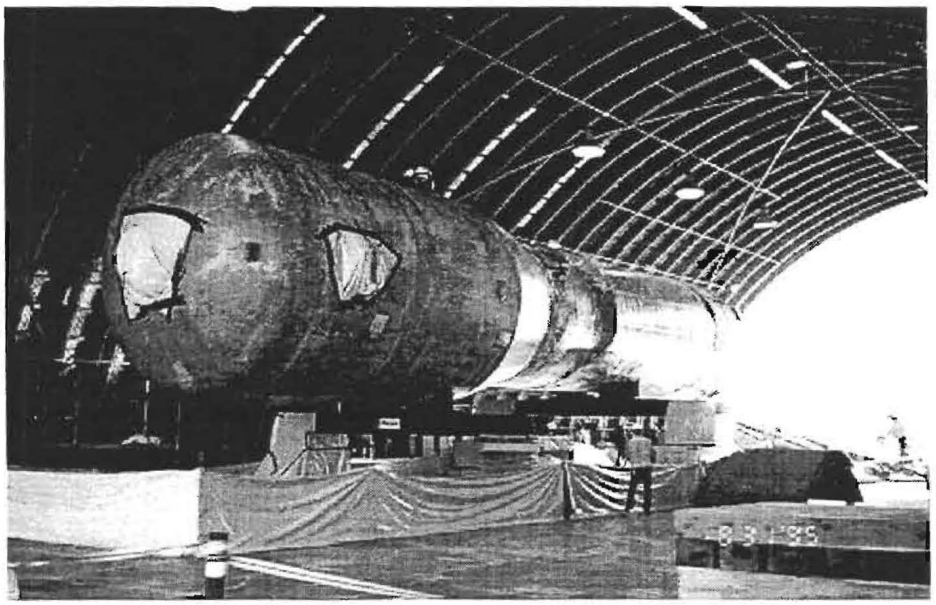


FIGURE 3.4
Overland Transport of Steam Generator

FIGURE 3.5
Loading of Steam Generator onto Barge

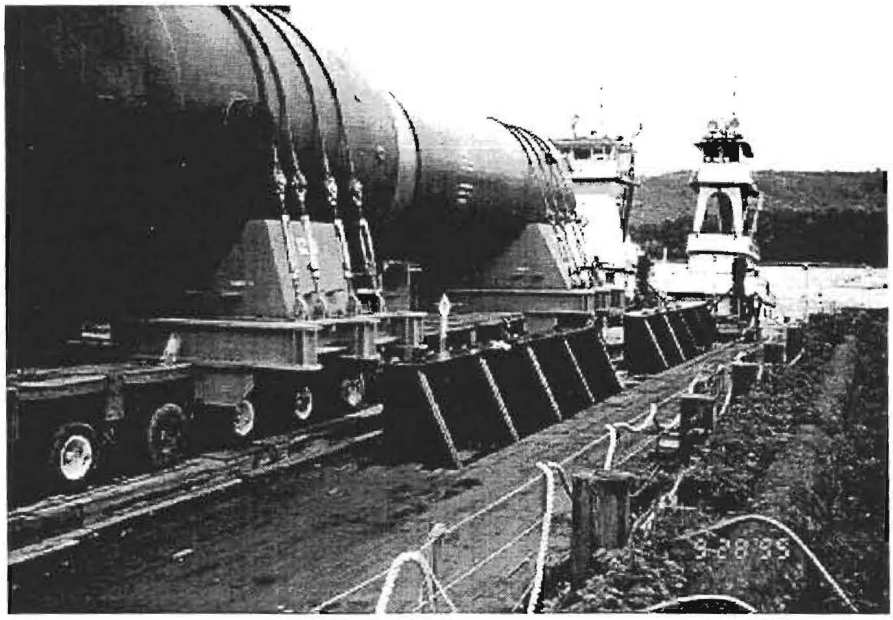


TABLE 3.1a

SCHEDULE OF ANNUAL EXPENDITURES
DECON UNIT 3
(WITH ON-SITE DRY FUEL STORAGE)
(1998 Dollars)[1]

Year	Labor	Equipment & Materials	Shipping	Burial	Other	Yearly Totals
2005	546,250	546,250	0	0	0	1,092,500
2006	546,250	546,250	0	0	0	1,092,500
2007	1,365,625	1,365,625	0	0	0	2,731,250
2008	2,048,438	2,048,438	0	0	0	4,096,875
2009	2,321,563	2,321,563	0	0	0	4,643,125
2010	0	0	0	0	0	0
2011	0	0	0	0	0	0
2012	15,409,440	5,107,536	103,169	1,635,893	1,200,475	23,456,513
2013	35,591,103	7,094,583	226,847	3,596,994	2,639,598	49,149,125
2014	30,760,580	9,664,359	857,082	7,745,165	1,250,268	50,277,454
2015	26,735,514	9,787,636	887,316	7,944,162	1,183,618	46,538,248
2016	19,936,082	8,942,500	889,747	7,965,927	1,206,739	38,940,995
2017	17,301,181	6,337,636	887,316	7,944,162	1,494,189	33,964,485
2018	17,301,181	6,337,636	887,316	7,944,162	1,255,500	33,725,796
2019	17,301,181	6,337,636	887,316	7,944,162	1,080,461	33,550,757
2020	6,124,691	4,663,396	47,111	421,784	524,851	11,781,833
2021	1,390,645	716,904	0	0	460,825	2,568,373
2022	658,356	29,731	0	0	455,196	1,143,283
2023	658,356	29,731	0	0	455,196	1,143,283
2024	660,160	29,813	0	0	456,443	1,146,416
2025	658,356	29,731	0	0	455,196	1,143,283
2026	658,356	29,731	0	0	455,196	1,143,283
2027	658,356	29,731	0	0	455,196	1,143,283
2028	660,160	29,813	0	0	456,443	1,146,416
2029	658,356	29,731	0	0	455,196	1,143,283
2030	658,356	29,731	0	0	455,196	1,143,283
2031	790,672	592,672	6,239	19,826,721	355,764	21,572,070
	201,399,210	72,678,364	5,679,461	72,969,134	16,751,544	369,477,713

Note: Columns may not add due to rounding

TABLE 3.1b

SCHEDULE OF ANNUAL EXPENDITURES
DECON UNIT 4
(WITH ON-SITE DRY FUEL STORAGE)
(1998 Dollars)[1]

Year	Labor	Equipment & Materials	Shipping	Burial	Other	Yearly Totals
2005	546,250	546,250	0	0	0	1,092,500
2006	546,250	546,250	0	0	0	1,092,500
2007	1,365,625	1,365,625	0	0	0	2,731,250
2008	2,048,438	2,048,438	0	0	0	4,096,875
2009	2,321,563	2,321,563	0	0	0	4,643,125
2010	0	0	0	0	0	0
2011	0	0	0	0	0	0
2012	0	0	0	0	0	0
2013	20,570,261	6,144,192	165,319	2,621,371	1,976,746	31,477,889
2014	31,479,676	8,049,702	414,728	5,128,635	2,384,498	47,457,240
2015	32,562,493	11,103,091	1,050,176	10,308,939	1,275,295	56,299,994
2016	31,170,388	11,124,058	1,053,053	10,337,183	1,278,789	54,963,471
2017	29,426,401	10,240,591	1,050,176	10,308,939	1,275,295	52,301,402
2018	26,838,901	7,653,091	1,050,176	10,308,939	1,536,984	47,388,090
2019	26,838,901	7,653,091	1,050,176	10,308,939	1,293,852	47,144,959
2020	13,238,800	6,688,043	55,758	547,339	531,960	21,061,900
2021	3,055,286	1,040,786	0	0	461,263	4,557,334
2022	1,375,589	43,163	0	0	455,290	1,874,042
2023	1,375,589	43,163	0	0	455,290	1,874,042
2024	1,379,358	43,281	0	0	456,538	1,879,177
2025	1,375,589	43,163	0	0	455,290	1,874,042
2026	1,375,589	43,163	0	0	455,290	1,874,042
2027	1,375,589	43,163	0	0	455,290	1,874,042
2028	1,379,358	43,281	0	0	456,538	1,879,177
2029	1,375,589	43,163	0	0	455,290	1,874,042
2030	1,375,589	43,163	0	0	455,290	1,874,042
2031	1,020,255	860,429	6,239	19,826,721	362,636	22,076,281
	235,417,327	77,773,904	5,895,799	79,697,005	16,477,426	415,261,461

Note: Columns may not add due to rounding

TABLE 3.2a
SCHEDULE OF ANNUAL EXPENDITURES
SAFSTOR, UNIT 3
(WITH ON-SITE DRY FUEL STORAGE)
(1998 Dollars)[1]

Year	Period 1 SAFSTOR Ops	Period 2 Dormancy	Period 3 D&D Prep	Period 4 Decontamination	Period 5 Site Restoration	ISFSI Eng. & Capital costs	Yearly Totals
2005	0	0	0	0	0	1,092,500	1,092,500
2006	0	0	0	0	0	1,092,500	1,092,500
2007	0	0	0	0	0	2,731,250	2,731,250
2008	0	0	0	0	0	4,096,875	4,096,875
2009	0	0	0	0	0	4,643,125	4,643,125
2010	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0
2012	13,252,561	0	0	0	0	6,900,000	20,152,561
2013	29,139,667	0	0	0	0	6,900,000	36,039,667
2014	1,357,190	6,906,300	0	0	0	6,900,000	15,163,490
2015	0	7,243,677	0	0	0	6,900,000	14,143,677
2016	0	7,263,523	0	0	0	5,175,000	12,438,523
2017	0	6,232,621	0	0	0	0	6,232,621
2018	0	3,695,258	0	0	0	0	3,695,258
2019	0	3,695,258	0	0	0	0	3,695,258
2020	0	3,705,382	0	0	0	0	3,705,382
2021	0	3,695,258	0	0	0	0	3,695,258
2022	0	3,695,258	0	0	0	0	3,695,258
2023	0	3,695,258	0	0	0	0	3,695,258
2024	0	3,705,382	0	0	0	0	3,705,382
2025	0	3,695,258	0	0	0	0	3,695,258
2026	0	3,695,258	0	0	0	0	3,695,258
2027	0	3,695,258	0	0	0	0	3,695,258
2028	0	3,705,382	0	0	0	0	3,705,382
2029	0	3,695,258	0	0	0	0	3,695,258
2030	0	3,695,258	0	0	0	0	3,695,258
2031	0	2,485,900	0	0	0	0	2,485,900
2032	0	2,384,113	0	0	0	0	2,384,113
2033	0	2,377,599	0	0	0	0	2,377,599
2034	0	2,377,599	0	0	0	0	2,377,599
2035	0	2,377,599	0	0	0	0	2,377,599
2036	0	2,384,113	0	0	0	0	2,384,113
2037	0	2,377,599	0	0	0	0	2,377,599
2038	0	2,377,599	0	0	0	0	2,377,599
2039	0	2,377,599	0	0	0	0	2,377,599
2040	0	2,384,113	0	0	0	0	2,384,113

TABLE 3.2a
SCHEDULE OF ANNUAL EXPENDITURES
SAFSTOR, UNIT 3
(WITH ON-SITE DRY FUEL STORAGE)
(1998 Dollars)
(cont'd)

Year	Period 1 SAFSTOR Ops	Period 2 Dormancy	Period 3 D&D Prep	Period 4 Decontamination	Period 5 Site Restoration	ISFSI Eng. & Capital costs	Yearly Totals
2041	0	2,377,599	0	0	0	0	2,377,599
2042	0	2,377,599	0	0	0	0	2,377,599
2043	0	2,377,599	0	0	0	0	2,377,599
2044	0	2,384,113	0	0	0	0	2,384,113
2045	0	2,377,599	0	0	0	0	2,377,599
2046	0	2,377,599	0	0	0	0	2,377,599
2047	0	2,377,599	0	0	0	0	2,377,599
2048	0	2,384,113	0	0	0	0	2,384,113
2049	0	2,377,599	0	0	0	0	2,377,599
2050	0	2,377,599	0	0	0	0	2,377,599
2051	0	2,377,599	0	0	0	0	2,377,599
2052	0	2,384,113	0	0	0	0	2,384,113
2053	0	2,377,599	0	0	0	0	2,377,599
2054	0	2,377,599	0	0	0	0	2,377,599
2055	0	2,377,599	0	0	0	0	2,377,599
2056	0	2,384,113	0	0	0	0	2,384,113
2057	0	2,377,599	0	0	0	0	2,377,599
2058	0	2,377,599	0	0	0	0	2,377,599
2059	0	2,377,599	0	0	0	0	2,377,599
2060	0	2,384,113	0	0	0	0	2,384,113
2061	0	2,377,599	0	0	0	0	2,377,599
2062	0	2,377,599	0	0	0	0	2,377,599
2063	0	2,377,599	0	0	0	0	2,377,599
2064	0	2,384,113	0	0	0	0	2,384,113
2065	0	2,377,599	0	0	0	0	2,377,599
2066	0	853,330	19,387,692	0	0	0	20,241,022
2067	0	0	30,021,818	8,670,086	0	0	38,691,904
2068	0	0	0	61,024,069	0	0	61,024,069
2069	0	0	0	62,349,441	0	0	62,349,441
2070	0	0	0	26,459,596	0	0	26,459,596
2071	0	0	0	12,051,697	0	0	12,051,697
2072	0	0	0	8,017,439	4,547,245	0	12,564,684
2073	0	0	0	0	6,437,365	0	6,437,365
	43,749,417	159,951,064	49,409,510	178,572,328	10,984,611	46,431,250	489,098,180

Note: Columns may not add due to rounding

TABLE 3.2b

SCHEDULE OF ANNUAL EXPENDITURES
SAFSTOR, UNIT 4
(WITH ON-SITE DRY FUEL STORAGE)
(1998 Dollars)[1]

Year	Period 1 SAFSTOR Ops	Period 2 Dormancy	Period 3 D&D Prep	Period 4 Decontamination	Period 5 Site Restoration	ISFSI Eng. & Capital costs	Yearly Totals
2005	0	0	0	0	0	1,092,500	1,092,500
2006	0	0	0	0	0	1,092,500	1,092,500
2007	0	0	0	0	0	2,731,250	2,731,250
2008	0	0	0	0	0	4,096,875	4,096,875
2009	0	0	0	0	0	4,643,125	4,643,125
2010	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0
2013	19,908,242	0	0	0	0	6,900,000	26,808,242
2014	21,105,730	1,338,328	0	0	0	6,900,000	29,344,058
2015	0	5,885,419	0	0	0	6,900,000	12,785,419
2016	0	5,901,543	0	0	0	6,900,000	12,801,543
2017	0	5,885,419	0	0	0	5,175,000	11,060,419
2018	0	3,921,644	0	0	0	0	3,921,644
2019	0	2,388,942	0	0	0	0	2,388,942
2020	0	2,395,487	0	0	0	0	2,395,487
2021	0	2,388,942	0	0	0	0	2,388,942
2022	0	2,388,942	0	0	0	0	2,388,942
2023	0	2,388,942	0	0	0	0	2,388,942
2024	0	2,395,487	0	0	0	0	2,395,487
2025	0	2,388,942	0	0	0	0	2,388,942
2026	0	2,388,942	0	0	0	0	2,388,942
2027	0	2,388,942	0	0	0	0	2,388,942
2028	0	2,395,487	0	0	0	0	2,395,487
2029	0	2,388,942	0	0	0	0	2,388,942
2030	0	2,388,942	0	0	0	0	2,388,942
2031	0	1,450,525	0	0	0	0	1,450,525
2032	0	1,370,232	0	0	0	0	1,370,232
2033	0	1,366,488	0	0	0	0	1,366,488
2034	0	1,366,488	0	0	0	0	1,366,488
2035	0	1,366,488	0	0	0	0	1,366,488
2036	0	1,370,232	0	0	0	0	1,370,232
2037	0	1,366,488	0	0	0	0	1,366,488
2038	0	1,366,488	0	0	0	0	1,366,488
2039	0	1,366,488	0	0	0	0	1,366,488
2040	0	1,370,232	0	0	0	0	1,370,232

TABLE 3.2b
SCHEDULE OF ANNUAL EXPENDITURES
SAFSTOR, UNIT 4
(WITH ON-SITE DRY FUEL STORAGE)
(1998 Dollars)
(cont'd)

Year	Period 1 SAFSTOR Ops	Period 2 Dormancy	Period 3 D&D Prep	Period 4 Decontamination	Period 5 Site Restoration	ISFSI Eng. & Capital costs	Yearly Totals
2041	0	1,366,488	0	0	0	0	1,366,488
2042	0	1,366,488	0	0	0	0	1,366,488
2043	0	1,366,488	0	0	0	0	1,366,488
2044	0	1,370,232	0	0	0	0	1,370,232
2045	0	1,366,488	0	0	0	0	1,366,488
2046	0	1,366,488	0	0	0	0	1,366,488
2047	0	1,366,488	0	0	0	0	1,366,488
2048	0	1,370,232	0	0	0	0	1,370,232
2049	0	1,366,488	0	0	0	0	1,366,488
2050	0	1,366,488	0	0	0	0	1,366,488
2051	0	1,366,488	0	0	0	0	1,366,488
2052	0	1,370,232	0	0	0	0	1,370,232
2053	0	1,366,488	0	0	0	0	1,366,488
2054	0	1,366,488	0	0	0	0	1,366,488
2055	0	1,366,488	0	0	0	0	1,366,488
2056	0	1,370,232	0	0	0	0	1,370,232
2057	0	1,366,488	0	0	0	0	1,366,488
2058	0	1,366,488	0	0	0	0	1,366,488
2059	0	1,366,488	0	0	0	0	1,366,488
2060	0	1,370,232	0	0	0	0	1,370,232
2061	0	1,366,488	0	0	0	0	1,366,488
2062	0	1,366,488	0	0	0	0	1,366,488
2063	0	1,366,488	0	0	0	0	1,366,488
2064	0	1,370,232	0	0	0	0	1,370,232
2065	0	1,366,488	0	0	0	0	1,366,488
2066	0	1,366,488	0	0	0	0	1,366,488
2067	0	954,670	5,285,871	0	0	0	6,240,540
2068	0	0	20,824,294	0	0	0	20,824,294
2069	0	0	4,314,324	50,030,768	0	0	54,345,093
2070	0	0	0	64,967,145	0	0	64,967,145
2071	0	0	0	64,371,475	0	0	64,371,475
2072	0	0	0	13,437,499	8,444,790	0	21,882,290
2073	0	0	0	0	11,954,974	0	11,954,974
	41,013,971	101,885,254	30,424,489	192,806,888	20,399,764	46,431,250	432,961,617

Note: Columns may not add due to rounding

4. SCHEDULE ESTIMATE

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

Figure 4.1 presents a schedule for the DECON decommissioning alternative; the assumptions supporting this schedule are listed in Section 4.1. The key activities listed in the schedule do not reflect a one-to-one correspondence with those activities in the Appendix C and D cost tables, but reflect dividing some activities for clarity and combining others for convenience. The schedule was prepared using the "Microsoft Project for Windows" computer software (Ref. 15).

4.1 SCHEDULE ESTIMATE ASSUMPTIONS

The schedule estimate 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 durations used in the precedence network reflect the actual man-hour estimates from the cost tables in Appendix E, 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.

- All work except vessel and internals removal activities is performed during an 8-hour workday, 5 days per week with no overtime. There are eleven paid holidays per year.

- The Fuel Handling Building will continue to serve as the spent fuel storage building/transfer facility until such time that all spent fuel can be transferred to the ISFSI. Each unit's Fuel Handling Building (spent fuel pool) operation is assumed to last approximately five years and 2 months after the cessation of operations at Unit 3 and Unit 4.

- Reactor and internals removal activities are performed by using separate crews for different activities working on different shifts, with a corresponding backshift charge for the second shift.

- Multiple crews work parallel activities to the maximum extent possible consistent with optimum efficiency, adequate access for cutting, removal and laydown space, and with the stringent safety measures necessary during demolition of heavy components and structures.

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

4.2 PROJECT SCHEDULE

The period-dependent costs presented in the Appendix C and D cost tables are based upon the durations developed in the schedule for each decommissioning alternative. 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 was used as the basis for determining the period-dependent costs.

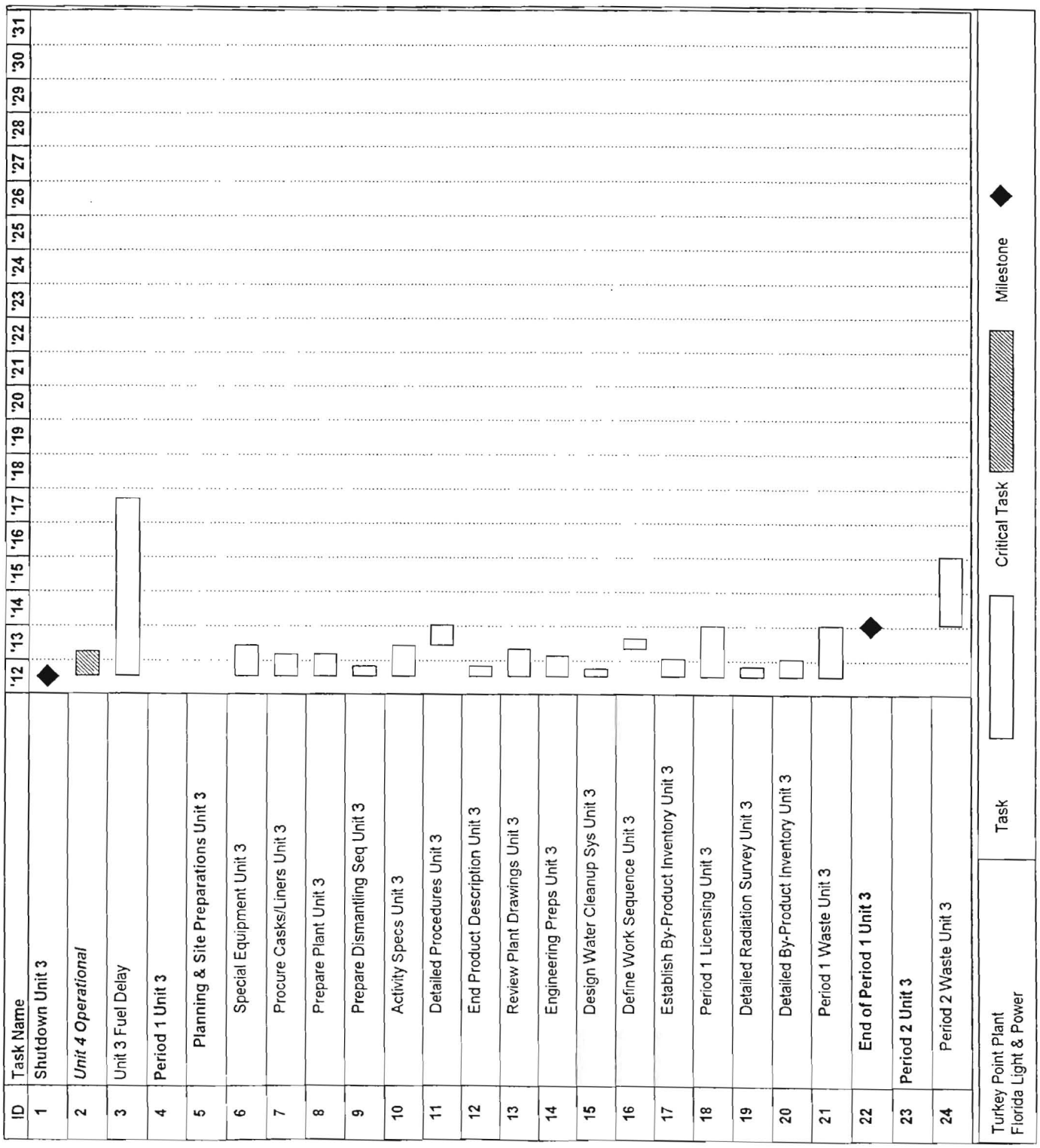
Project timelines for the DECON and SAFSTOR alternatives are included in this section as Figures 4.2a through 4.2b. Deferred decommissioning in the SAFSTOR scenarios is assumed to commence such that the termination of the site licenses is accomplished within 60 years of final shutdown.

4.3 SPENT FUEL SCHEDULE

FP&L is assumed to develop an ISFSI at Turkey Point to prevent a loss of full core off-load reserve capacity in 2010 for Unit 3 and 2011 for Unit 4. The ISFSI will be sized to accommodate 120 storage modules and will be in operation from 2010 through 2031. Six modules (5%) are necessary to permit the plant to operate to the end of the operating licenses of each unit. The remaining capacity (95%) is necessary to facilitate timely decommissioning of the plant. As such, only 95% of the total capital/construction costs have been included in the cost estimates. Likewise, only the canister/module acquisition costs necessary to accommodate the transfer of fuel subsequent to plant shut down have been included. The cost estimates do not include the costs associated with construction and canister/module acquisition which are required to reach end of license.

FIGURE 4.1

DECON ACTIVITY SCHEDULE



TLG Services, Inc.

FIGURE 4.1
DECON ACTIVITY SCHEDULE
(Continued)

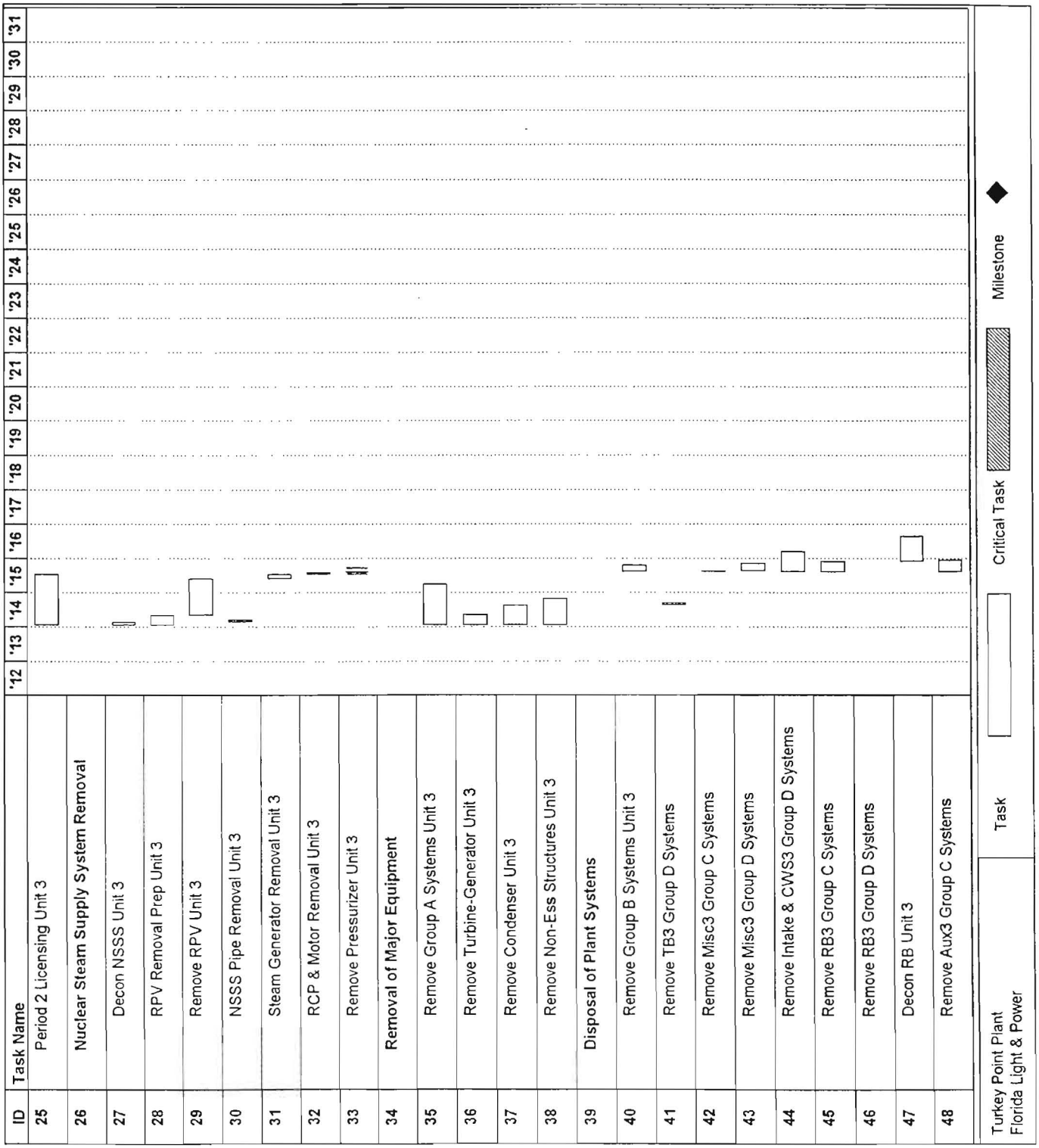


FIGURE 4.1
DECON ACTIVITY SCHEDULE
(Continued)

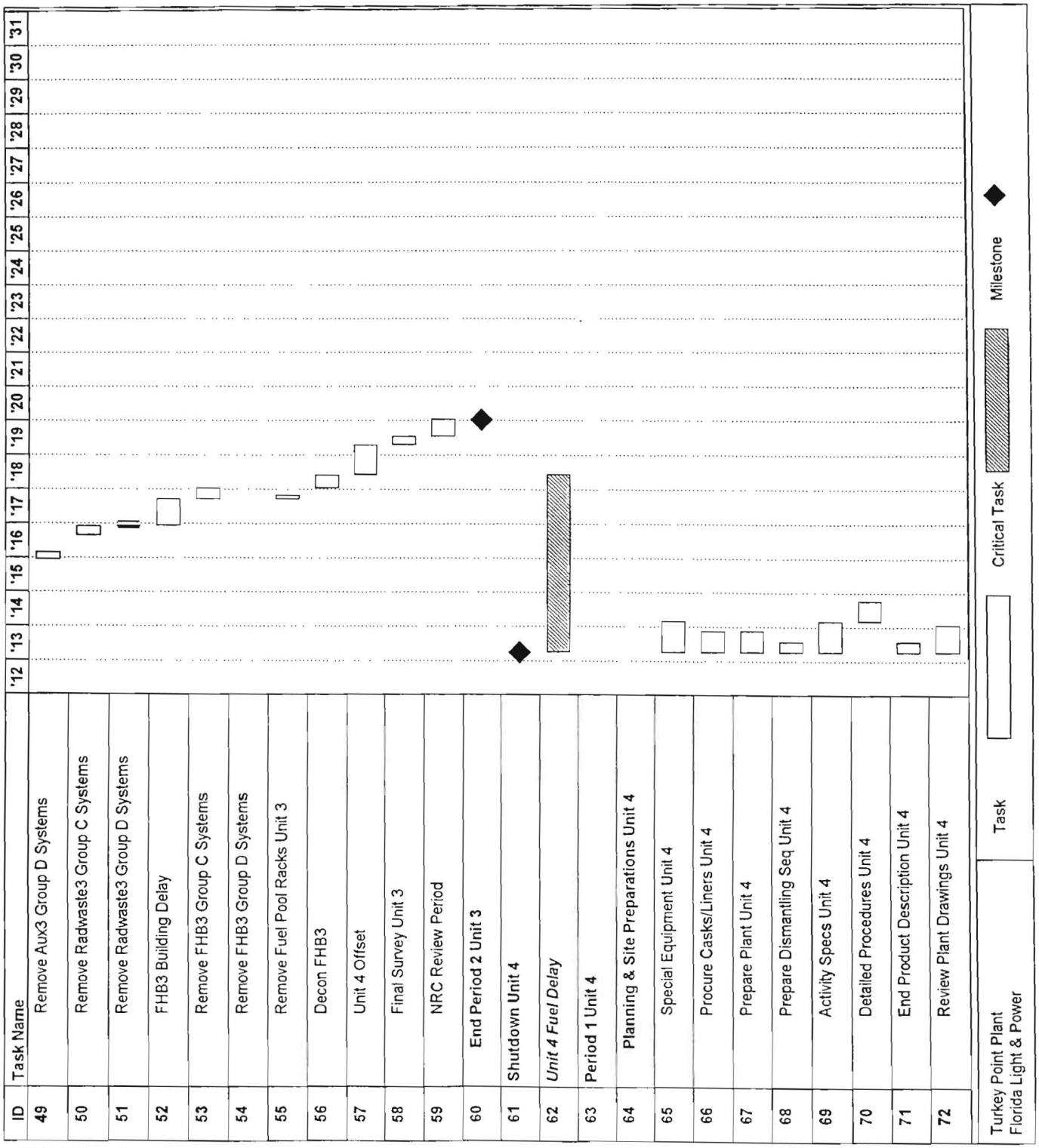


FIGURE 4.1
DECON ACTIVITY SCHEDULE
(Continued)

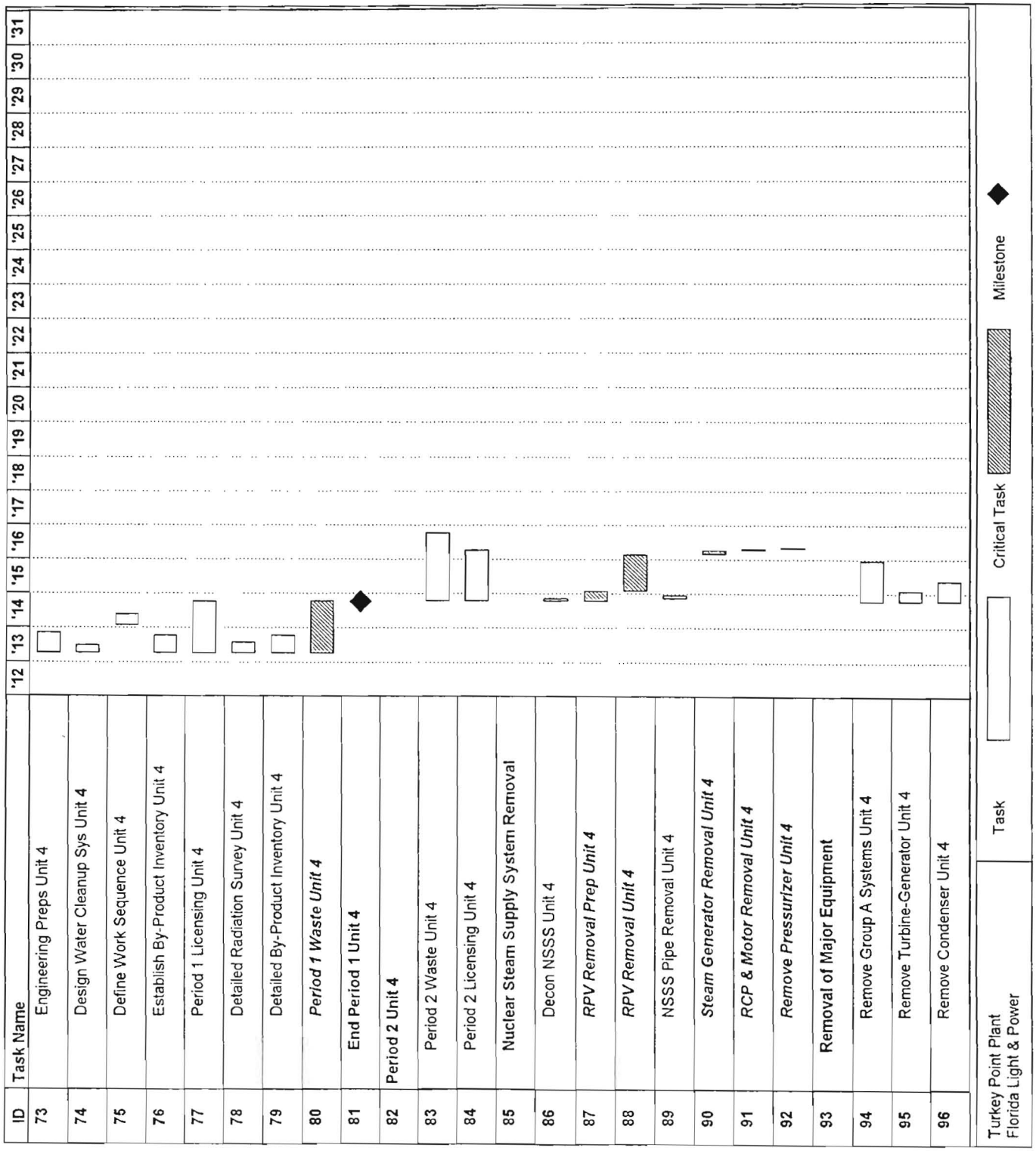


FIGURE 4.1
DECON ACTIVITY SCHEDULE
(Continued)

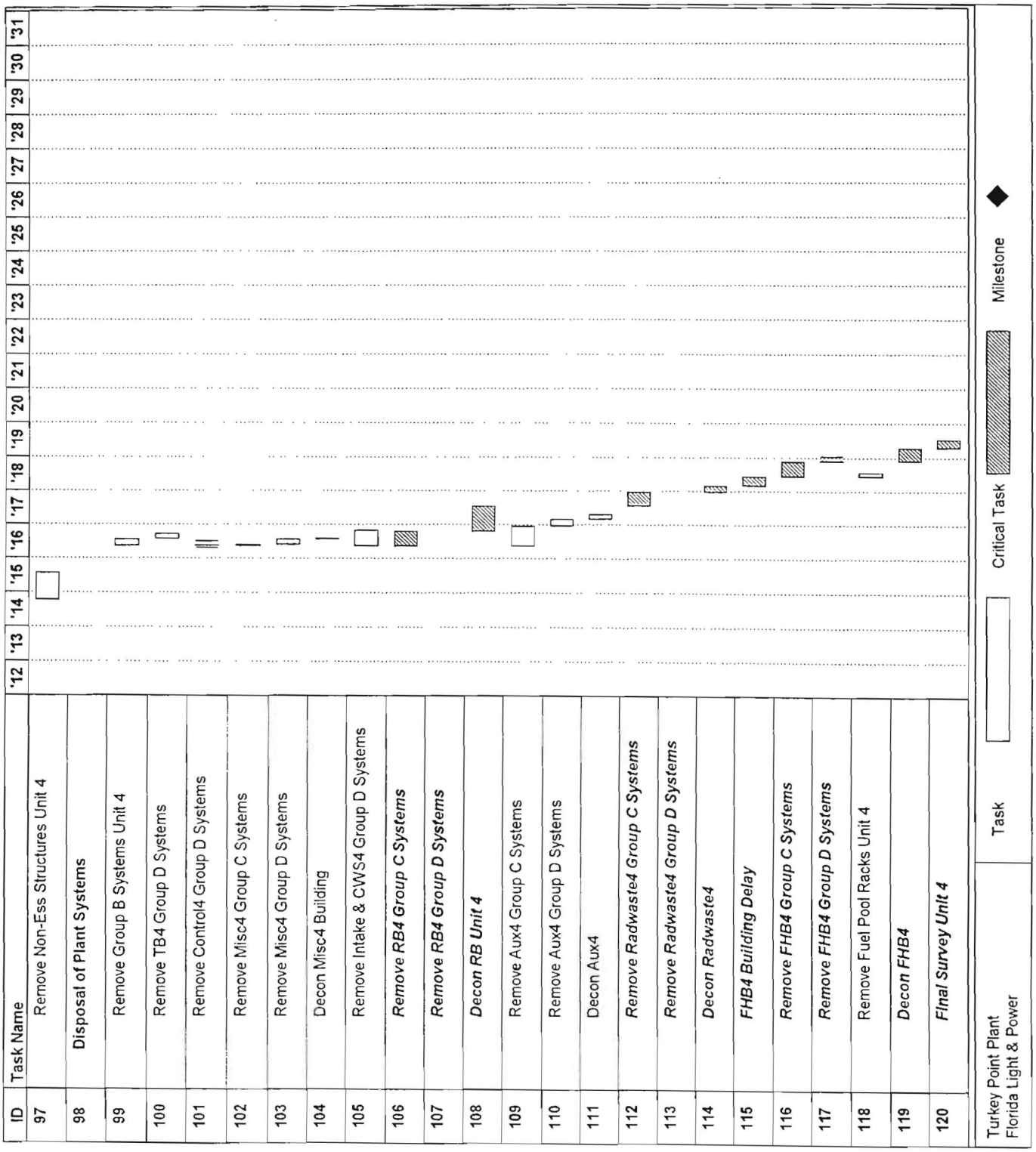


FIGURE 4.1
DECON ACTIVITY SCHEDULE
(Continued)

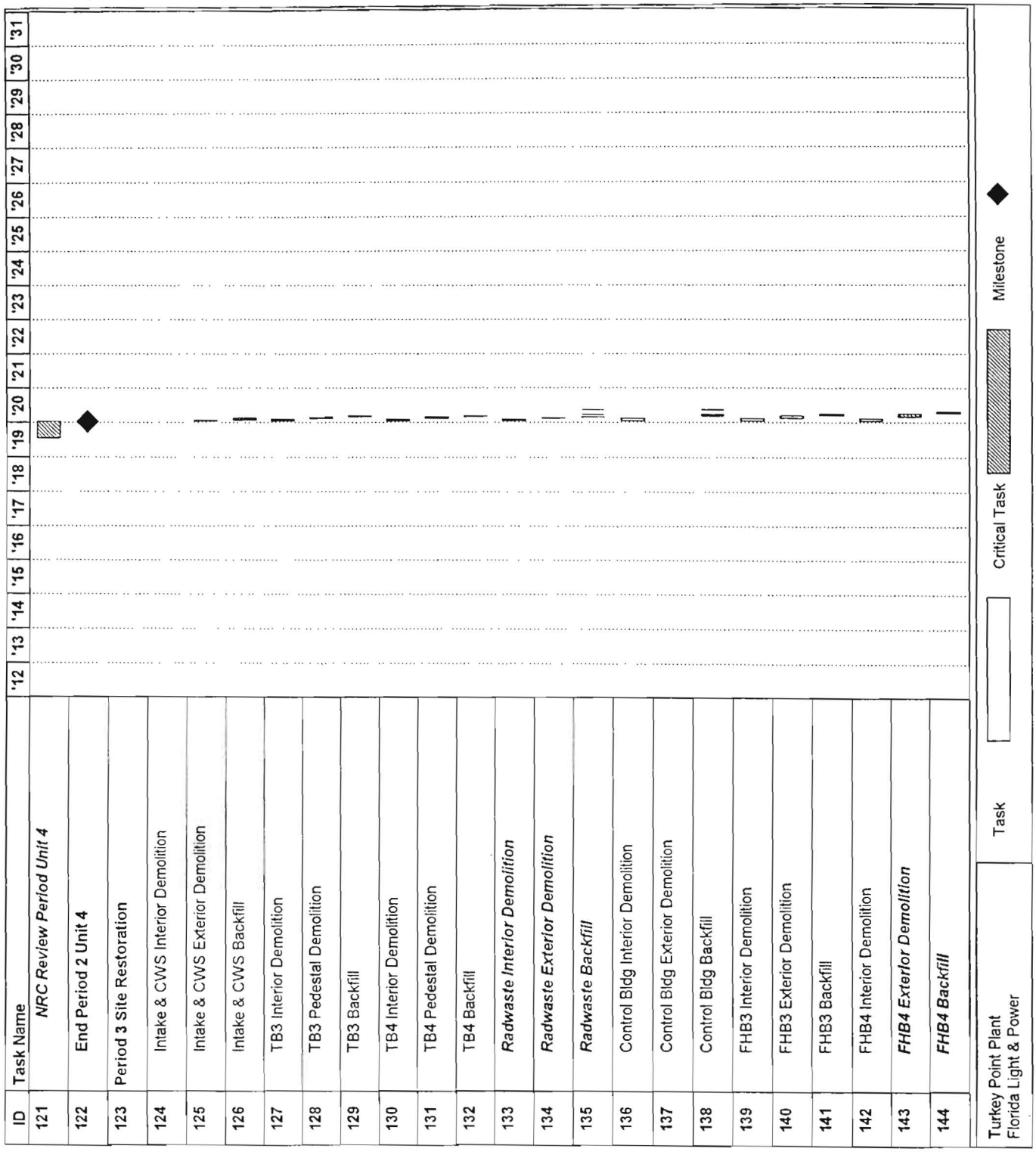


FIGURE 4.1
DECON ACTIVITY SCHEDULE
(Continued)

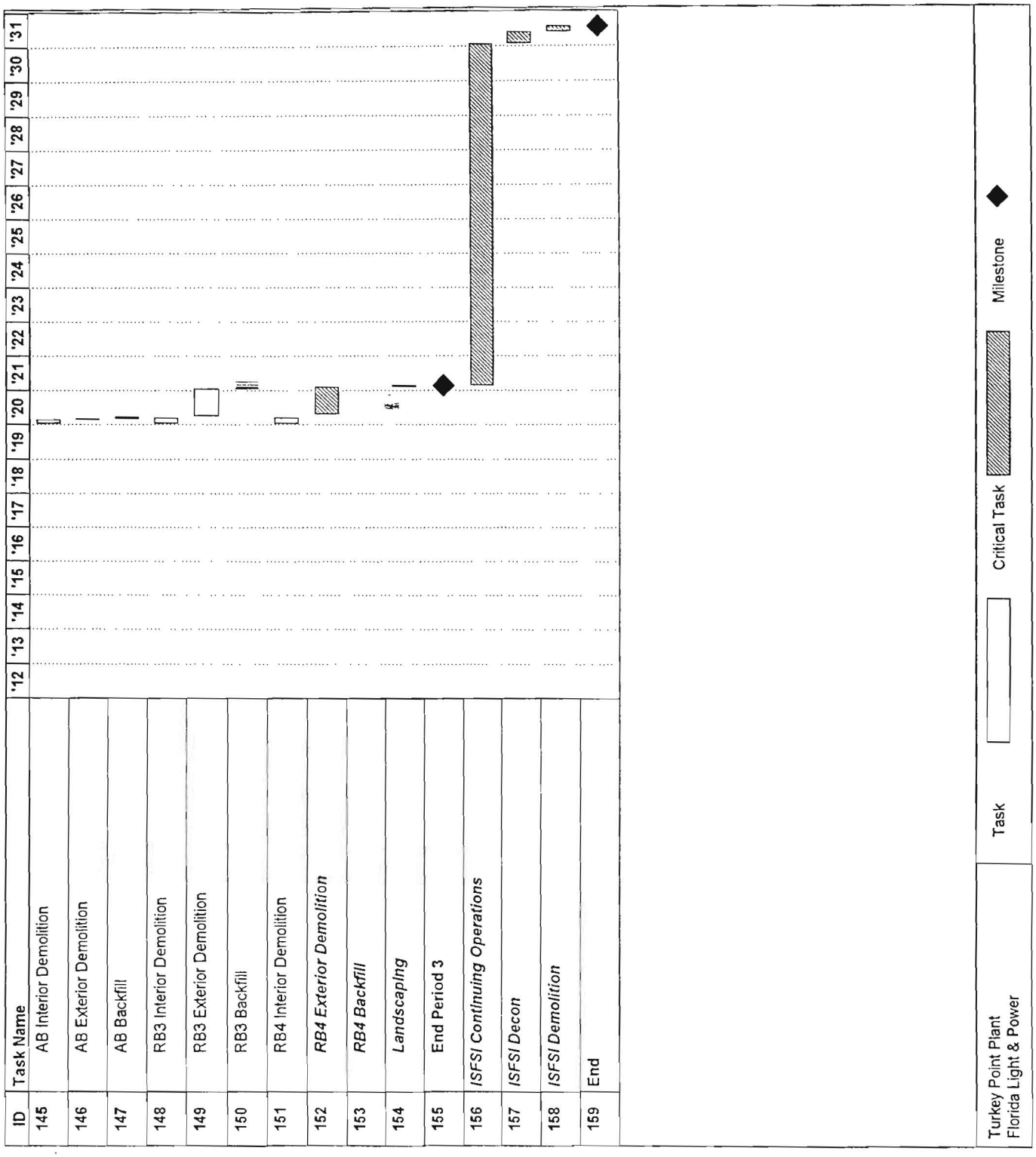
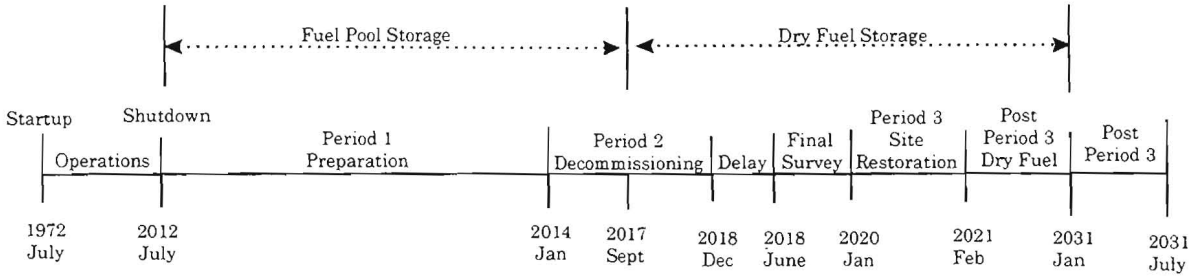


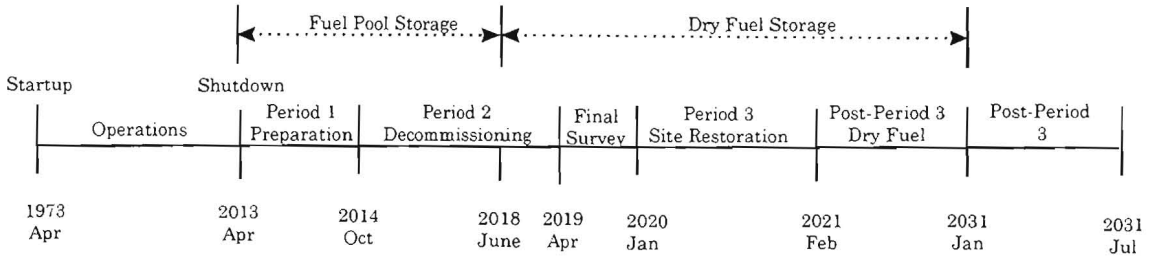
FIGURE 4.2a

DECON DECOMMISSIONING TIMELINES

TURKEY POINT UNIT 3



TURKEY POINT UNIT 4

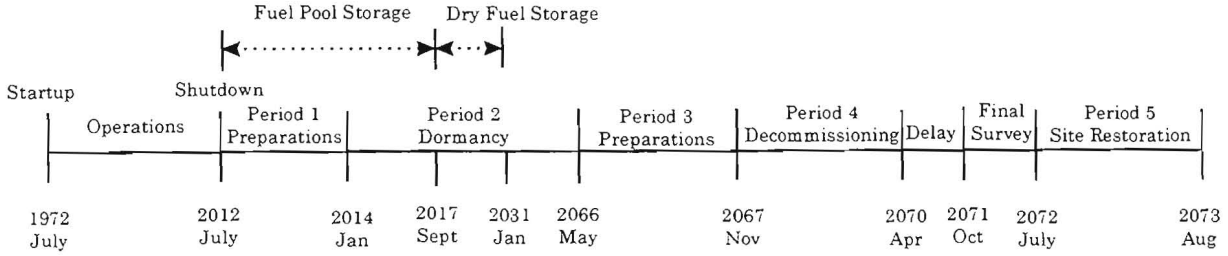


NOT TO SCALE

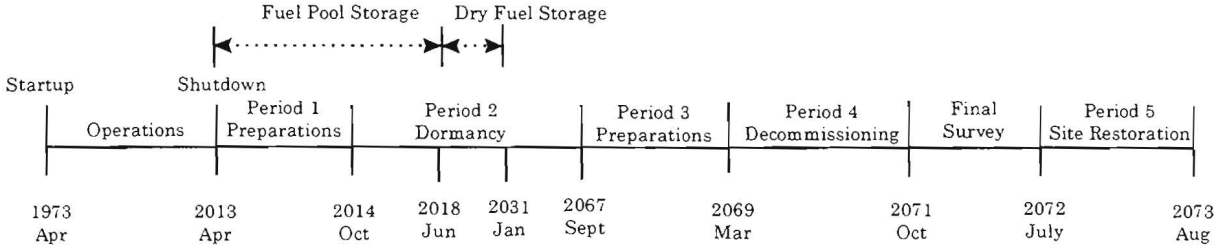
FIGURE 4.2b

SAFSTOR DECOMMISSIONING TIMELINES

TURKEY POINT UNIT 3



TURKEY POINT UNIT 4



NOT TO SCALE

5. RADIOACTIVE WASTES

The goal of the decommissioning program is the removal of all radioactive material from the site which would restrict its future use and termination of the NRC license for the site. This currently requires the remediation of all radioactive material at the site in excess of applicable legal limits. Under the Atomic Energy Act (Ref. 16), 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, §61 controls the burial of low-level radioactive material and §71 defines radioactive material.

With increased competition from the waste recyclers and decreasing volumes (and revenues), the Barnwell facility has recently modified its past pricing policies for controlled disposal from one of volume to one based upon weight. This effectively mitigated the advantages of volume reduction, unless the mass is also reduced, e.g., through decontamination and free-release of the material. The masses and volumes of radioactive waste generated during the various decommissioning activities at the site are shown on a line-item basis in the Appendices C and D cost tables and summarized in Table 5.1. Waste volume summaries, shown in Table 5.1, are quantified consistent with §61 classifications. The volumes are calculated based on the gross container dimensions or, for components serving as their own waste container, the volume is calculated based upon the displaced volume of the component, i.e., steam generators and pressurizer.

Most of the materials being transported for controlled burial are categorized as LSA or SCO material containing Type A quantities, as defined in 49 CFR §173-178 (Ref. 17). Shipping containers are required to be Industrial Packages (IP-1 or IP-2). 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, penetrations, etc.

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. The steam generators are presumed to be shipped intact for disposal.

No process system that contains/handles radioactive substances at shutdown is presumed to meet material release criteria by decay alone, i.e., systems radioactive at shutdown will still be radioactive in a deferred decommissioning alternative 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 volume generated in the decontamination and dismantling of the Turkey Point units is primarily generated during Period 2 of DECON and Period 4 of SAFSTOR. Contaminated and activated material will be characterized on site with a significant volume routed for additional processing. Components with low levels of removable surface contamination will be decontaminated on site, to the maximum extent possible. Components with low levels of internal contamination will be shipped to a waste recycling center for disassembly, decontamination, volume reduction, and/or repackaging. Heavily contaminated components and activated materials are generally routed for controlled disposal after on-site volume reduction.

Due to the lack of progress in siting the Southeast Compact regional burial facility within the host state of North Carolina, all LLW generated in the decontamination and dismantling of the Turkey Point Plant is assumed destined for disposal at the existing Chem Nuclear Systems, Inc., Barnwell LLW Management Facility (Barnwell) in South Carolina. However, much of the radioactive metallic waste shipped from Turkey Point site will eventually be released as clean scrap by a recycling vendor. Other waste processors may be used to minimize the total cost of waste disposal.

Non-compactable (metallic) radioactive waste generated from removal of the plant equipment is assumed to be sent to an off-site vendor for recycling as a means of reducing the ultimate disposal volume. Considering typical plant conditions and industry experience, the inventory of contaminated material at the Turkey Point Plant was segregated based on the likelihood of volume reduction and decontamination for radiological free release. The burial volumes reported in Tables 5.1a and b reflect the savings resulting from reprocessing and recycling. Off-site processing of non-compactable metallic waste appears as an "other" cost in the detailed decommissioning cost tables in Appendices C and D.

TABLE 5.1a

DECOMMISSIONING RADIOACTIVE WASTE BURIAL SUMMARY (DECON)

	Waste Class[1]	Volume[2] (Cubic feet)	Weight (Pounds)
Unit 3	A	68,396	
	B	9,683	
	C	1,020	
	>C	553	
Total			**9,197,702**
Unit 4	A	79,532	
	B	11,721	
	C	1,020	
	>C	553	
Total			**10,417,732**

1 Waste is classified according to the requirements as delineated in Title 10 of the Code of Federal Regulations, Part 61.55

2 Columns may not add due to rounding.

TABLE 5.1b

DECOMMISSIONING RADIOACTIVE WASTE BURIAL SUMMARY (SAFSTOR)

	Waste Class[1]	Volume[2] (Cubic feet)	Weight (Pounds)
Unit 3	A	73,148	
	B	4,545	
	C	1,020	
	>C	553	
Total			**8,303,873**
Unit 4	A	82,807	
	B	4,730	
	C	1,020	
	>C	553	
Total			**9,168,712**

1 Waste is classified according to the requirements as delineated in Title 10 of the Code of Federal Regulations, Part 61.55

2 Columns may not add due to rounding.

6. RESULTS

The projected costs for the DECON alternative to decommission the Turkey Point Plants, Units 3 and 4, are estimated to be $369.5 and $415.3 million, respectively, in 1998 dollars. The projected costs for the SAFSTOR alternatives are estimated to be $489.1 million and $433.0 million, respectively. The costs reflect the site-specific features of Turkey Point, the local cost of labor, a schedule for spent fuel receipt, and a projected cost for LLW disposal at the burial site. Analyses of the major activities contributing to the total cost for each of the decommissioning alternatives are provided in Tables 6.1 and 6.2. Appendix C contains a detailed list of cost by "activity description" for each decommissioning alternative (by Unit), based on the requirement that an on-site ISFSI is constructed and maintained. Appendix D contains a detailed list of costs by "activity description" for each decommissioning alternative (by Unit), assuming that an on-site ISFSI is not required.

Staffing, including management, security, and health physics combine with the removal labor cost to represent the majority of the costs to decommission a nuclear station. This is a direct result of the labor-intensive nature of the decommissioning process, as well as the management controls required to ensure a safe and successful program. LLW disposal (burial) represents the next largest cost component. These costs are indicative of the expense incurred in siting, developing, and licensing new disposal facilities. Packaging and transportation costs are most sensitive to the waste volume generated in the decontamination and dismantling process, the volume reduction achieved, transport regulations for LLW, and the final destination (i.e., distance to the disposal site). "Other" costs include off-site waste reprocessing expenses which can also be considered as "decontamination" expenditures, as well as true incidentals such as property taxes, engineering costs, insurance, and fees.

In most situations, the DECON alternative is the preferred mode of decommissioning. This alternative is favored because it eliminates the costs for caretaking and prevents the site from becoming a potential long-term safety hazard. More importantly, the individuals familiar with the operation of the nuclear facility are available to support the dismantling effort; plant systems and services are fully functional; structural integrity is intact; and the licensee has a comprehensive management organization available to oversee/conduct the orderly decontamination and termination of the NRC licenses for the site. For FP&L, the DECON alternative is a valid and cost-effective option; it is also the least expensive option prior to any time value of money calculations.

For the SAFSTOR scenario, the construction of barriers and the general decontamination of plant areas in preparation for long-term storage does not alleviate the need for continued surveillance. The structural integrity of facilities must be maintained to support eventual decontamination and dismantling activities. It is

expected that a full-time preventive and corrective maintenance staff will be needed to maintain essential site services and prevent the deterioration of the site facilities. Peripheral structures will have to be maintained or remediated where asbestos and other hazardous and toxic material could enter the environment through degradation, weathering, or insufficient maintenance of site structures.

The NRC has become increasingly concerned over the maintenance, or lack of maintenance, at shutdown facilities. As such, the decommissioning estimates for placing a facility in dormancy have become increasingly more costly. The commitment to maintain fuel storage support facilities at the site for a minimum of five years following the cessation of plant operations is stipulated by the DOE's transfer policy, irrespective of the intended decommissioning plans for the facility. This will require the continued operation of several plant systems and a cognizant operations staff. Considerable progress in the decontamination and dismantling (of systems and facilities nonessential to spent fuel storage) can be made during the initial wet storage period in a program such as DECON. By comparison, at the conclusion of the transfer activity and the placement of the facility into safe storage (SAFSTOR), the physical plant is relatively unchanged, deferring the cleanup and dismantling of the facility to a later time.

The caretaking of a dormant facility has also become more costly. The NRC's review of currently dormant facilities has resulted in a general increase in the level of maintenance required, as well as the on-site presence of the owners/operators of the sites. Currently, licensees are required to complete the decommissioning process (culminating in the termination of the NRC site licenses) within a period of 60 years. This translates into an available safe storage period of approximately 50 years during which the owner/operator would continue to maintain the property, replace roofing, and repair and upgrade surveillance and monitoring systems, lighting and communication equipment, rainwater collection, sampling and treatment equipment, etc. At the conclusion of this phase, release of the facility from the jurisdiction of the NRC will still require remediation of the property. The delay in decommissioning will not dramatically alter the cleanup requirements, i.e., the quantities of waste to be remediated will be comparable to those addressed in the DECON alternative. Although the radiation levels within the plant will have decreased substantially over the period of decay, the presence of long-lived radioisotopes will control the removal and disposal techniques used in the decontamination and dismantling of plant systems and facilities. As such, the cost savings in postponing decommissioning are relatively small and the risk that regulatory and waste disposal requirements will become more restrictive is relatively high.

Thus, for reasons provided above, the SAFSTOR cost estimate is shown to exceed that for a comparable DECON alternative (in the same year's dollars). The magnitude of

the differential is dependent on the length of the dormancy, caretaking, and other utility housekeeping costs, e.g., taxes, insurance and fees.

This study provides an estimate for decommissioning the site under current requirements based on present-day costs and available technology. Individual costs associated with decommissioning activities have increased at rates greater than general inflation. For example, there has been significant volatility in the issues and policies surrounding waste disposal, i.e., access and cost of LLRW disposal has been unpredictable and has escalated at rates historically greater than inflation (over the past ten years). The government's high-level waste program has experienced a series of delays which have impeded the prompt decommissioning of the commercial reactors retired to date. Waste disposal has become the primary driver in the escalation of decommissioning costs. It is therefore appropriate that this cost estimate be reviewed periodically.

TABLE 6.1a

SUMMARY OF DECOMMISSIONING COST CONTRIBUTORS
DECON, UNIT 3
(Thousands of 1998 Dollars) [1]

Work Category	Total Cost	Percent of Total Costs
Staffing	124,110	33.59
LLRW Burial	49,672	13.44
ISFSI Capital Expenditure	46,431	12.57
Removal	26,272	7.11
GTCC disposal	18,533	5.02
Engineering & planning costs	16,244	4.40
Heavy Equipment Rental	12,746	3.45
Security Services	9,106	2.46
Packaging	8,010	2.17
Insurance	6,288	1.70
Fixed Overhead	6,257	1.69
Decontamination	6,094	1.65
Shipping	5,672	1.54
Property Taxes	4,321	1.17
Plant Energy Budget	3,983	1.08
Mixed/Hazardous Waste	3,782	1.02
License Termination Survey	3,302	0.89
NRC & Emergency Planning Fees	3,047	0.82
NRC ISFSI Fees	2,884	0.78
ISFSI Removal	2,857	0.77
Health Physics Supplies	2,354	0.64
Decon Equipment & Supplies	1,556	0.42
Waste Conditioning / Recycling	1,108	0.30
Site Characterization	1,050	0.28
Asbestos abatement	610	0.17
Remaining Costs	3,188	0.86
Total	369,478	100.00

Note 1: Columns many not add due to rounding

TABLE 6.1b

SUMMARY OF DECOMMISSIONING COST CONTRIBUTORS
DECON, UNIT 4
(Thousands of 1998 Dollars) [1]

Work Category	Total Cost	Percent of Total Costs
Staffing	153,133	36.88
LLRW Burial	56,085	13.51
ISFSI Capital Expenditure	46,431	11.18
Removal	35,306	8.50
GTCC disposal	18,533	4.46
Heavy Equipment Rental	11,454	2.76
Security Services	11,162	2.69
Engineering & planning costs	9,250	2.23
Decontamination	8,795	2.12
Packaging	8,141	1.96
License Termination Survey	7,647	1.84
Insurance	6,185	1.49
Shipping	5,888	1.42
Fixed Overhead	5,652	1.36
Property Taxes	4,156	1.00
Plant Energy Budget	4,048	0.97
Mixed/Hazardous Waste	3,782	0.91
Health Physics Supplies	3,077	0.74
ISFSI Removal	2,857	0.69
NRC & Emergency Planning Fees	2,803	0.67
NRC ISFSI Fees	2,771	0.67
Decon Equipment & Supplies	1,725	0.42
Waste Conditioning / Recycling	1,460	0.35
Site Characterization	1,291	0.31
Asbestos abatement	610	0.15
Remaining Costs	3,019	0.73
Total	415,261	100.00

Note 1: Columns many not add due to rounding

TABLE 6.2a

SUMMARY OF DECOMMISSIONING COST CONTRIBUTORS
SAFSTOR, UNIT 3
(Thousands of 1998 Dollars) [1]

Work Category	Total Cost	Percent of Total Costs
Staffing	196,073	40.09
ISFSI Capital Expenditure	46,431	9.49
LLRW Burial	41,968	8.58
Removal	23,821	4.87
Security Services	22,330	4.57
Engineering & planning costs	20,749	4.24
GTCC disposal	18,533	3.79
Property Taxes	13,872	2.84
NRC & Emergency Planning Fees	12,411	2.54
Plant Energy Budget	12,297	2.51
Heavy Equipment Rental	10,776	2.20
Fixed Overhead	10,769	2.20
Insurance	9,523	1.95
Packaging	7,670	1.57
Health Physics Supplies	5,387	1.10
Shipping	5,270	1.08
Mixed/Hazardous Waste	3,782	0.77
Decontamination	3,343	0.68
License Termination Survey	3,302	0.68
NRC ISFSI Fees	2,885	0.59
ISFSI Removal	2,857	0.58
Decon Equipment & Supplies	1,765	0.36
Site Characterization	1,591	0.33
Waste Conditioning / Recycling	1,108	0.23
Asbestos abatement	610	0.12
Remaining Costs	9,973	2.04
Total	489,098	100.00

Note 1: Columns many not add due to rounding

TABLE 6.2b

SUMMARY OF DECOMMISSIONING COST CONTRIBUTORS
SAFSTOR, UNIT 4
(Thousands of 1998 Dollars) [1]

Work Category	Total Cost	Percent of Total Costs
Staffing	145,624	33.63
ISFSI Capital Expenditure	46,431	10.72
LLRW Burial	46,390	10.71
Removal	32,553	7.52
GTCC disposal	18,533	4.28
Property Taxes	13,707	3.17
NRC & Emergency Planning Fees	12,221	2.82
Engineering & planning costs	11,176	2.58
Plant Energy Budget	10,642	2.46
Security Services	9,865	2.28
Fixed Overhead	9,704	2.24
Insurance	9,314	2.15
Heavy Equipment Rental	8,356	1.93
Packaging	7,680	1.77
License Termination Survey	7,647	1.77
Health Physics Supplies	5,907	1.36
Shipping	5,294	1.22
Decontamination	4,156	0.96
Mixed/Hazardous Waste	3,782	0.87
ISFSI Removal	2,857	0.66
NRC ISFSI Fees	2,772	0.64
Decon Equipment & Supplies	2,107	0.49
Site Characterization	1,733	0.40
Waste Conditioning / Recycling	1,460	0.34
Asbestos abatement	610	0.14
Remaining Costs	12,438	2.87
Total	432,962	100.00

Note 1: Columns many not add due to rounding

7. REFERENCES

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

2. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," August, 1990.

3. U.S. Code of Federal Regulations, Title 10, Parts 2, 50 and 51, "Decommissioning of Nuclear Power Reactors," Nuclear Regulatory Commission, Federal Register Volume 61 (p39278+), July 29, 1996.

4. "Nuclear Waste Policy Act of 1982 and Amendments," U.S. Department of Energy's Office of Civilian Radioactive Management, 1982.

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

6. U.S. Code of Federal Regulations, Title 10, Part 20, Subpart E -"Radiological Criteria for License Termination", Federal Register, Volume 62, Number 139 (p39058t), July 21, 1997.

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

8. W.J. Manion and T.S. LaGuardia, "Decommissioning Handbook," U.S. Department of Energy, DOE/EV/10128-1, November, 1980.

9. "Building Construction Cost Data 1998," Robert Snow Means Company, Inc., Kingston, Massachusetts.

10. Project and Cost Engineers' Handbook, Second Edition, p. 239, American Association of Cost Engineers, Marcel Dekker, Inc., New York, New York.

11. Tri-State Motor Transit Company, published tariffs, Interstate Commerce Commission (ICC), Docket No. MC-109397 and Supplements, 1998.

7. REFERENCES
(continued)

12. J.C. Evans et al., "Long-Lived Activation Products in Reactor Materials," NUREG/CR-3474, Pacific Northwest Laboratory for the Nuclear Regulatory Commission, August, 1984.

13. R.I. Smith, G.J. Konzek, W.E. Kennedy, Jr., "Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station," NUREG/CR-0130 and addenda, Pacific Northwest Laboratory for the Nuclear Regulatory Commission, June, 1978.

14. H.D. Oak, et al., "Technology, Safety and Costs of Decommissioning a Reference Boiling Water Reactor Power Station," NUREG/CR-0672 and addenda, Pacific Northwest Laboratory for the Nuclear Regulatory Commission, June, 1980.

15. "Microsoft Project for Windows," Version 3.0, Microsoft Corporation, Redmond, WA, 1993.

16. "Atomic Energy Act" of 1954," (68 Stat. 919).

17. U.S. Department of Transportation, Section 49 of the Code of Federal Regulations, "Transportation," Parts 173 through 178, 1996.

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 packing area.

2. CALCULATIONS

Act ID	Activity Description	Activity Duration	Critical Duration
a	Remove insulation	60	(b)
b	Mount pipe cutters	60	60
c	Install contamination controls	20	(b)
d	Disconnect inlet and outlet lines	60	60
e	Cap openings	20	(d)
f	Rig for removal	30	30
g	Unbolt from mounts	30	30
h	Remove contamination controls	15	15
i	Remove, wrap in plastic, send to packing area	60	60
	Totals (Activity/Critical)	355	255
Duration adjustment(s):			
+ Respiratory protection adjustment (50% of critical duration)			128
+ Radiation/ALARA adjustment (40% of critical duration)			102
	Adjusted work duration		485
+ Protective clothing adjustment (30% of adjusted duration)			146
Productive work duration			631
+ Work break adjustment (8.33 % of productive duration)			53
Total work duration min			684 min

***** Total duration = 11.400 hr *****

APPENDIX A
(continued)

3. LABOR REQUIRED

Crew	Number	Duration (hr)	Rate ($/hr)	Cost
Laborers	3.00	11.400	$17.63	$602.95
Craftsmen	2.00	11.400	$26.71	$608.99
Foreman	1.00	11.400	$29.86	$340.40
General Foreman	0.25	11.400	$31.21	$88.95
Fire Watch	0.05	11.400	$17.63	$10.05
Health Physics Technician	1.00	11.400	$34.14	$389.20
Total labor cost				$2,040.54

4. EQUIPMENT & CONSUMABLES COSTS

Equipment Costs	none
Consumables/Materials Costs	
-Blotting paper 50 @ $0.36 sq ft {2}	$18.00
-Plastic sheets/bags 50 @ $0.08/sq ft {3}	$4.00
-Gas torch consumables 1 @ $6.08/hr x 1 hr {1}	$6.08
Subtotal cost of equipment and materials	$28.08
Overhead & profit on equipment and materials @ 16.500%	$4.63
Total costs, equipment & material	$32.71
TOTAL COST Removal of contaminated heat exchanger <3000 pounds:	**$2,073.25**
Total labor cost:	$2,040.54
Total equipment/material costs:	$32.71
Total adjusted exposure man-hours incurred:	46.924
Total craft labor man-hours required per unit:	83.220

APPENDIX A
(continued)

5. NOTES AND REFERENCES

1. Durations are shown in minutes. The integrated duration accounts for those activities that can be performed in conjunction with other activities, indicated by the alpha designator of the concurrent activity. This results in an overall decrease in the sequenced duration.

2. Work difficulty factors were developed in conjunction with the AIF program to standardize decommissioning cost studies and are delineated in the "Guidelines" study (Vol. 1, Ch. 5).

3. Adjusted for regional material costs for Richmond, VA.

4. References:

1. R.S. Means (1998) Division 016 Section 420-6360 pg 22
2. McMaster-Carr Ed. 101
3. R.S. Means (1998) Division 015 Section 602-0200 pg 16

APPENDIX B

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

APPENDIX B

UNIT COST FACTOR LISTING
(Power Block Structures Only)

Unit Cost Factor	Cost/Unit($)
Removal of clean instrument and sampling tubing, $/linear foot	0.21
Removal of clean pipe 0.25 to 2 inches diameter, $/linear foot	2.59
Removal of clean pipe >2 to 4 inches diameter, $/linear foot	3.15
Removal of clean pipe >4 to 8 inches diameter, $/linear foot	6.31
Removal of clean pipe >8 to 14 inches diameter, $/linear foot	11.98
Removal of clean pipe >14 to 20 inches diameter, $/linear foot	15.57
Removal of clean pipe >20 to 36 inches diameter, $/linear foot	22.91
Removal of clean pipe >36 inches diameter, $/linear foot	27.22
Removal of clean valves >2 to 4 inches	32.71
Removal of clean valves >4 to 8 inches	63.13
Removal of clean valves >8 to 14 inches	119.76
Removal of clean valves >14 to 20 inches	155.71
Removal of clean valves >20 to 36 inches	229.09
Removal of clean valves >36 inches	272.18
Removal of clean pipe hangers for small bore piping	13.85
Removal of clean pipe hangers for large bore piping	48.33
Removal of clean pumps, <300 pound	105.26
Removal of clean pumps, 300-1000 pound	296.85
Removal of clean pumps, 1000-10,000 pound	1,173.32
Removal of clean pumps, >10,000 pound	2,261.70
Removal of clean pump motors, 300-1000 pound	125.46
Removal of clean pump motors, 1000-10,000 pound	489.62
Removal of clean pump motors, >10,000 pound	1,101.62
Removal of clean turbine-driven pumps < 10,000 pound	1,354.84
Removal of clean turbine-driven pumps > 10,000 pounds	3,026.24

APPENDIX B
(continued)

Unit Cost Factor	Cost/Unit($)
Removal of clean PWR turbine-generator	73,665.10
Removal of clean heat exchanger <3000 pound	634.73
Removal of clean heat exchanger >3000 pound	1,597.53
Removal of clean feedwater heater/deaerator	4,483.81
Removal of clean moisture separator/reheater	9,192.83
Removal of clean PWR main condenser	204,693.05
Removal of clean tanks, <300 gallons	136.93
Removal of clean tanks, 300-3000 gallon	431.83
Removal of clean tanks, >3000 gallons, $/square foot surface area	3.67
Removal of clean electrical equipment, <300 pound	57.93
Removal of clean electrical equipment, 300-1000 pound	204.27
Removal of clean electrical equipment, 1000-10,000 pound	408.54
Removal of clean electrical equipment, >10,000 pound	985.48
Removal of clean electrical transformers < 30 tons	684.40
Removal of clean electrical transformers > 30 tons	1,970.95
Removal of clean standby diesel-generator, <100 kW	699.05
Removal of clean standby diesel-generator, 100 kW to 1 MW	1,560.33
Removal of clean standby diesel-generator, >1 MW	3,230.20
Removal of clean electrical cable tray, $/linear foot	5.43
Removal of clean electrical conduit, $/linear foot	2.37
Removal of clean mechanical equipment, <300 pound	57.93
Removal of clean mechanical equipment, 300-1000 pound	204.27
Removal of clean mechanical equipment, 1000-10,000 pound	408.54
Removal of clean mechanical equipment, >10,000 pound	985.48
Removal of clean HVAC equipment, <300 pound	57.93

APPENDIX B
(continued)

Unit Cost Factor	Cost/Unit($)
Removal of clean HVAC equipment, 300-1000 pound	204.27
Removal of clean HVAC equipment, 1000-10,000 pound	408.54
Removal of clean HVAC equipment, >10,000 pound	985.48
Removal of clean HVAC ductwork, $/pound	0.43
Removal of contaminated instrument and sampling tubing, $/linear foot	0.76
Removal of contaminated pipe 0.25 to 2 inches diameter, $/linear foot	18.06
Removal of contaminated pipe >2 to 4 inches diameter, $/linear foot	32.41
Removal of contaminated pipe >4 to 8 inches diameter, $/linear foot	53.85
Removal of contaminated pipe >8 to 14 inches diameter, $/linear foot	104.00
Removal of contaminated pipe >14 to 20 inches diameter, $/linear foot	126.47
Removal of contaminated pipe >20 to 36 inches diameter, $/linear foot	176.87
Removal of contaminated pipe >36 inches diameter, $/linear foot	209.78
Removal of contaminated valves >2 to 4 inches	153.65
Removal of contaminated valves >4 to 8 inches	260.34
Removal of contaminated valves >8 to 14 inches	519.98
Removal of contaminated valves >14 to 20 inches	663.58
Removal of contaminated valves >20 to 36 inches	884.36
Removal of contaminated valves >36 inches	1,048.88
Removal of contaminated pipe hangers for small bore piping	52.33
Removal of contaminated pipe hangers for large bore piping	163.46
Removal of contaminated pumps, <300 pound	463.71
Removal of contaminated pumps, 300-1000 pound	1,070.30
Removal of contaminated pumps, 1000-10,000 pound	3,359.88
Removal of contaminated pumps, >10,000 pound	8,158.65
Removal of contaminated pump motors, 300-1000 pound	459.64

APPENDIX B
(continued)

Unit Cost Factor	Cost/Unit($)
Removal of contaminated pump motors, 1000-10,000 pound	1,367.52
Removal of contaminated pump motors, >10,000 pound	3,073.96
Removal of contaminated turbine-driven pumps < 10,000 pounds	4,136.83
Removal of contaminated turbine-driven pumps > 10,000 pounds	9,435.70
Removal of contaminated heat exchanger <3000 pound	2,073.25
Removal of contaminated heat exchanger >3000 pound	5,989.48
Removal of contaminated tanks, <300 gallons	778.68
Removal of contaminated tanks, >300 gallons, $/square foot	15.12
Removal of contaminated electrical equipment, <300 pound	360.61
Removal of contaminated electrical equipment, 300-1000 pound	863.90
Removal of contaminated electrical equipment, 1000-10,000 pound	1,661.79
Removal of contaminated electrical equipment, >10,000 pound	3,248.23
Removal of contaminated electrical cable tray, $/linear foot	25.84
Removal of contaminated electrical conduit, $/linear foot	32.62
Removal of contaminated mechanical equipment, <300 pound	398.88
Removal of contaminated mechanical equipment, 300-1000 pound	953.71
Removal of contaminated mechanical equipment, 1000-10,000 pound	1,834.17
Removal of contaminated mechanical equipment, >10,000 pound	3,248.23
Removal of contaminated HVAC equipment, <300 pound	398.88
Removal of contaminated HVAC equipment, 300-1000 pound	953.71
Removal of contaminated HVAC equipment, 1000-10,000 pound	1,834.18
Removal of contaminated HVAC equipment, >10,000 pound	3,248.23
Removal of contaminated HVAC ductwork, $/pound	1.65
Removal/plasma arc cut of contaminated thin metal components, $/linear in.	1.85
Additional decontamination of surface by washing, $/square foot	3.89

APPENDIX B
(continued)

Unit Cost Factor	Cost/Unit($)
Additional decontamination of surfaces by hydrolasing, $/square foot	17.81
Decontamination rig hook-up and flush	3,400.30
Chemical flush of components/systems, $/gallon	7.08
Removal of clean standard reinforced concrete, $/cubic yard	85.75
Removal of grade slab concrete, $/cubic yard	115.43
08	
Removal of clean concrete floors, $/cubic yard	155.51
Removal of sections of clean concrete floors, $/cubic yard	488.73
Removal of clean heavily rein concrete w/#9 rebar, $/cubic yard	121.24
Removal of contaminated heavily rein concrete w/#9 rebar, $/cubic yard	1,057.18
Removal of clean heavily rein concrete w/#18 rebar, $/cubic yard	154.04
Removal of contaminated heavily rein concrete w/#18 rebar, $/cubic yard	1,400.84
Removal heavily rein concrete w/#18 rebar & steel embedments, $/cu yd	221.61
Removal of below-grade suspended floors, $/square foot	155.51
Removal of clean monolithic concrete structures, $/cubic yard	429.03
Removal of contaminated monolithic concrete structures, $/cu yd	1,055.84
Removal of clean foundation concrete, $/cubic yard	335.97
Removal of contaminated foundation concrete, $/cubic yard	982.73
Explosive demolition of bulk concrete, $/cubic yard	16.60
Removal of clean hollow masonry block wall, $/cubic yard	41.63
Removal of contaminated hollow masonry block wall, $/cubic yard	154.93
Removal of clean solid masonry block wall, $/cubic yard	41.63
Removal of contaminated solid masonry block wall, $/cubic yard	154.93
Backfill of below-grade voids, $/cubic yard	4.37
Removal of subterranean tunnels/voids, $/linear foot	67.92
Placement of concrete for below-grade voids, $/cubic yard	64.19

APPENDIX B
(continued)

Unit Cost Factor	Cost/Unit($)
Excavation of clean material, $/cubic yard	1.98
Excavation of contaminated material, $/cubic yard	23.37
Excavation of submerged concrete rubble, $/cubic yard	6.73
Removal of clean concrete rubble, $/cubic yard	6.49
Removal of contaminated concrete rubble, $/cubic yard	17.89
Removal of building by volume, $/cubic foot	0.14
Removal of clean building metal siding, $/square foot	0.70
Removal of contaminated building metal siding, $/square foot	2.57
Removal of standard asphalt roofing, $/square foot	0.97
Removal of transite panels, $/square foot	1.13
Scarifying contaminated concrete surfaces (drill & spall)	7.68
Scabbling contaminated concrete floors, $/square foot	1.12
Scabbling contaminated concrete walls, $/square foot	4.32
Scabbling contaminated ceilings, $/square foot	43.17
Scabbling structural steel, $/square foot	3.71
Removal of clean overhead cranes/monorails < 10 ton capacity	292.11
Removal of contaminated overhead cranes/monorails < 10 ton capacity	917.76
Removal of clean overhead cranes/monorails >10-50 ton capacity	701.07
Removal of contaminated overhead cranes/monorails >10-50 ton capacity	2,201.37
Removal of polar cranes > 50 ton capacity, each	2,967.86
Removal of gantry cranes > 50 ton capacity, each	12,318.39
Removal of structural steel, $/pound	0.17
Removal of clean steel floor grating, $/square foot	1.54
Removal of contaminated steel floor grating, $/square foot	5.28
Removal of clean free-standing steel liner, $/square foot	5.50

APPENDIX B
(continued)

Unit Cost Factor	Cost/Unit($)
Removal of contaminated free-standing steel liner, $/square foot	17.50
Removal of clean concrete-anchored steel liner, $/square foot	2.75
Removal of contaminated concrete-anchored steel liner, $/square foot	20.26
Placement of scaffolding in clean areas, $/square foot	2.95
Placement of scaffolding in contaminated areas, $/square foot	7.52
Landscaping with topsoil, $/acre	13,224.52
Cost of CPC B-88 LSA box & preparation for use	662.88
Cost of CPC B-25 LSA box & preparation for use	709.81
Cost of CPC B-12V 12 gauge LSA box & preparation for use	542.35
Cost of CPC B-144 LSA box & preparation for use	3,065.06
Cost of LSA drum & preparation for use	65.20
Cost of cask liner for CNSI 14-195 cask	6,494.78
Cost of cask liner for CNSI 8-120A cask (resins)	6,412.59
Cost of cask liner for CNSI 8-120A cask (filters)	6,412.59
Decontamination of surfaces with vacuuming, $/square foot	0.33

APPENDIX C

DECOMMISSIONING COSTS: DECON AND SAFSTOR ALTERNATIVES
Long-Term Fuel Storage

TABLE C-1
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 1																
1	Prepare preliminary decommissioning c	-	-	-	-		130	20	150	150	-		-	-		-
2	Notification of Cessation of Operations								Note 1							
3	Remove fuel & source matenal								Note 2							
4	Notification of Permanent Defueling								Note 1							
5	Deactivate plant systems & process waste								Note 1							
6	Prepare and submit PSDAR	-	-	-	-		200	30	230	230	-		-	-		-
7	Review plant dwgs & specs	-	-	-	-		460	69	529	529	-		-	-		-
8	Perform detailed rad survey								Note 1							
9	Estimate by-product inventory	-	-	-	-		100	15	115	115	-		-	-		-
10	End product description	-	-	-	-		100	15	115	115	-		-	-		-
11	Detailed by-product inventory	-	-	-	-		130	20	150	150	-		-	-		-
12	Define major work sequence	-	-	-	-		750	113	863	863	-		-	-		-
13	Perform SER and EA	-	-	-	-		310	47	357	357	-		-	-		-
14	Perform Site-Specific Cost Study	-	-	-	-		500	75	575	575	-		-	-		-
15	Prepare/submit License Termination Pl	-	-	-	-		410	61	471	471	-		-	-		-
16	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
17.1	Plant & temporary facilities	-	-	-	-		492	74	566	509	57		-	-		-
17 2	Plant systems	-	-	-	-		417	63	479	431	48		-	-		-
17.3	NSSS Decontamination Flush	-	-	-	-		50	8	58	58	-		-	-		-
17.4	Reactor internals	-	-	-	-		710	107	817	817	-		-	-		-
17.5	Reactor vessel	-	-	-	-		650	98	748	748	-		-	-		-
17.6	Biological shield	-	-	-	-		50	8	58	58	-		-	-		-
17.7	Steam generators	-	-	-	-		312	47	359	359	-		-	-		-
17.8	Reinforced concrete	-	-	-	-		160	24	184	92	92		-	-		-
17 9	Turbine & condenser	-	-	-	-		80	12	92	-	92		-	-		-
17.10	Plant structures & buildings	-	-	-	-		312	47	359	179	179		-	-		-
17.11	Waste management	-	-	-	-		460	69	529	529	-		-	-		-
17.12	Facility & site closeout	-	-	-	-		90	14	104	52	52		-	-		-
17	Total	-	-	-	-		3,783	567	4,350	3,830	520		-	-		-
Planning & Site Preparations																
18	Prepare dismantling sequence	-	-	-	-		240	36	276	276	-		-	-		-
19	Plant prep & temp svces	-	-	-	-		1,895	284	2,180	2,180	-		-	-		-
20	Design water clean-up system	-	-	-	-		140	21	161	161	-		-	-		-
21	Rigging/Cont. Cntrl Envlps/tooling/etc	-	-	-	-		1,604	241	1,845	1,845	-		-	-		-
22	Procure casks/liners & containers	-	-	-	-		123	18	141	141	-		-	-		-
Detailed Work Procedures																
23.1	Plant systems	-	-	-	-		473	71	544	490	54		-	-		-
23.2	NSSS Decontamination Flush	-	-	-	-		100	15	115	115	-		-	-		-
23 3	Reactor internals	-	-	-	-		250	38	288	288	-		-	-		-
23.4	Remaining buildings	-	-	-	-		135	20	155	39	116		-	-		-
23.5	CRD cooling assembly	-	-	-	-		100	15	115	115	-		-	-		-
23.6	CRD housings & ICI tubes	-	-	-	-		100	15	115	115	-		-	-		-
23.7	Incore instrumentation	-	-	-	-		100	15	115	115	-		-	-		-
23.8	Reactor vessel	-	-	-	-		363	54	417	417	-		-	-		-
23.9	Facility closeout	-	-	-	-		120	18	138	69	69		-	-		-
23.10	Missile shields	-	-	-	-		45	7	52	52	-		-	-		-
23.11	Biological shield	-	-	-	-		120	18	138	138	-		-	-		-
23.12	Steam generators	-	-	-	-		460	69	529	529	-		-	-		-
23.13	Reinforced concrete	-	-	-	-		100	15	115	58	58		-	-		-
23.14	Turbine & condensers	-	-	-	-		312	47	359	-	359		-	-		-
23.15	Auxiliary building	-	-	-	-		273	41	314	283	31		-	-		-
23.16	Reactor building	-	-	-	-		273	41	314	283	31		-	-		-
23	Total	-	-	-	-		3,324	499	3,823	3,104	719		-	-		-

TABLE C-1
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
24	Decon primary loop	516	-	-	-		-	258	774	774	-		-	-		-
25	Asbestos removal program	-	217	37	1	231	7	117	610	427	184	640	-	-		-
Period 1 Additional Costs																
26	Site Characterization Survey	-	-	-	-		683	102	785	785	-		-	-		-
Subtotal Period 1 Activity Costs		516	217	37	1	231	14,889	2,607	18,499	17,077	1,422	640	-	-		-
Period 1 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	30	-	-	-		-	7	37	37	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	67	-	273	289	3,292	-	927	4,849	4,849	-		4,552	-	748,128	-
5	Insurance	-	-	-	-		2,060	206	2,266	2,266	-		-	-		-
6	Property taxes	-	-	-	-		310	31	341	341	-		-	-		-
7	Health physics supplies	-	209	-	-		-	52	262	262	-		-	-		-
8	Heavy equipment rental	-	211	-	-		-	32	242	242	-		-	-		-
9	Small tool allowance	-	3	-	-		-	1	4	4	-		-	-		-
10	Disposal of DAW generated	-	-	17	5	790	-	200	1,011	1,011	-	2,564	-	-	177,002	-
11	Plant energy budget	-	-	-	-		540	81	621	621	-		-	-		-
12	Fuel storage capital expenditures	-	-	-	-		40,375	6,056	46,431	46,431	-		-	-		-
13	NRC ISFSI Fees	-	-	-	-		212	21	233	233	-		-	-		-
14	NRC Fees	-	-	-	-		304	30	334	334	-		-	-		-
15	Emergency Planning Fees	-	-	-	-		76	8	83	83	-		-	-		-
16	Site Security	-	-	-	-		1,056	158	1,214	1,214	-		-	-		-
17	Fixed Overhead	-	-	-	-		1,087	163	1,250	1,250	-		-	-		-
Subtotal Undistributed Costs Period 1		587	1,445	290	295	4,081	46,019	8,200	60,917	60,917	-	2,564	4,552	-	925,130	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		5,326	799	6,125	6,125	-		-	-		-
	Utility Staff Cost	-	-	-	-		18,819	2,823	21,642	21,642	-		-	-		-
TOTAL PERIOD 1 COST		**1,103**	**1,662**	**327**	**296**	**4,312**	**85,054**	**14,430**	**107,184**	**105,762**	**1,422**	**3,204**	**4,552**	**-**	**925,130**	**-**

TABLE C-1
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 2																
Nuclear Steam Supply System Removal																
27.1	Reactor Coolant Piping	30	45	4	5	131	-	60	275	275	-	319	-	-	29,769	-
27.2	Pressurizer Relief Tank	13	65	3	3	87	-	45	217	217	-	300	-	-	19,699	-
27.3	Reactor Coolant Pumps & Motors	24	34	21	27	2,789	-	724	3,618	3,618	-	2,256	-	-	633,930	-
27.4	Pressurizer	18	27	4	9	943	-	253	1,253	1,253	-	1,771	-	-	214,343	-
27.5	Steam Generators	129	920	2,067	1,977	4,530	-	1,930	11,554	11,554	-	18,876	-	-	2,339,184	-
27.6	Old Steam Generator Lower Shell Units	-	-	1,650	1,578	1,896	-	876	6,000	6,000	-	7,899	-	-	1,134,000	-
27.7	CRDMs/ICIs/Service Structure Remov	73	46	41	10	185	-	100	456	456	-	2,253	-	-	64,288	-
27.8	Reactor Vessel Internals	55	1,599	2,397	427	4,789	-	4,327	13,594	13,594	-	655	539	1,020	223,866	-
27.9	Vessel & Internals GTCC Disposal	-	-	-	-	12,355	-	6,178	18,533	18,533	-	-	-	-	-	553
27.10	Reactor Vessel	110	4,037	176	263	5,835	-	6,110	16,530	16,530	-	3,930	1,703	-	786,229	-
27	Totals	451	6,774	6,364	4,299	33,540	-	20,603	72,030	72,030	-	38,258	2,242	1,020	5,445,308	553
28	Remove spent fuel racks	229	22	-	-	88	166	167	672	672	-	285	-	-	31,590	-
Removal of Major Equipment																
29	Main Turbine/Generator	-	46	-	-		-	7	53	-	53		-	-		-
30	Main Condensers	-	371	-	-		-	56	426	-	426		-	-		-
Disposal of Plant Systems																
31.1	Amertap	-	37	-	-		-	6	43	-	43		-	-		-
31.2	Auxiliary Feedwater	-	2	-	-		-	0	2	-	2		-	-		-
31.3	Auxiliary Feedwater - Insulated	-	9	-	-		-	1	10	-	10		-	-		-
31.4	Auxiliary Feedwater - Insulated - RCA	15	13	-	-		-	10	39	39	-		-	-		-
31.5	Auxiliary Feedwater - RCA	4	3	-	-		-	2	9	9	-		-	-		-
31.6	Auxiliary Steam	-	0	-	-		-	0	0	-	0		-	-		-
31.7	Auxiliary Steam - Insulated	-	16	-	-		-	2	19	-	19		-	-		-
31.8	Auxiliary Steam - Insulated - RCA	1	1	-	-		-	1	2	2	-		-	-		-
31.9	Auxiliary Steam - RCA	0	0	-	-		-	0	0	0	-		-	-		-
31.10	Breathing Air - Insulated - RCA	1	1	-	-		-	0	1	1	-		-	-		-
31.11	Breathing Air - RCA	2	2	-	-		-	1	6	6	-		-	-		-
31.12	Chemical & Volume Control	38	57	-	-	280	-	103	478	478	-	748	-	-	63,666	-
31.13	Chemical & Volume Control - Insulated	192	197	-	-	245	-	207	842	842	-	456	-	-	55,760	-
31.14	Circulating Water	-	49	-	-		-	7	56	-	56		-	-		-
31.15	Component Cooling Water	-	78	-	-		-	12	90	-	90		-	-		-
31.16	Component Cooling Water - RCA	53	44	-	-		-	33	130	130	-		-	-		-
31.17	Condensate	-	89	-	-		-	13	102	-	102		-	-		-
31.18	Condensate - Insulated	-	28	-	-		-	4	32	-	32		-	-		-
31.19	Condensate Polishing	-	17	-	-		-	2	19	-	19		-	-		-
31.20	Condensate Polishing - Ins	-	43	-	-		-	6	50	-	50		-	-		-
31.21	Condensate Recovery	-	8	-	-		-	1	10	-	10		-	-		-
31.22	Condensate Recovery - Insulated	-	1	-	-		-	0	2	-	2		-	-		-
31.23	Condensate Recovery - Insulated - RC	1	1	-	-		-	0	2	2	-		-	-		-
31.24	Condensate Recovery - RCA	3	3	-	-		-	2	7	7	-		-	-		-
31.25	Condensate Storage	-	36	-	-		-	5	42	-	42		-	-		-
31.26	Condenser	-	12	-	-		-	2	14	-	14		-	-		-
31.27	Containment Emergency Filter	-	3	-	-	0	2	1	6	6	-	1	-	-	105	-
31.28	Containment Normal & Emerg Cooling	-	479	-	-	88	277	183	1,027	1,027	-	170	-	-	20,009	-

TABLE C-1
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
31 29	Containment Normal & Emerg Coolng -	-	4	-	-	5	-	2	12	12	-	9	-	-	1,238	-
31 30	Containment Post Accident Eval	-	0	-	-	0	0	0	1	1	-	0	-	-	35	-
31.31	Containment Purge	-	33	-	-	47	0	20	101	101	-	89	-	-	10,743	-
31.32	Containment Spray	-	56	-	-	154	-	53	263	263	-	293	-	-	34,998	-
31.33	Containment Spray - Insulated	-	49	-	-	84	-	33	166	166	-	154	-	-	19,070	-
31 34	EDG Building HVAC	-	1	-	-		-	0	2	-	2		-	-		-
31 35	Electrical - Clean	-	712	-	-		-	107	819	-	819		-	-		-
31 36	Electrical - Contaminated	-	375	-	-	16	65	108	564	564	-	32	-	-	3,664	-
31.37	Electrical - Decontaminated	68	305	-	-		-	80	452	452	-		-	-		-
31.38	Emergency Diesel Engine & Oil	-	35	-	-		-	5	40	-	40		-	-		-
31.39	Emergency Diesel Engine & Oil - Ins	-	1	-	-		-	0	2	-	2		-	-		-
31.40	Extraction Steam	-	5	-	-		-	1	6	-	6		-	-		-
31 41	Extraction Steam - Insulated	-	26	-	-		-	4	29	-	29		-	-		-
31.42	Feedwater	-	25	-	-		-	4	29	-	29		-	-		-
31.43	Feedwater - Insulated	-	72	-	-		-	11	83	-	83		-	-		-
31.44	Feedwater - Insulated - RCA	9	8	-	-		-	6	23	23	-		-	-		-
31 45	Feedwater - RCA	1	1	-	-		-	1	2	2	-		-	-		-
31.46	Feedwater Heater Drains & Vents	-	23	-	-		-	3	27	-	27		-	-		-
31 47	Feedwater Heater Drains & Vents - Ins	-	156	-	-		-	23	180	-	180		-	-		-
31.48	Fire Protection	-	9	-	-		-	1	10	-	10		-	-		-
31.49	Fire Protection - RCA	11	13	-	-		-	7	31	31	-		-	-		-
31.50	Fuel Handling HVAC	-	43	-	-	7	27	17	94	94	-	13	-	-	1,541	-
31.51	Generator	-	3	-	-		-	0	3	-	3		-	-		-
31.52	Generator - Insulated	-	1	-	-		-	0	1	-	1		-	-		-
31 53	Instrument Air	-	7	-	-		-	1	7	-	7		-	-		-
31 54	Instrument Air - Insulated	-	5	-	-		-	1	6	-	6		-	-		-
31.55	Instrument Air - Insulated - RCA	9	8	-	-		-	5	22	22	-		-	-		-
31.56	Instrument Air - RCA	6	5	-	-		-	4	14	14	-		-	-		-
31.57	Intake Cooling Water	-	77	-	-		-	12	89	-	89		-	-		-
31 58	Main Steam - Insulated	-	86	-	-		-	13	99	-	99		-	-		-
31.59	Main Steam - Insulated - RCA	6	5	-	-		-	4	15	15	-		-	-		-
31 60	Miscellaneous - RCA	1	1	-	-		-	1	3	3	-		-	-		-
31.61	Primary Water Makeup	-	38	-	-		-	6	44	-	44		-	-		-
31.62	Reactor Coolant - Insulated	44	54	-	-	69	-	53	221	221	-	132	-	-	15,773	-
31.63	Refueling Equipment	-	83	-	-	290	-	93	466	466	-	569	-	-	65,804	-
31.64	Residual Heat Removal	74	51	-	-	1,155	-	338	1,617	1,617	-	2,159	-	-	262,460	-
31.65	Residual Heat Removal - Insulated	164	223	-	-	617	-	292	1,295	1,295	-	1,176	-	-	140,165	-
31 66	Safety Injection	-	121	-	-	43	145	63	373	373	-	140	-	-	9,813	-
31.67	Safety Injection - Insulated	-	93	-	-	215	-	77	386	386	-	412	-	-	48,960	-
31.68	Safety Injection Accumulator	-	175	-	-	137	29	82	423	423	-	279	-	-	31,098	-
31 69	Sample - NSSS	-	14	-	-	7	1	5	28	28	-	12	-	-	1,602	-
31.70	Sample - NSSS - Ins	-	14	-	-	8	-	6	28	28	-	14	-	-	1,858	-
31.71	Screen Wash	-	12	-	-		-	2	14	-	14		-	-		-
31.72	Secondary Sample	-	2	-	-		-	0	2	-	2		-	-		-
31.73	Secondary Sample - RCA	1	0	-	-		-	0	2	2	-		-	-		-
31 74	Secondary Wet Layup	-	11	-	-		-	2	13	-	13		-	-		-

TABLE C-1
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
31.75	Secondary Wet Layup - RCA	2	2	-	-		-	2	6	6	-		-	-		-
31.76	Service Water	-	0	-	-		-	0	0	-	0		-	-		-
31.77	Service Water - RCA	1	0	-	-		-	0	1	1	-		-	-		-
31.78	Spent Fuel Pool Cooling	68	77	-	-	216	-	107	467	467	-	431	-	-	49,000	-
31.79	Spent Fuel Pool Cooling - Insulated	40	42	-	-	79	-	50	212	212	-	149	-	-	18,053	-
31.80	Steam Generator Wet Layup	-	1	-	-		-	0	1	-	1		-	-		-
31.81	Steam Generator Wet Layup - RCA	0	0	-	-		-	0	0	0	-		-	-		-
31.82	Turbine Building HVAC	-	10	-	-		-	1	11	-	11		-	-		-
31.83	Turbine Lube Oil	-	20	-	-		-	3	23	-	23		-	-		-
31.84	Turbine Plant Chemical Addition	-	2	-	-		-	0	2	-	2		-	-		-
31.85	Turbine Plant Cooling Water	-	43	-	-		-	6	50	-	50		-	-		-
31.86	Turbine Plant Cooling Water - Insulated	-	24	-	-		-	4	27	-	27		-	-		-
31.87	Turbine Steam	-	32	-	-		-	5	37	-	37		-	-		-
31.88	Turbine Steam - Insulated	-	14	-	-		-	2	17	-	17		-	-		-
31.89	Waste Disposal	17	24	-	-	49	-	27	117	117	-	113	-	-	11,136	-
31.90	Waste Disposal - Insulated	66	63	-	-	90	-	72	292	292	-	167	-	-	20,538	-
31	Totals	897	4,629	-	-	3,903	547	2,433	12,409	10,245	2,164	7,719	-	-	887,090	-
32	Erect scaffolding for systems removal	-	210	-	-	5	17	56	288	288	-	16	-	-	1,829	-
Decontamination of Site Buildings																
33.1	Reactor Building	522	340	44	22	2,867	128	1,090	5,013	5,013	-	5,936	-	-	672,211	-
33.2	Fuel Handling	190	191	2	1	58	105	173	720	720	-	188	-	-	20,478	-
33	Totals	712	532	46	22	2,925	233	1,263	5,733	5,733	-	6,124	-	-	692,689	-
34	ORISE confirmatory survey	-	-	-	-		1,064	319	1,383	1,383	-		-	-		-
35	Terminate license								Note 1							
Period 2 Additional Costs																
36	Mixed/Hazardous Waste	-	-	-	-		3,289	493	3,782	3,782	-		-	-		-
37	Seaweed Remediation & Disposal	-	-	-	-		2,250	338	2,588	2,588	-		-	-		-
38	License Termination Survey	-	-	-	-		1,669	250	1,919	1,919	-		-	-		-
Subtotal Period 2 Activity Costs		2,289	12,582	6,410	4,321	40,461	9,235	25,985	101,283	98,640	2,643	52,402	2,242	1,020	7,058,506	553

TABLE C-1
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
Period 2 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	312	-	-	-		-	78	390	390	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	217	-	165	235	1,867	-	627	3,111	3,111	-		2,889	-	424,336	-
5	Insurance	-	-	-	-		1,434	143	1,578	1,578	-		-	-		-
6	Property taxes	-	-	-	-		1,240	124	1,364	1,227	136		-	-		-
7	Health physics supplies	-	1,674	-	-		-	419	2,093	2,093	-		-	-		-
8	Heavy equipment rental	-	9,309	-	-		-	1,396	10,706	9,635	1,071		-	-		-
9	Small tool allowance	-	140	-	-		-	21	161	145	16		-	-		-
10	Pipe cutting equipment	-	749	-	-		-	112	862	862	-		-	-		-
11	Decon rig	974	-	-	-		-	146	1,120	1,120	-		-	-		-
12	Disposal of DAW generated	-	-	66	22	3,476	-	879	4,443	4,443	-	11,286	-	-	759,731	-
13	Decommissioning Equipment Disposit	-	-	-	-	83	278	63	424	424	-	270	-	-	30,000	-
14	Plant energy budget	-	-	-	-		2,865	430	3,295	2,965	329		-	-		-
15	NRC ISFSI Fees	-	-	-	-		850	85	935	935	-		-	-		-
16	NRC Fees	-	-	-	-		1,530	153	1,683	1,683	-		-	-		-
17	Emergency Planning Fees	-	-	-	-		303	30	334	334	-		-	-		-
18	Site Security	-	-	-	-		4,315	647	4,962	4,962	-		-	-		-
19	Fixed Overhead	-	-	-	-		4,353	653	5,006	5,006	-		-	-		-
20	Radwaste Processing Skids	-	-	-	-		535	80	615	615	-		-	-		-
Subtotal Undistributed Costs Period 2		1,994	12,894	232	256	5,426	17,704	6,314	44,820	43,267	1,552	11,556	2,889	-	1,214,067	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		24,630	3,694	28,324	28,324	-		-	-		-
	Utility Staff Cost	-	-	-	-		53,881	8,082	61,963	61,963	-		-	-		-
TOTAL PERIOD 2		**4,282**	**25,476**	**6,641**	**4,577**	**45,887**	**105,450**	**44,076**	**236,390**	**232,195**	**4,195**	**63,958**	**5,131**	**1,020**	**8,272,572**	**553**

TABLE C-1
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 3																
Demolition of Remaining Site Buildings																
39.1	Reactor Building	-	2,696	-	-		-	404	3,101	465	2,636		-	-		-
39.2	Fuel Handling	-	340	-	-		-	51	391	39	352		-	-		-
39 3	Miscellaneous Structures	-	115	-	-		-	17	132	-	132		-	-		-
39 4	Sealwall	-	182	-	-		-	27	209	-	209		-	-		-
39 5	Turbine Building	-	314	-	-		-	47	361	-	361		-	-		-
39.6	Turbine Pedestal	-	256	-	-		-	38	294	-	294		-	-		-
39	Totals	-	3,902	-	-		-	585	4,488	504	3,983		-	-		-
Site Closeout Activities																
40	Grade & landscape site	-	94	-	-		-	14	108	-	108		-	-		-
41	Final report to NRC	-	-	-	-		156	23	179	179	-		-	-		-
Period 3 Additional Costs																
42	ISFSI License Termination	-	938	11	5	227	878	425	2,485	2,485	-	1,234	-	-		-
43	ISFSI Demolition and Site Restoration	-	216	-	-		89	67	372	372	-		-	-		-
Subtotal Period 3 Activity Costs		-	5,150	11	5	227	1,123	1,115	7,632	3,541	4,091	1,234	-	-		-
Period 3 Undistributed Costs																
1	Insurance	-	-	-	-		2,222	222	2,444	2,444	-		-	-		-
2	Property taxes	-	-	-	-		2,379	238	2,617	-	2,617		-	-		-
3	Heavy equipment rental	-	1,563	-	-		-	235	1,798	-	1,798		-	-		-
4	Small tool allowance	-	28	-	-		-	4	33	-	33		-	-		-
5	Plant energy budget	-	-	-	-		59	9	68	-	68		-	-		-
6	NRC ISFSI Fees	-	-	-	-		1,560	156	1,716	1,716	-		-	-		-
7	Emergency Planning Fees	-	-	-	-		557	56	612	612	-		-	-		-
8	Site Security	-	-	-	-		2,547	382	2,929	-	2,929		-	-		-
Subtotal Undistributed Costs Period 3		-	1,592	-	-		9,323	1,301	12,216	4,772	7,444		-	-		-
Staff Costs																
	DOC Staff Cost	-	-	-	-		2,185	328	2,513	-	2,513		-	-		-
	Utility Staff Cost	-	-	-	-		3,081	462	3,543	3,189	354		-	-		-
TOTAL PERIOD 3		-	6,742	11	5	227	15,711	3,206	25,904	11,501	14,402	1,234	-	-		-
TOTAL COST TO DECOMMISSION		5,386	33,880	6,980	4,879	50,427	206,215	61,712	369,478	349,458	20,020	68,396	9,683	1,020	9,197,702	553

Total cost to decommission with	20.05%	contingency:	$	369,477,713
Total NRC license termination cost is	94.58%	or	$	349,458,194
Non-nuclear demolition cost is	5.42%	or	$	20,019,521
Total site radwaste volume buried			79,099	cubic feet
Total site radwaste weight buried			9,197,702	pounds
Total 10CFR61 greater than class C waste buried			553	cubic feet
Total scrap metal released from site			12,064	tons
Total craft labor requirements			524,414	person hours

NOTES:
1) This activity is performed by the decommissioning staff following plant shutdown; the costs for this are included in this period's staff cost.
2) This activity, while performed after final plant shutdown, is considered part of operations and therefore no decommissioning costs are included for this activity.

TABLE C-2
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 1																
1	Prepare preliminary decommissioning c	-	-	-	-		56	8	64	64	-		-	-		-
2	Notification of Cessation of Operations								Note 1							
3	Remove fuel & source material								Note 2							
4	Notification of Permanent Defueling								Note 1							
5	Deactivate plant systems & process waste								Note 1							
6	Prepare and submit PSDAR	-	-	-	-		86	13	98	98	-		-	-		-
7	Review plant dwgs & specs.	-	-	-	-		197	30	226	226	-		-	-		-
8	Perform detailed rad survey								Note 1							
9	Estimate by-product inventory	-	-	-	-		43	6	49	49	-		-	-		-
10	End product description	-	-	-	-		43	6	49	49	-		-	-		-
11	Detailed by-product inventory	-	-	-	-		56	8	64	64	-		-	-		-
12	Define major work sequence	-	-	-	-		321	48	369	369	-		-	-		-
13	Perform SER and EA	-	-	-	-		133	20	152	152	-		-	-		-
14	Perform Site-Specific Cost Study	-	-	-	-		214	32	246	246	-		-	-		-
15	Prepare/submit License Termination Pl	-	-	-	-		175	26	201	201	-		-	-		-
16	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
17.1	Plant & temporary facilities	-	-	-	-		210	32	242	218	24		-	-		-
17.2	Plant systems	-	-	-	-		178	27	205	184	20		-	-		-
17.3	NSSS Decontamination Flush	-	-	-	-		21	3	25	25	-		-	-		-
17.4	Reactor internals	-	-	-	-		304	46	349	349	-		-	-		-
17.5	Reactor vessel	-	-	-	-		278	42	320	320	-		-	-		-
17.6	Biological shield	-	-	-	-		21	3	25	25	-		-	-		-
17.7	Steam generators	-	-	-	-		133	20	153	153	-		-	-		-
17.8	Reinforced concrete	-	-	-	-		68	10	79	39	39		-	-		-
17.9	Turbine & condenser	-	-	-	-		34	5	39	-	39		-	-		-
17.10	Plant structures & buildings	-	-	-	-		133	20	153	77	77		-	-		-
17.11	Waste management	-	-	-	-		197	30	226	226	-		-	-		-
17.12	Facility & site closeout	-	-	-	-		38	6	44	22	22		-	-		-
17	Total	-	-	-	-		1,617	243	1,860	1,638	222		-	-		-
Planning & Site Preparations																
18	Prepare dismantling sequence	-	-	-	-		103	15	118	118	-		-	-		-
19	Plant prep. & temp. svces	-	-	-	-		1,895	284	2,180	2,180	-		-	-		-
20	Design water clean-up system	-	-	-	-		60	9	69	69	-		-	-		-
21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-		1,604	241	1,845	1,845	-		-	-		-
22	Procure casks/liners & containers	-	-	-	-		53	8	60	60	-		-	-		-
Detailed Work Procedures																
23.1	Plant systems	-	-	-	-		202	30	233	209	23		-	-		-
23.2	NSSS Decontamination Flush	-	-	-	-		43	6	49	49	-		-	-		-
23.3	Reactor internals	-	-	-	-		107	16	123	123	-		-	-		-
23.4	Remaining buildings	-	-	-	-		58	9	66	17	50		-	-		-
23.5	CRD cooling assembly	-	-	-	-		43	6	49	49	-		-	-		-
23.6	CRD housings & ICI tubes	-	-	-	-		43	6	49	49	-		-	-		-
23.7	Incore instrumentation	-	-	-	-		43	6	49	49	-		-	-		-
23.8	Reactor vessel	-	-	-	-		155	23	179	179	-		-	-		-
23.9	Facility closeout	-	-	-	-		51	8	59	30	30		-	-		-
23.10	Missile shields	-	-	-	-		19	3	22	22	-		-	-		-
23.11	Biological shield	-	-	-	-		51	8	59	59	-		-	-		-
23.12	Steam generators	-	-	-	-		197	30	226	226	-		-	-		-
23.13	Reinforced concrete	-	-	-	-		43	6	49	25	25		-	-		-
23.14	Turbine & condensers	-	-	-	-		133	20	153	-	153		-	-		-
23.15	Auxiliary building	-	-	-	-		117	18	134	121	13		-	-		-
23.16	Reactor building	-	-	-	-		117	18	134	121	13		-	-		-
23	Total	-	-	-	-		1,421	213	1,635	1,327	307		-	-		-

TABLE C-2
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
24	Decon primary loop	516	-	-	-		-	258	774	774	-		-	-		-
25	Asbestos removal program	-	217	37	1	231	7	117	610	427	184	640	-	-		-
Period 1 Additional Costs																
26	Site Characterization Survey	-	-	-	-		1,024	154	1,178	1,178	-		-	-		-
Subtotal Penod 1 Activity Costs		516	217	37	1	231	9,106	1,740	11,849	11,136	713	640	-	-		-
Period 1 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	30	-	-	-		-	7	37	37	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	67	-	273	289	3,292	-	927	4,849	4,849	-		4,552	-	748,128	-
5	Insurance	-	-	-	-		2,060	206	2,266	2,266	-		-	-		-
6	Property taxes	-	-	-	-		310	31	341	341	-		-	-		-
7	Health physics supplies	-	209	-	-		-	52	262	262	-		-	-		-
8	Heavy equipment rental	-	211	-	-		-	32	242	242	-		-	-		-
9	Small tool allowance	-	3	-	-		-	1	4	4	-		-	-		-
10	Disposal of DAW generated	-	-	17	5	790	-	200	1,011	1,011	-	2,564	-	-	177,002	-
11	Plant energy budget	-	-	-	-		635	95	730	730	-		-	-		-
12	Fuel storage capital expenditures	-	-	-	-		40,375	6,056	46,431	46,431	-		-	-		-
13	NRC ISFSI Fees	-	-	-	-		212	21	233	233	-		-	-		-
14	NRC Fees	-	-	-	-		304	30	334	334	-		-	-		-
15	Emergency Planning Fees	-	-	-	-		76	8	83	83	-		-	-		-
16	Site Security	-	-	-	-		752	113	865	865	-		-	-		-
17	Fixed Overhead	-	-	-	-		1,087	163	1,250	1,250	-		-	-		-
Subtotal Undistnbuted Costs Period 1		587	1,445	290	295	4,081	45,811	8,169	60,677	60,677	-	2,564	4,552	-	925,130	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		5,326	799	6,125	6,125	-		-	-		-
	Utility Staff Cost	-	-	-	-		18,819	2,823	21,642	21,642	-		-	-		-
TOTAL PERIOD 1 COST		**1,103**	**1,662**	**327**	**296**	**4,312**	**79,062**	**13,531**	**100,293**	**99,580**	**713**	**3,204**	**4,552**	-	**925,130**	-

TABLE C-2
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 2																
Nuclear Steam Supply System Removal																
27.1	Reactor Coolant Piping	30	45	4	5	131	-	60	275	275	-	319	-	-	29,769	-
27.2	Pressurizer Relief Tank	13	65	3	3	87	-	45	217	217	-	300	-	-	19,699	-
27.3	Reactor Coolant Pumps & Motors	24	34	21	27	2,789	-	724	3,618	3,618	-	2,253	-	-	633,930	-
27.4	Pressurizer	18	27	4	9	943	-	253	1,253	1,253	-	1,771	-	-	214,343	-
27.5	Steam Generators	129	920	2,067	1,977	4,530	-	1,930	11,554	11,554	-	18,876	-	-	2,339,184	-
27.6	Old Steam Generator Lower Shell Units	-	-	1,650	1,578	1,896	-	876	6,000	6,000	-	7,899	-	-	1,134,000	-
27.7	CRDMs/ICIs/Service Structure Remov	73	46	41	10	185	-	100	456	456	-	2,253	-	-	64,288	-
27.8	Reactor Vessel Internals	55	1,599	2,397	427	4,789	-	4,327	13,594	13,594	-	655	539	1,020	223,866	-
27.9	Vessel & Internals GTCC Disposal	-	-	-	-	12,355	-	6,178	18,533	18,533	-		-	-		553
27.10	Reactor Vessel	110	4,037	176	263	5,835	-	6,110	16,530	16,530	-	3,930	1,703	-	786,229	-
27	Totals	451	6,774	6,364	4,299	33,540	-	20,603	72,030	72,030	-	38,255	2,242	1,020	5,445,308	553
28	Remove spent fuel racks	229	22	-	-	88	168	167	672	672	-	285	-	-	31,590	-
Removal of Major Equipment																
29	Main Turbine/Generator	-	46	-	-		-	7	53	-	53		-	-		-
30	Main Condensers	-	371	-	-		-	56	426	-	426		-	-		-
Disposal of Plant Systems																
31.1	Amertap	-	40	-	-		-	6	46	-	46		-	-		-
31.2	Auxiliary Bldg HVAC	-	197	-	-	42	129	79	447	447	-	83	-	-	9,533	-
31.3	Auxiliary Feedwater	-	8	-	-		-	1	9	-	9		-	-		-
31.4	Auxiliary Feedwater - Insulated	-	14	-	-		-	2	16	-	16		-	-		-
31.5	Auxiliary Feedwater - Insulated - RCA	24	20	-	-		-	15	59	59	-		-	-		-
31.6	Auxiliary Feedwater - RCA	5	5	-	-		-	3	14	14	-		-	-		-
31.7	Auxiliary Steam	-	1	-	-		-	0	1	-	1		-	-		-
31.8	Auxiliary Steam - Insulated	-	23	-	-		-	3	26	-	26		-	-		-
31.9	Auxiliary Steam - Insulated - RCA	1	1	-	-		-	1	3	3	-		-	-		-
31.10	Auxiliary Steam - RCA	0	0	-	-		-	0	0	0	-		-	-		-
31.11	Breathing Air - Insulated - RCA	1	1	-	-		-	0	2	2	-		-	-		-
31.12	Breathing Air - RCA	11	9	-	-		-	7	27	27	-		-	-		-
31.13	Chemical & Volume Control	282	271	-	-	1,660	-	624	2,836	2,836	-	5,495	-	-	377,166	-
31.14	Chemical & Volume Control - Insulated	308	346	-	-	427	-	347	1,428	1,428	-	803	-	-	96,999	-
31.15	Circulating Water	-	59	-	-		-	9	68	-	68		-	-		-
31.16	Component Cooling Water	-	105	-	-		-	16	121	-	121		-	-		-
31.17	Component Cooling Water - RCA	75	62	-	-		-	47	185	185	-		-	-		-
31.18	Condensate	-	105	-	-		-	16	120	-	120		-	-		-
31.19	Condensate - Insulated	-	41	-	-		-	6	47	-	47		-	-		-
31.20	Condensate Polishing	-	18	-	-		-	3	20	-	20		-	-		-
31.21	Condensate Polishing - Ins	-	53	-	-		-	8	61	-	61		-	-		-
31.22	Condensate Recovery	-	12	-	-		-	2	14	-	14		-	-		-
31.23	Condensate Recovery - Insulated	-	2	-	-		-	0	2	-	2		-	-		-
31.24	Condensate Recovery - Insulated - RC	1	1	-	-		-	1	3	3	-		-	-		-
31.25	Condensate Recovery - RCA	4	4	-	-		-	3	11	11	-		-	-		-
31.26	Condensate Storage	-	38	-	-		-	6	44	-	44		-	-		-
31.27	Condenser	-	14	-	-		-	2	16	-	16		-	-		-
31.28	Containment Emergency Filter	-	3	-	-	0	2	1	6	6	-	1	-	-	105	-

TABLE C-2
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
31.29	Containment Normal & Emerg Cooling	-	484	-	-	93	273	185	1,036	1,036	-	179	-	-	21,249	-
31.30	Containment Normal & Emerg Cooling -	-	6	-	-	7	-	3	16	16	-	12	-	-	1,653	-
31.31	Containment Post Accident Eval	-	9	-	-	4	0	3	16	16	-	7	-	-	826	-
31.32	Containment Post Accident Eval - Ins	-	19	-	-	23	-	11	53	53	-	42	-	-	5,328	-
31.33	Containment Purge	-	33	-	-	47	0	20	101	101	-	89	-	-	10,743	-
31.34	Containment Spray	-	60	-	-	161	-	55	276	276	-	307	-	-	36,569	-
31.35	Containment Spray - Insulated	-	53	-	-	91	-	36	179	179	-	167	-	-	20,642	-
31.36	Control Building HVAC	-	16	-	-		-	2	19	-	19		-	-		-
31.37	EDG Building HVAC	-	2	-	-		-	0	3	-	3		-	-		-
31.38	Electrical - Clean	-	1,085	-	-		-	163	1,248	-	1,248		-	-		-
31.39	Electrical - Contaminated	-	608	-	-	23	94	172	897	897	-	46	-	-	5,279	-
31.40	Electrical - Decontaminated	88	466	-	-		-	114	668	668	-		-	-		-
31.41	Emergency Diesel Engine & Oil	-	39	-	-		-	6	44	-	44		-	-		-
31.42	Emergency Diesel Engine & Oil - Ins	-	2	-	-		-	0	2	-	2		-	-		-
31.43	Extraction Steam	-	7	-	-		-	1	8	-	8		-	-		-
31.44	Extraction Steam - Insulated	-	41	-	-		-	6	47	-	47		-	-		-
31.45	Feedwater	-	73	-	-		-	11	84	-	84		-	-		-
31.46	Feedwater - Insulated	-	122	-	-		-	18	140	-	140		-	-		-
31.47	Feedwater - Insulated - RCA	15	14	-	-		-	10	39	39	-		-	-		-
31.48	Feedwater - RCA	2	1	-	-		-	1	4	4	-		-	-		-
31.49	Feedwater Heater Drains & Vents	-	26	-	-		-	4	30	-	30		-	-		-
31.50	Feedwater Heater Drains & Vents - Ins	-	195	-	-		-	29	224	-	224		-	-		-
31.51	Fire Protection	-	178	-	-		-	27	204	-	204		-	-		-
31.52	Fire Protection - RCA	147	121	-	-		-	92	359	359	-		-	-		-
31.53	Fuel Handling HVAC	-	43	-	-	7	27	17	94	94	-	13	-	-	1,541	-
31.54	Generator	-	3	-	-		-	0	3	-	3		-	-		-
31.55	Generator - Insulated	-	1	-	-		-	0	1	-	1		-	-		-
31.56	HVAC - Clean	-	165	-	-		-	25	190	-	190		-	-		-
31.57	HVAC - Contaminated	-	44	-	-	6	26	17	93	93	-	13	-	-	1,459	-
31.58	Instrument Air	-	11	-	-		-	2	13	-	13		-	-		-
31.59	Instrument Air - Insulated	-	10	-	-		-	1	11	-	11		-	-		-
31.60	Instrument Air - Insulated - RCA	16	14	-	-		-	10	41	41	-		-	-		-
31.61	Instrument Air - RCA	11	10	-	-		-	7	27	27	-		-	-		-
31.62	Intake Cooling Water	-	108	-	-		-	16	124	-	124		-	-		-
31.63	Main Steam - Insulated	-	105	-	-		-	16	120	-	120		-	-		-
31.64	Main Steam - Insulated - RCA	8	7	-	-		-	5	21	21	-		-	-		-
31.65	Miscellaneous - RCA	1	1	-	-		-	1	3	3	-		-	-		-
31.66	Nitrogen & Hydrogen	-	1	-	-		-	0	1	-	1		-	-		-
31.67	Nitrogen & Hydrogen - RCA	0	0	-	-		-	0	0	0	-		-	-		-
31.68	Primary Water Makeup	-	38	-	-		-	6	44	-	44		-	-		-
31.69	Radwaste Building HVAC	-	96	-	-	14	56	36	202	202	-	28	-	-	3,160	-
31.70	Reactor Coolant - Insulated	48	59	-	-	75	-	58	240	240	-	143	-	-	17,098	-
31.71	Refueling Equipment	-	100	-	-	368	-	117	584	584	-	724	-	-	83,568	-
31.72	Residual Heat Removal	76	56	-	-	1,172	-	345	1,648	1,648	-	2,192	-	-	266,278	-
31.73	Residual Heat Removal - Insulated	211	292	-	-	793	-	377	1,672	1,672	-	1,524	-	-	180,132	-
31.74	Safety Injection	-	121	-	-	43	145	63	373	373	-	141	-	-	9,862	-

TABLE C-2
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
31.29	Containment Normal & Emerg Cooling	-	484	-	-	93	273	185	1,036	1,036	-	179	-	-	21,249	-
31.30	Containment Normal & Emerg Cooling -	-	6	-	-	7	-	3	16	16	-	12	-	-	1,653	-
31.31	Containment Post Accident Eval	-	9	-	-	4	0	3	16	16	-	7	-	-	826	-
31.32	Containment Post Accident Eval - Ins	-	19	-	-	23	-	11	53	53	-	42	-	-	5,328	-
31.33	Containment Purge	-	33	-	-	47	0	20	101	101	-	89	-	-	10,743	-
31.34	Containment Spray	-	60	-	-	161	-	55	276	276	-	307	-	-	36,569	-
31.35	Containment Spray - Insulated	-	53	-	-	91	-	36	179	179	-	167	-	-	20,642	-
31.36	Control Building HVAC	-	16	-	-		-	2	19	-	19		-	-		-
31.37	EDG Building HVAC	-	2	-	-		-	0	3	-	3		-	-		-
31.38	Electrical - Clean	-	1,085	-	-		-	163	1,248	-	1,248		-	-		-
31.39	Electrical - Contaminated	-	608	-	-	23	94	172	897	897	-	46	-	-	5,279	-
31.40	Electrical - Decontaminated	88	466	-	-		-	114	668	668	-		-	-		-
31.41	Emergency Diesel Engine & Oil	-	39	-	-		-	6	44	-	44		-	-		-
31.42	Emergency Diesel Engine & Oil - Ins	-	2	-	-		-	0	2	-	2		-	-		-
31.43	Extraction Steam	-	7	-	-		-	1	8	-	8		-	-		-
31.44	Extraction Steam - Insulated	-	41	-	-		-	6	47	-	47		-	-		-
31.45	Feedwater	-	73	-	-		-	11	84	-	84		-	-		-
31.46	Feedwater - Insulated	-	122	-	-		-	18	140	-	140		-	-		-
31.47	Feedwater - Insulated - RCA	15	14	-	-		-	10	39	39	-		-	-		-
31.48	Feedwater - RCA	2	1	-	-		-	1	4	4	-		-	-		-
31.49	Feedwater Heater Drains & Vents	-	26	-	-		-	4	30	-	30		-	-		-
31.50	Feedwater Heater Drains & Vents - Ins	-	195	-	-		-	29	224	-	224		-	-		-
31.51	Fire Protection	-	178	-	-		-	27	204	-	204		-	-		-
31.52	Fire Protection - RCA	147	121	-	-		-	92	359	359	-		-	-		-
31.53	Fuel Handling HVAC	-	43	-	-	7	27	17	94	94	-	13	-	-	1,541	-
31.54	Generator	-	3	-	-		-	0	3	-	3		-	-		-
31.55	Generator - Insulated	-	1	-	-		-	0	1	-	1		-	-		-
31.56	HVAC - Clean	-	165	-	-		-	25	190	-	190		-	-		-
31.57	HVAC - Contaminated	-	44	-	-	6	26	17	93	93	-	13	-	-	1,459	-
31.58	Instrument Air	-	11	-	-		-	2	13	-	13		-	-		-
31.59	Instrument Air - Insulated	-	10	-	-		-	1	11	-	11		-	-		-
31.60	Instrument Air - Insulated - RCA	16	14	-	-		-	10	41	41	-		-	-		-
31.61	Instrument Air - RCA	11	10	-	-		-	7	27	27	-		-	-		-
31.62	Intake Cooling Water	-	108	-	-		-	16	124	-	124		-	-		-
31.63	Main Steam - Insulated	-	105	-	-		-	16	120	-	120		-	-		-
31.64	Main Steam - Insulated - RCA	8	7	-	-		-	5	21	21	-		-	-		-
31.65	Miscellaneous - RCA	1	1	-	-		-	1	3	3	-		-	-		-
31.66	Nitrogen & Hydrogen	-	1	-	-		-	0	1	-	1		-	-		-
31.67	Nitrogen & Hydrogen - RCA	0	0	-	-		-	0	0	0	-		-	-		-
31.68	Primary Water Makeup	-	38	-	-		-	6	44	-	44		-	-		-
31.69	Radwaste Building HVAC	-	96	-	-	14	56	36	202	202	-	28	-	-	3,160	-
31.70	Reactor Coolant - Insulated	48	59	-	-	75	-	58	240	240	-	143	-	-	17,098	-
31.71	Refueling Equipment	-	100	-	-	368	-	117	584	584	-	724	-	-	83,568	-
31.72	Residual Heat Removal	76	56	-	-	1,172	-	345	1,648	1,648	-	2,192	-	-	266,278	-
31.73	Residual Heat Removal - Insulated	211	292	-	-	793	-	377	1,672	1,672	-	1,524	-	-	180,132	-
31.74	Safety Injection	-	121	-	-	43	145	63	373	373	-	141	-	-	9,862	-

TABLE C-2
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
Period 2 Additional Costs																
36	Mixed/Hazardous Waste	-	-	-	-		3,289	493	3,782	3,782	-		-	-		-
37	Seaweed Remediation & Disposal	-	-	-	-		2,250	338	2,588	2,588	-		-	-		-
38	License Termination Survey	-	-	-	-		5,447	817	6,264	6,264	-		-	-		-
Subtotal Period 2 Activity Costs		3,875	16,234	6,423	4,327	44,582	13,319	29,178	117,940	113,874	4,066	64,287	2,242	1,020	8,058,000	553
Period 2 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	448	-	-	-		-	112	560	560	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	431	-	279	418	3,106	-	1,083	5,317	5,317	-		4,927	-	705,931	-
5	Insurance	-	-	-	-		1,340	134	1,474	1,474	-		-	-		-
6	Property taxes	-	-	-	-		1,090	109	1,199	1,079	120		-	-		-
7	Health physics supplies	-	2,252	-	-		-	563	2,815	2,815	-		-	-		-
8	Heavy equipment rental	-	8,185	-	-		-	1,228	9,413	8,472	941		-	-		-
9	Small tool allowance	-	211	-	-		-	32	242	218	24		-	-		-
10	Pipe cutting equipment	-	749	-	-		-	112	862	862	-		-	-		-
11	Decon ng	974	-	-	-		-	146	1,120	1,120	-		-	-		-
12	Disposal of DAW generated	-	-	58	20	3,245	-	820	4,144	4,144	-	10,537	-	-	698,671	-
13	Decommissioning Equipment Disposili	-	-	-	-	83	278	63	424	424	-	270	-	-	30,000	-
14	Plant energy budget	-	-	-	-		2,817	423	3,239	2,915	324		-	-		-
15	NRC ISFSI Fees	-	-	-	-		747	75	822	822	-		-	-		-
16	NRC Fees	-	-	-	-		1,345	135	1,480	1,480	-		-	-		-
17	Emergency Planning Fees	-	-	-	-		267	27	293	293	-		-	-		-
18	Site Security	-	-	-	-		6,184	928	7,112	7,112	-		-	-		-
19	Fixed Overhead	-	-	-	-		3,828	574	4,402	4,402	-		-	-		-
20	Radwaste Processing Skids	-	-	-	-		409	61	470	470	-		-	-		-
Subtotal Undistributed Costs Period 2		2,344	12,419	337	438	6,435	18,305	6,850	47,127	45,718	1,409	10,807	4,927	-	1,434,603	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		29,620	4,443	34,062	34,062	-		-	-		-
	Utility Staff Cost	-	-	-	-		62,866	9,430	72,296	72,296	-		-	-		-
TOTAL PERIOD 2		**6,219**	**28,653**	**6,760**	**4,765**	**51,017**	**124,110**	**49,900**	**271,425**	**265,950**	**5,475**	**75,094**	**7,169**	**1,020**	**9,492,602**	**553**

TABLE C-2
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 3																
Demolition of Remaining Site Buildings																
39.1	Reactor Building	-	2,696	-	-		-	404	3,101	465	2,636		-	-		-
39.2	Auxiliary Building	-	831	-	-		-	125	955	96	860		-	-		-
39.3	Control Building	-	81	-	-		-	12	93	-	93		-	-		-
39.4	Fuel Handling	-	340	-	-		-	51	391	39	352		-	-		-
39.5	Intake	-	186	-	-		-	28	214	-	214		-	-		-
39.6	Miscellaneous Structures - Clean	-	1,721	-	-		-	258	1,979	-	1,979		-	-		-
39.7	Miscellaneous Structures - Contaminat	-	69	-	-		-	10	79	4	75		-	-		-
39.8	Radwaste Solidification Building	-	532	-	-		-	80	612	61	551		-	-		-
39.9	Sealwell	-	182	-	-		-	27	209	-	209		-	-		-
39.10	Turbine Building	-	297	-	-		-	44	341	-	341		-	-		-
39.11	Turbine Pedestal	-	256	-	-		-	38	294	-	294		-	-		-
39	Totals	-	7,190	-	-		-	1,078	8,268	665	7,604		-	-		-
Site Closeout Activities																
40	Remove Rubble	-	619	-	-		-	93	712	-	712		-	-		-
41	Grade & landscape site	-	94	-	-		-	14	108	-	108		-	-		-
42	Final report to NRC	-	-	-	-		67	10	77	77	-		-	-		-
Period 3 Additional Costs																
43	ISFSI License Termination	-	938	11	5	227	878	425	2,485	2,485	-	1,234	-	-		-
44	ISFSI Demolition and Site Restoration	-	216	-	-		89	67	372	372	-		-	-		-
Subtotal Period 3 Activity Costs		-	9,057	11	5	227	1,033	1,688	12,022	3,599	8,423	1,234	-	-		-
Period 3 Undistributed Costs																
1	Insurance	-	-	-	-		2,222	222	2,444	2,444	-		-	-		-
2	Property taxes	-	-	-	-		2,379	238	2,617	-	2,617		-	-		-
3	Heavy equipment rental	-	1,563	-	-		-	235	1,798	-	1,798		-	-		-
4	Small tool allowance	-	55	-	-		-	8	63	-	63		-	-		-
5	Plant energy budget	-	-	-	-		68	10	78	-	78		-	-		-
6	NRC ISFSI Fees	-	-	-	-		1,560	156	1,716	1,716	-		-	-		-
7	Emergency Planning Fees	-	-	-	-		557	56	612	612	-		-	-		-
8	Site Security	-	-	-	-		2,770	416	3,186	-	3,186		-	-		-
Subtotal Undistributed Costs Period 3		-	1,618	-	-		9,555	1,340	12,514	4,772	7,742		-	-		-
Staff Costs																
	DOC Staff Cost	-	-	-	-		4,392	659	5,050	-	5,050		-	-		-
	Utility Staff Cost	-	-	-	-		12,136	1,820	13,957	12,561	1,396		-	-		-
TOTAL PERIOD 3		-	10,675	11	5	227	27,116	5,507	43,543	20,932	22,611	1,234	-	-		-

TABLE C-2
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
TOTAL COST TO DECOMMISSION		7,322	40,991	7,099	5,067	55,556	230,288	68,938	415,261	386,462	28,799	79,532	11,721	1,020	10,417,732	553

Total cost to decommission with	19.91%	contingency	$ 415,261,461	
Total NRC license termination cost is	93.06%	or	$ 386,462,392	
Non-nuclear demolition cost is	6.94%	or	$ 28,799,068	
Total site radwaste volume buried			92,273	cubic feet
Total site radwaste weight buried			10,417,732	pounds
Total 10CFR61 greater than class C wasle buried			553	cubic feet
Total scrap metal released from site			16,090	tons
Total craft labor requirements			890,508	person hours

NOTES:
1) This activity is performed by the decommissioning staff following plant shutdown; the costs for this are included in this period's staff cost
2) This activity, while performed after final plant shuldown, is considered part of operations and therefore no decommissioning costs are included for this activity.

TABLE C-3
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 1: Mothballing Activities																
1	Prepare preliminary decommissioning cost	-	-	-	-		130	20	150	150	-	-	-	-		-
2	Notification of Cessation of Operations								Note 1							
3	Remove fuel & source material								Note 2							
4	Notification of Permanent Defueling								Note 1							
5	Deactivate plant systems & process waste								Note 1							
6	Prepare and submit PSDAR	-	-	-	-		200	30	230	230	-		-	-		-
7	Review plant dwgs & specs	-	-	-	-		130	20	150	150	-		-	-		-
8	Perform detailed rad survey								Note 1							
9	Estimate by-product inventory	-	-	-	-		100	15	115	115	-		-	-		-
10	End product description	-	-	-	-		100	15	115	115	-		-	-		-
11	Detailed by-product inventory	-	-	-	-		150	23	173	173	-		-	-		-
12	Define major work sequence	-	-	-	-		100	15	115	115	-		-	-		-
13	Perform SER and EA	-	-	-	-		310	47	357	357	-		-	-		-
14	Perform Site-Specific Cost Study	-	-	-	-		500	75	575	575	-		-	-		-
15	Prepare/submit License Termination Plan	-	-	-	-		410	61	471	471	-		-	-		-
16	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
17.1	Prepare plant and facilities for SAFSTOR	-	-	-	-		492	74	566	566	-		-	-		-
17.2	Plant systems	-	-	-	-		417	63	479	479	-		-	-		-
17.3	Plant structures and buildings	-	-	-	-		312	47	359	359	-		-	-		-
17.4	Waste management	-	-	-	-		200	30	230	230	-		-	-		-
17.5	Facility and site dormancy	-	-	-	-		200	30	230	230	-		-	-		-
17	Total	-	-	-	-		1,621	243	1,864	1,864	-		-	-		-
Detailed Work Procedures																
18.1	Plant systems	-	-	-	-		473	71	544	544	-		-	-		-
18.2	Facility closeout & dormancy	-	-	-	-		120	18	138	138	-		-	-		-
18	Total	-	-	-	-		593	89	682	682	-		-	-		-
19	Procure vacuum drying system	-	-	-	-		10	2	12	12	-		-	-		-
20	Drain/de-energize non-cont systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
21	Drain & dry NSSS	-	-	-	-		-	-	Note 1	-	-		-	-		-
22	Drain/de-energize contaminated systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
23	Decon/secure contaminated systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
Decontamination of Site Buildings																
24.1	Reactor Building	462	-	-	-		-	231	694	694	-		-	-	-	-
24.2	Fuel Handling	181	-	-	-		-	91	272	272	-		-	-	-	-
24	Totals	644	-	-	-	-	-	322	966	966	-	-	-	-	-	-
25	Prepare support equipment for storage	-	278	-	-		-	42	320	320	-		-	-		-
26	Install containment pressure equal. lines	-	19	-	-		-	3	22	22	-		-	-		-
27	Interim survey prior to dormancy	-	-	-	-		320	48	369	369	-		-	-		-
28	Secure building accesses	-	-	-	-		-	-	Note 1	-	-		-	-		-
29	Prepare & submit interim report	-	-	-	-		58	9	67	67	-		-	-		-

TABLE C-3
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Period 1 Additional Costs																
30	Mixed/Hazardous Waste	-	-	-	-		3,289	493	3,782	3,782	-		-	-		-
31	Seaweed Remediation & Disposal	-	-	-	-		2,250	338	2,588	2,588	-		-	-		-
Subtotal Period 1 Activity Costs		644	297	-	-	-	10,271	1,907	13,119	13,119	-	-	-	-	-	-
Period 1 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	223	-	-	-		-	56	279	279	-		-	-		-
3	Process liquid waste	169	-	62	117	637	-	268	1,254	1,254	-	-	1,149	-	144,884	-
4	Insurance	-	-	-	-		2,060	206	2,266	2,266	-		-	-		-
5	Property taxes	-	-	-	-		310	31	341	341	-		-	-		-
6	Health physics supplies	-	250	-	-		-	63	313	313	-		-	-		-
7	Small tool allowance	-	10	-	-		-	2	12	12	-		-	-		-
8	Disposal of DAW generated	-	-	17	5	790	-	200	1,011	1,011	-	2,564	-	-	177,002	-
9	Plant energy budget	-	-	-	-		733	110	842	842	-		-	-		-
10	Fuel storage capital expenditures	-	-	-	-		40,375	6,056	46,431	46,431	-		-	-		-
11	NRC ISFSI Fees	-	-	-	-		212	21	234	234	-		-	-		-
12	NRC Fees	-	-	-	-		304	30	334	334	-		-	-		-
13	Emergency Planning Fees	-	-	-	-		76	8	83	83	-		-	-		-
14	Site Security	-	-	-	-		1,004	151	1,155	1,155	-		-	-		-
15	Fixed Overhead	-	-	-	-		1,088	163	1,251	1,251	-		-	-		-
Subtotal Undistributed Costs Period 1		883	260	78	122	1,427	46,161	7,437	56,370	56,370	-	2,564	1,149	-	321,886	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		-	-	-	-	-		-	-		-
	Utility Staff Cost	-	-	-	-		17,993	2,699	20,692	20,692	-		-	-		-
TOTAL COST TO SAFSTOR		**1,527**	**557**	**78**	**122**	**1,427**	**74,426**	**12,043**	**90,181**	**90,181**	**-**	**2,564**	**1,149**	**-**	**321,886**	**-**

Total cost to SAFSTOR with	15.41% contingency:	90,180,667	
Total site radwaste volume buried		3,713	cubic feet
Total craft labor requirements		28,753	person hours

TABLE C-3
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 2: SAFSTOR Dormancy Activities																
1	Quarterly Inspection								Note 1							
2	Semi-annual environmental survey								Note 1							
3	Prepare reports								Note 1							
4	Health physics supplies	-	-	-	-		46	11	57	57	-		-	-		-
5	Insurance	-	-	-	-		104	10	114	114	-		-	-		-
6	Property taxes	-	-	-	-		206	21	227	227	-		-	-		-
7	Disposal of contaminated solid waste	-	-	1	0	29	-	7	38	38	-	102	-	-		-
8	Bituminous roof replacement	-	-	-	-		-	-	-	-	-	-	-	-		-
9	Maintenance supplies	-	-	-	-		99	25	123	123	-		-	-		-
10	Plant energy budget	-	-	-	-		136	20	156	156	-		-	-		-
11	NRC ISFSI Fees	-	-	-	-		46	5	51	51	-		-	-		-
12	NRC Fees	-	-	-	-		166	17	182	182	-		-	-		-
13	Emergency Planning Fees	-	-	-	-		16	2	18	18	-		-	-		-
14	Site Security	-	-	-	-		269	40	309	309	-		-	-		-
15	Fixed Overhead	-	-	-	-		72	11	83	83	-		-	-		-
16	Site maintenance staff	-	-	-	-		1,477	222	1,698	1,698	-		-	-		-
PERIOD 2 ANNUAL MAINTENANCE TOTALS		-	-	1	0	29	2,637	390	3,058	3,058	-	102	-	-	-	-

Total cost SAFSTOR dormancy with	52.3133	years equals	159,951,064	
Total site radwaste volume buried			5,331	cubic feet

TABLE C-3
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 3																
1	Review plant dwgs & specs.	-	-	-	-		460	69	529	529	-		-	-		-
2	Perform detailed rad survey								Note 1							
3	End product description	-	-	-	-		100	15	115	115	-		-	-		-
4	Detailed by-product inventory	-	-	-	-		130	20	150	150	-		-	-		-
5	Define major work sequence	-	-	-	-		750	113	863	863	-		-	-		-
6	Perform SER and EA	-	-	-	-		310	47	357	357	-		-	-		-
7	Perform Site-Specific Cost Study	-	-	-	-		500	75	575	575	-		-	-		-
8	Prepare/submit License Termination Plan	-	-	-	-		410	61	471	471	-		-	-		-
9	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
10.1	Re-activate plant & temporary facilities	-	-	-	-		737	111	848	763	85		-	-		-
10.2	Plant systems	-	-	-	-		417	63	479	431	48		-	-		-
10.3	Reactor internals	-	-	-	-		710	107	817	817	-		-	-		-
10.4	Reactor vessel	-	-	-	-		650	98	748	748	-		-	-		-
10.5	Biological shield	-	-	-	-		50	8	58	58	-		-	-		-
10.6	Steam generators	-	-	-	-		312	47	359	359	-		-	-		-
10.7	Reinforced concrete	-	-	-	-		160	24	184	92	92		-	-		-
10.8	Turbine & condenser	-	-	-	-		80	12	92	-	92		-	-		-
10.9	Plant structures & buildings	-	-	-	-		312	47	359	179	179		-	-		-
10.10	Waste management	-	-	-	-		460	69	529	529	-		-	-		-
10.11	Facility & site closeout	-	-	-	-		90	14	104	52	52		-	-		-
10	Total	-	-	-	-		3,978	597	4,574	4,026	548		-	-		-
Planning & Site Preparations																
11	Prepare dismantling sequence	-	-	-	-		240	36	276	276	-		-	-		-
12	Plant prep & temp. svces	-	-	-	-		1,895	284	2,180	2,180	-		-	-		-
13	Design water clean-up system	-	-	-	-		140	21	161	161	-		-	-		-
14	Rigging/Cont. Cntrl Envlps/tooling/etc	-	-	-	-		1,604	241	1,845	1,845	-		-	-		-
15	Procure casks/liners & containers	-	-	-	-		123	18	141	141	-		-	-		-
Detailed Work Procedures																
16.1	Plant systems	-	-	-	-		473	71	544	490	54		-	-		-
16.2	Reactor internals	-	-	-	-		250	38	288	288	-		-	-		-
16.3	Remaining buildings	-	-	-	-		135	20	155	39	116		-	-		-
16.4	CRD cooling assembly	-	-	-	-		100	15	115	115	-		-	-		-
16.5	CRD housings & ICI tubes	-	-	-	-		100	15	115	115	-		-	-		-
16.6	Incore instrumentation	-	-	-	-		100	15	115	115	-		-	-		-
16.7	Reactor vessel	-	-	-	-		363	54	417	417	-		-	-		-
16.8	Facility closeout	-	-	-	-		120	18	138	69	69		-	-		-
16.9	Missile shields	-	-	-	-		45	7	52	52	-		-	-		-
16.10	Biological shield	-	-	-	-		120	18	138	138	-		-	-		-
16.11	Steam generators	-	-	-	-		460	69	529	529	-		-	-		-
16.12	Reinforced concrete	-	-	-	-		100	15	115	58	58		-	-		-
16.13	Turbine & condensers	-	-	-	-		312	47	359	-	359		-	-		-
16.14	Auxiliary building	-	-	-	-		273	41	314	283	31		-	-		-
16.15	Reactor building	-	-	-	-		273	41	314	283	31		-	-		-
16	Total	-	-	-	-		3,224	484	3,708	2,989	719		-	-		-
17	Asbestos removal program	-	217	37	1	231	7	117	610	427	184	640	-	-		-

TABLE C-3
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Period 3 Additional Costs																
18	Site Characterization Survey	-	-	-	-		683	102	785	785	-		-	-		-
Subtotal Penod 3 Activity Costs		-	217	37	1	231	14,554	2,299	17,340	15,889	1,450	640	-	-		-
Period 3 Undistributed Costs																
1	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
2	Insurance	-	-	-	-		290	29	319	319	-		-	-		-
3	Property taxes	-	-	-	-		309	31	340	340	-		-	-		-
4	Health physics supplies	-	207	-	-		-	52	259	259	-		-	-		-
5	Heavy equipment rental	-	446	-	-		-	67	513	513	-		-	-		-
6	Disposal of DAW generated	-	-	17	5	788	-	199	1,009	1,009	-	2,560	-	-	176,707	-
7	Plant energy budget	-	-	-	-		759	114	872	872	-		-	-		-
8	NRC Fees	-	-	-	-		303	30	333	333	-		-	-		-
9	Site Secunty	-	-	-	-		714	107	821	821	-		-	-		-
10	Fixed Overhead	-	-	-	-		1,086	163	1,248	1,248	-		-	-		-
Subtotal Undistributed Costs Period 3		-	1,674	17	5	788	3,461	945	6,890	6,890	-	2,560	-	-	176,707	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		5,331	800	6,130	6,130	-		-	-		-
	Utility Staff Cost	-	-	-	-		16,565	2,485	19,049	19,049	-		-	-		-
TOTAL PERIOD 3 COST		**-**	**1,891**	**54**	**7**	**1,019**	**39,910**	**6,529**	**49,410**	**47,959**	**1,450**	**3,200**	**-**	**-**	**176,707**	**-**

TABLE C-3
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 4																
Nuclear Steam Supply System Removal																
19.1	Reactor Coolant Piping	26	40	4	5	131	-	57	263	263	-	319	-	-	29,769	-
19.2	Pressurizer Relief Tank	11	58	3	3	87	-	43	205	205	-	300	-	-	19,699	-
19.3	Reactor Coolant Pumps & Motors	21	30	21	27	2,789	-	721	3,609	3,609	-	2,256	-	-	633,930	-
19.4	Pressurizer	16	27	4	9	943	-	252	1,250	1,250	-	1,771	-	-	214,343	-
19.5	Steam Generators	113	920	2,067	1,977	4,530	-	1,922	11,530	11,530	-	18,876	-	-	2,339,184	-
19.6	Old Steam Generator Lower Shell Units	-	-	1,650	1,578	1,896	-	876	6,000	6,000	-	7,899	-	-	1,134,000	-
19.7	CRDMs/ICIs/Service Structure Removal	64	44	41	10	185	-	95	439	439	-	2,253	-	-	64,288	-
19.8	Reactor Vessel Internals	45	1,218	2,363	349	3,688	-	3,458	11,119	11,119	-	786	393	1,020	223,389	-
19.9	Vessel & Internals GTCC Disposal	-	-	-	-	12,355	-	6,178	18,533	18,533	-	-	-	-	-	553
19.10	Reactor Vessel	96	3,071	176	263	3,865	-	4,394	11,865	11,865	-	3,930	1,703	-	786,229	-
19	Totals	392	5,408	6,330	4,220	30,469	-	17,995	64,813	64,813	-	38,389	2,096	1,020	5,444,831	553
20	Remove spent fuel racks	204	22	-	-	88	166	154	634	634	-	285	-	-	31,590	-
Removal of Major Equipment																
21	Main Turbine/Generator	-	46	-	-		-	7	53	-	53	-	-	-	-	-
22	Main Condensers	-	371	-	-		-	56	426	-	426	-	-	-	-	-
Disposal of Plant Systems																
23.1	Ameritap	-	37	-	-	-	-	6	43	-	43	-	-	-	-	-
23.2	Auxiliary Feedwater	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.3	Auxiliary Feedwater - Insulated	-	9	-	-	-	-	1	10	-	10	-	-	-	-	-
23.4	Auxiliary Feedwater - Insulated - RCA	-	13	-	-	-	-	2	15	15	-	-	-	-	-	-
23.5	Auxiliary Feedwater - RCA	-	3	-	-	-	-	0	4	4	-	-	-	-	-	-
23.6	Auxiliary Steam	-	0	-	-	-	-	0	0	-	0	-	-	-	-	-
23.7	Auxiliary Steam - Insulated	-	16	-	-	-	-	2	19	-	19	-	-	-	-	-
23.8	Auxiliary Steam - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.9	Auxiliary Steam - RCA	-	0	-	-	-	-	0	0	-	-	-	-	-	-	-
23.10	Breathing Air - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.11	Breathing Air - RCA	-	2	-	-	-	-	0	2	2	-	-	-	-	-	-
23.12	Chemical & Volume Control	-	50	-	-	280	-	83	413	413	-	748	-	-	63,666	-
23.13	Chemical & Volume Control - Insulated	-	173	-	-	245	-	105	523	523	-	456	-	-	55,760	-
23.14	Circulating Water	-	49	-	-	-	-	7	56	-	56	-	-	-	-	-
23.15	Component Cooling Water	-	78	-	-	-	-	12	90	-	90	-	-	-	-	-
23.16	Component Cooling Water - RCA	-	44	-	-	-	-	7	51	51	-	-	-	-	-	-
23.17	Condensate	-	89	-	-	-	-	13	102	-	102	-	-	-	-	-
23.18	Condensate - Insulated	-	28	-	-	-	-	4	32	-	32	-	-	-	-	-
23.19	Condensate Polishing	-	17	-	-	-	-	2	19	-	19	-	-	-	-	-
23.20	Condensate Polishing - Ins	-	43	-	-	-	-	6	50	-	50	-	-	-	-	-
23.21	Condensate Recovery	-	8	-	-	-	-	1	10	-	10	-	-	-	-	-
23.22	Condensate Recovery - Insulated	-	1	-	-	-	-	0	2	-	2	-	-	-	-	-
23.23	Condensate Recovery - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.24	Condensate Recovery - RCA	-	3	-	-	-	-	0	3	3	-	-	-	-	-	-
23.25	Condensate Storage	-	36	-	-	-	-	5	42	-	42	-	-	-	-	-
23.26	Condenser	-	12	-	-	-	-	2	14	-	14	-	-	-	-	-
23.27	Containment Emergency Filter	-	3	-	-	0	2	1	6	6	-	1	-	-	105	-
23.28	Containment Normal & Emerg Coolng	-	426	-	-	88	277	170	961	961	-	170	-	-	20,009	-
23.29	Containment Normal & Emerg Coolng - Ins	-	4	-	-	5	-	2	11	11	-	9	-	-	1,238	-
23.30	Containment Post Accident Eval	-	0	-	-	0	0	0	1	1	-	0	-	-	35	-
23.31	Containment Purge	-	29	-	-	47	0	19	96	98	-	89	-	-	10,743	-
23.32	Containment Spray	-	50	-	-	154	-	51	255	255	-	293	-	-	34,998	-
23.33	Containment Spray - Insulated	-	43	-	-	84	-	32	159	159	-	154	-	-	19,070	-
23.34	EDG Building HVAC	-	1	-	-	-	-	0	2	-	2	-	-	-	-	-
23.35	Electrical - Clean	-	712	-	-	-	-	107	819	-	819	-	-	-	-	-
23.36	Electrical - Contaminated	-	335	-	-	16	65	97	513	513	-	32	-	-	3,664	-
23.37	Electrical - Decontaminated	-	305	-	-	-	-	46	351	351	-	-	-	-	-	-
23.38	Emergency Diesel Engine & Oil	-	35	-	-	-	-	5	40	-	40	-	-	-	-	-

TABLE C-3
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
23.39	Emergency Diesel Engine & Oil - Ins	-	1	-	-	-	-	0	2	-	2	-	-	-	-	-
23.40	Extraction Steam	-	5	-	-	-	-	1	6	-	6	-	-	-	-	-
23.41	Extraction Steam - Insulated	-	26	-	-	-	-	4	29	-	29	-	-	-	-	-
23.42	Feedwater	-	25	-	-	-	-	4	29	-	29	-	-	-	-	-
23.43	Feedwater - Insulated	-	72	-	-	-	-	11	83	-	83	-	-	-	-	-
23.44	Feedwater - Insulated - RCA	-	8	-	-	-	-	1	9	9	-	-	-	-	-	-
23.45	Feedwater - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.46	Feedwater Heater Drains & Vents	-	23	-	-	-	-	3	27	-	27	-	-	-	-	-
23.47	Feedwater Heater Drains & Vents - Ins	-	156	-	-	-	-	23	180	-	180	-	-	-	-	-
23.48	Fire Protection	-	9	-	-	-	-	1	10	-	10	-	-	-	-	-
23.49	Fire Protection - RCA	-	13	-	-	-	-	2	15	15	-	-	-	-	-	-
23.50	Fuel Handling HVAC	-	38	-	-	7	27	15	88	88	-	13	-	-	1,541	-
23.51	Generator	-	3	-	-	-	-	0	3	-	3	-	-	-	-	-
23.52	Generator - Insulated	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.53	Instrument Air	-	7	-	-	-	-	1	7	-	7	-	-	-	-	-
23.54	Instrument Air - Insulated	-	5	-	-	-	-	1	6	-	6	-	-	-	-	-
23.55	Instrument Air - Insulated - RCA	-	8	-	-	-	-	1	9	9	-	-	-	-	-	-
23.56	Instrument Air - RCA	-	5	-	-	-	-	1	6	6	-	-	-	-	-	-
23.57	Intake Cooling Water	-	77	-	-	-	-	12	89	-	89	-	-	-	-	-
23.58	Main Steam - Insulated	-	86	-	-	-	-	13	99	-	99	-	-	-	-	-
23.59	Main Steam - Insulated - RCA	-	5	-	-	-	-	1	6	6	-	-	-	-	-	-
23.60	Miscellaneous - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.61	Primary Water Makeup	-	38	-	-	-	-	6	44	-	44	-	-	-	-	-
23.62	Reactor Coolant - Insulated	-	47	-	-	69	-	29	146	146	-	132	-	-	15,773	-
23.63	Refueling Equipment	-	73	-	-	290	-	91	454	454	-	569	-	-	65,804	-
23.64	Residual Heat Removal	-	45	-	-	1,155	-	300	1,499	1,499	-	2,159	-	-	262,460	-
23.65	Residual Heat Removal - Insulated	-	198	-	-	617	-	204	1,018	1,018	-	1,176	-	-	140,165	-
23.66	Safety Injection	-	107	-	-	43	145	59	355	355	-	140	-	-	9,813	-
23.67	Safety Injection - Insulated	-	83	-	-	215	-	75	373	373	-	412	-	-	48,960	-
23.68	Safety Injection Accumulator	-	154	-	-	137	29	77	397	397	-	279	-	-	31,098	-
23.69	Sample - NSSS	-	12	-	-	7	1	5	26	26	-	12	-	-	1,602	-
23.70	Sample - NSSS - Ins	-	12	-	-	8	-	5	26	26	-	14	-	-	1,858	-
23.71	Screen Wash	-	12	-	-	-	-	2	14	-	14	-	-	-	-	-
23.72	Secondary Sample	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.73	Secondary Sample - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.74	Secondary Wet Layup	-	11	-	-	-	-	2	13	-	13	-	-	-	-	-
23.75	Secondary Wet Layup - RCA	-	2	-	-	-	-	0	3	3	-	-	-	-	-	-
23.76	Service Water	-	0	-	-	-	-	0	0	-	0	-	-	-	-	-
23.77	Service Water - RCA	-	0	-	-	-	-	0	1	1	-	-	-	-	-	-
23.78	Spent Fuel Pool Cooling	-	68	-	-	216	-	71	355	355	-	431	-	-	49,000	-
23.79	Spent Fuel Pool Cooling - Insulated	-	37	-	-	79	-	29	146	146	-	149	-	-	18,053	-
23.80	Steam Generator Wet Layup	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.81	Steam Generator Wet Layup - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.82	Turbine Building HVAC	-	10	-	-	-	-	1	11	-	11	-	-	-	-	-
23.83	Turbine Lube Oil	-	20	-	-	-	-	3	23	-	23	-	-	-	-	-
23.84	Turbine Plant Chemical Addition	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.85	Turbine Plant Cooling Water	-	43	-	-	-	-	6	50	-	50	-	-	-	-	-
23.86	Turbine Plant Cooling Water - Insulated	-	24	-	-	-	-	4	27	-	27	-	-	-	-	-
23.87	Turbine Steam	-	32	-	-	-	-	5	37	-	37	-	-	-	-	-
23.88	Turbine Steam - Insulated	-	14	-	-	-	-	2	17	-	17	-	-	-	-	-
23.89	Waste Disposal	-	21	-	-	49	-	18	88	88	-	113	-	-	11,136	-
23.90	Waste Disposal - Insulated	-	56	-	-	90	-	37	183	183	-	167	-	-	20,538	-
23	Totals	-	4,365	-	-	3,903	547	1,919	10,734	8,570	2,164	7,719	-	-	887,090	-
24	Erect scaffolding for systems removal	-	191	-	-	5	17	51	264	264	-	16	-	-	1,829	-

0001647

TABLE C-3
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	pounds	10 CFR 61 GTCC Cu Ft
Decontamination of Site Buildings																
25.1	Reactor Building	462	300	44	22	2,867	128	1,050	4,873	4,873	-	5,936	-	-	672,211	-
25.2	Fuel Handling	167	169	2	1	58	105	156	658	658	-	188	-	-	20,478	-
25	Totals	629	469	46	22	2,925	233	1,206	5,531	5,531	-	6,124	-	-	692,689	-
26	ORISE confirmatory survey	-	-	-	-		1,064	319	1,383	1,383	-		-	-		-
27	Terminate license								Note 1							
Period 4 Additional Costs																
28	License Termination Survey	-	-	-	-		1,669	250	1,919	1,919	-		-	-		-
29	ISFSI License Termination	-	938	11	5	227	878	425	2,485	2,485	-	1,234	-	-		-
Subtotal Period 4 Activity Costs		1,225	11,809	6,387	4,248	37,617	4,574	22,383	88,243	85,600	2,643	53,766	2,096	1,020	7,058,029	553
Period 4 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	286	-	-	-		-	72	358	358	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	191	-	70	133	721	-	303	1,417	1,417	-		1,300	-	163,824	-
5	Insurance	-	-	-	-		748	75	822	822	-		-	-		-
6	Property taxes	-	-	-	-		968	97	1,065	958	106		-	-		-
7	Health physics supplies	-	1,454	-	-		-	364	1,818	1,818	-		-	-		-
8	Heavy equipment rental	-	7,348	-	-		-	1,102	8,450	7,605	845		-	-		-
9	Small tool allowance	-	121	-	-		-	18	140	126	14		-	-		-
10	Pipe cutting equipment	-	749	-	-		-	112	862	862	-		-	-		-
11	Disposal of DAW generated	-	-	52	16	2,469	-	625	3,161	3,161	-	8,016	-	-	553,426	-
12	Decommissioning Equipment Disposition	-	-	-	-	83	278	63	424	424	-	270	-	-	30,000	-
13	Plant energy budget	-	-	-	-		2,041	306	2,348	2,113	235		-	-		-
14	NRC Fees	-	-	-	-		1,077	108	1,185	1,185	-		-	-		-
15	Site Security	-	-	-	-		3,485	523	4,008	4,008	-		-	-		-
16	Fixed Overhead	-	-	-	-		3,400	510	3,909	3,909	-		-	-		-
17	Radwaste Processing Skids	-	-	-	-		554	83	637	637	-		-	-		-
Subtotal Undistributed Costs Period 4		968	10,694	122	149	3,273	12,551	4,586	32,343	31,142	1,200	8,287	1,300	-	747,251	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		19,917	2,988	22,905	22,905	-		-	-		-
	Utility Staff Cost	-	-	-	-		30,506	4,576	35,082	35,082	-		-	-		-
TOTAL PERIOD 4		**2,193**	**22,503**	**6,508**	**4,397**	**40,890**	**67,549**	**34,532**	**178,572**	**174,730**	**3,843**	**62,053**	**3,396**	**1,020**	**7,805,279**	**553**

TABLE C-3
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 5																
Demolition of Remaining Site Buildings																
30.1	Reactor Building	-	2,696	-	-		-	404	3,101	465	2,636		-	-		-
30.2	Fuel Handling	-	340	-	-		-	51	391	39	352		-	-		-
30.3	Miscellaneous Structures	-	115	-	-		-	17	132	-	132		-	-		-
30.4	Sealwell	-	182	-	-		-	27	209	-	209		-	-		-
30.5	Turbine Building	-	314	-	-		-	47	361	-	361		-	-		-
30.6	Turbine Pedestal	-	256	-	-		-	38	294	-	294		-	-		-
30	Totals	-	3,902	-	-		-	585	4,488	504	3,983		-	-		-
Site Closeout Activities																
31	Grade & landscape site	-	94	-	-		-	14	108	-	108		-	-		-
32	Final report to NRC	-	-	-	-		156	23	179	179	-		-	-		-
Period 5 Additional Costs																
33	ISFSI Demolition and Site Restoration	-	216	-	-		89	67	372	372	-		-	-		-
Subtotal Period 5 Activity Costs		-	4,212	-	-		245	690	5,147	1,055	4,091		-	-		-
Period 5 Undistributed Costs																
1	Insurance	-	-	-	-		120	12	132	132	-		-	-		-
2	Property taxes	-	-	-	-		227	23	249	-	249		-	-		-
3	Heavy equipment rental	-	1,577	-	-		-	237	1,813	-	1,813		-	-		-
4	Small tool allowance	-	28	-	-		-	4	33	-	33		-	-		-
5	Plant energy budget	-	-	-	-		59	9	67	-	67		-	-		-
6	Site Security	-	-	-	-		151	23	174	-	174		-	-		-
Subtotal Undistributed Costs Period 5		-	1,605	-	-		556	307	2,468	132	2,336		-	-		-
Staff Costs																
	DOC Staff Cost	-	-	-	-		2,179	327	2,506	-	2,506		-	-		-
	Utility Staff Cost	-	-	-	-		751	113	863	777	86		-	-		-
TOTAL PERIOD 5		-	5,817	-	-	-	3,731	1,436	10,985	1,964	9,020	-	-	-	-	-
TOTAL COST TO DECOMMISSION		3,720	30,769	6,675	4,536	44,877	323,552	74,968	489,098	474,785	14,313	73,148	4,545	1,020	8,303,873	553

Total cost to decommission with	18.10% contingency.	$	489,098,180	
Total NRC license termination cost is	97.07%	or	$ 474,784,855	
Non-nuclear demolition cost is	2.93%	or	$ 14,313,316	
Total site radwaste volume buried			78,713	cubic feet
Total site radwaste weight buried			8,303,873	pounds
Total 10CFR61 greater than class C waste buried			553	cubic feet
Total scrap metal released from site			12,064	tons
Total craft labor requirements			502,225	person hours

NOTES:
1) This activity is performed by the decommissioning staff following plant shutdown; the costs for this are included in this period's staff cost.
2) This activity, while performed after final plant shutdown, is considered part of operations and therefore no decommissioning costs are included for this activity.

TABLE C-4
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 1: Mothballing Activities																
1	Prepare preliminary decommissioning cost	-	-	-	-		56	8	64	64	-	-	-	-		-
2	Notification of Cessation of Operations								Note 1							
3	Remove fuel & source material								Note 2							
4	Notification of Permanent Defueling								Note 1							
5	Deactivate plant systems & process waste								Note 1							
6	Prepare and submit PSDAR	-	-	-	-		86	13	98	98	-		-	-		-
7	Review plant dwgs & specs.	-	-	-	-		56	8	64	64	-		-	-		-
8	Perform detailed rad survey								Note 1							
9	Estimate by-product inventory	-	-	-	-		43	6	49	49	-		-	-		-
10	End product description	-	-	-	-		43	6	49	49	-		-	-		-
11	Detailed by-product inventory	-	-	-	-		64	10	74	74	-		-	-		-
12	Define major work sequence	-	-	-	-		43	6	49	49	-		-	-		-
13	Perform SER and EA	-	-	-	-		133	20	152	152	-		-	-		-
14	Perform Site-Specific Cost Study	-	-	-	-		214	32	246	246	-		-	-		-
15	Prepare/submit License Termination Plan	-	-	-	-		175	26	201	201	-		-	-		-
16	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
17.1	Prepare plant and facilities for SAFSTOR	-	-	-	-		210	32	242	242	-		-	-		-
17.2	Plant systems	-	-	-	-		178	27	205	205	-		-	-		-
17.3	Plant structures and buildings	-	-	-	-		133	20	153	153	-		-	-		-
17.4	Waste management	-	-	-	-		86	13	98	98	-		-	-		-
17.5	Facility and site dormancy	-	-	-	-		86	13	98	98	-		-	-		-
17	Total	-	-	-	-		693	104	797	797	-		-	-		-
Detailed Work Procedures																
18.1	Plant systems	-	-	-	-		202	30	233	233	-		-	-		-
18.2	Facility closeout & dormancy	-	-	-	-		51	8	59	59	-		-	-		-
18	Total	-	-	-	-		254	38	292	292	-		-	-		-
19	Procure vacuum drying system	-	-	-	-		4	1	5	5	-		-	-		-
20	Drain/de-energize non-cont. systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
21	Drain & dry NSSS	-	-	-	-		-	-	Note 1	-	-		-	-		-
22	Drain/de-energize contaminated systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
23	Decon/secure contaminated systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
Decontamination of Site Buildings																
24.1	Reactor Building	462	-	-	-		-	231	694	694	-		-	-	-	-
24.2	Auxiliary Building	173	-	-	-		-	87	260	260	-		-	-	-	-
24.3	Fuel Handling	181	-	-	-		-	91	272	272	-		-	-	-	-
24.4	Miscellaneous Structures - Contaminated	5	-	-	-		-	3	8	8	-		-	-	-	-
24.5	Radwaste Solidification Building	66	-	-	-		-	33	99	99	-		-	-	-	-
24	Totals	888	-	-	-	-	-	444	1,332	1,332	-	-	-	-	-	-
25	Prepare support equipment for storage	-	278	-	-		-	42	320	320	-		-	-		-
26	Install containment pressure equal. lines	-	19	-	-		-	3	22	22	-		-	-		-
27	Interim survey prior to dormancy	-	-	-	-		320	48	369	369	-		-	-		-
28	Secure building accesses	-	-	-	-		-	-	Note 1	-	-		-	-		-
29	Prepare & submit interim report	-	-	-	-		25	4	29	29	-		-	-		-

000167

TABLE C-4
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Period 1 Additional Costs																
30	Mixed/Hazardous Waste	-	-	-	-		3,289	493	3,782	3,782	-		-	-		-
31	Seaweed Remediation & Disposal	-	-	-	-		2,250	338	2,588	2,588	-		-	-		-
Subtotal Penod 1 Activity Costs		888	297	-	-	-	7,746	1,651	10,582	10,582	-	-	-	-	-	-
Period 1 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	373	-	-	-		-	93	466	466	-		-	-		-
3	Process liquid waste	175	-	64	122	661	-	278	1,301	1,301	-	-	1,193	-	150,329	-
4	Insurance	-	-	-	-		2,060	206	2,266	2,266	-		-	-		-
5	Property taxes	-	-	-	-		310	31	341	341	-		-	-		-
6	Health physics supplies	-	273	-	-		-	68	341	341	-		-	-		-
7	Small tool allowance	-	13	-	-		-	2	15	15	-		-	-		-
8	Disposal of DAW generated	-	-	17	5	790	-	200	1,011	1,011	-	2,564	-	-	177,002	-
9	Plant energy budget	-	-	-	-		617	93	710	710	-		-	-		-
10	Fuel storage capital expenditures	-	-	-	-		40,375	6,056	46,431	46,431	-		-	-		-
11	NRC ISFSI Fees	-	-	-	-		212	21	234	234	-		-	-		-
12	NRC Fees	-	-	-	-		304	30	334	334	-		-	-		-
13	Emergency Planning Fees	-	-	-	-		76	8	83	83	-		-	-		-
14	Site Security	-	-	-	-		716	107	823	823	-		-	-		-
15	Fixed Overhead	-	-	-	-		1,088	163	1,251	1,251	-		-	-		-
Subtotal Undistributed Costs Penod 1		1,039	286	81	127	1,451	45,757	7,430	56,172	56,172	-	2,564	1,193	-	327,331	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		-	-	-	-	-		-	-		-
	Utility Staff Cost	-	-	-	-		17,993	2,699	20,692	20,692	-		-	-		-
TOTAL COST TO SAFSTOR		**1,927**	**583**	**81**	**127**	**1,451**	**71,496**	**11,780**	**87,445**	**87,445**	**-**	**2,564**	**1,193**	**-**	**327,331**	-

Total cost to SAFSTOR with	15.57%	contingency:	87,445,221
Total site radwaste volume buried			3,756 cubic feet
Total craft labor requirements			38,454 person hours

TABLE C-4
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 2: SAFSTOR Dormancy Activities																
1	Quarterly Inspection								Note 1							
2	Semi-annual environmental survey								Note 1							
3	Prepare reports								Note 1							
4	Health physics supplies	-	-	-	-		46	11	57	57	-		-	-		-
5	Insurance	-	-	-	-		101	10	112	112	-		-	-		-
6	Property taxes	-	-	-	-		206	21	227	227	-		-	-		-
7	Disposal of contaminated solid waste	-	-	1	0	29	-	7	38	38	-	102	-	-		-
8	Bituminous roof replacement	-	-	-	-		33	5	38	38	-	-	-	-		-
9	Maintenance supplies	-	-	-	-		99	25	123	123	-		-	-		-
10	Plant energy budget	-	-	-	-		127	19	146	146	-		-	-		-
11	NRC ISFSI Fees	-	-	-	-		44	4	48	48	-		-	-		-
12	NRC Fees	-	-	-	-		165	17	182	182	-		-	-		-
13	Emergency Planning Fees	-	-	-	-		16	2	17	17	-		-	-		-
14	Site Security	-	-	-	-		73	11	83	83	-		-	-		-
15	Fixed Overhead	-	-	-	-		72	11	83	83	-		-	-		-
16	Site maintenance staff	-	-	-	-		670	101	771	771	-		-	-		-
PERIOD 2 ANNUAL MAINTENANCE TOTALS		-	-	1	0	29	1,652	243	1,925	1,925	-	102	-	-	-	-

Total cost SAFSTOR dormancy with	52.9267	years equals	101,885,254	
Total site radwaste volume buried			5,393	cubic feet

TABLE C-4
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 3																
1	Review plant dwgs & specs.	-	-	-	-		197	30	226	226	-		-	-		-
2	Perform detailed rad survey								Note 1							
3	End product description	-	-	-	-		43	6	49	49	-		-	-		-
4	Detailed by-product inventory	-	-	-	-		56	8	64	64	-		-	-		-
5	Define major work sequence	-	-	-	-		321	48	369	369	-		-	-		-
6	Perform SER and EA	-	-	-	-		133	20	152	152	-		-	-		-
7	Perform Site-Specific Cost Study	-	-	-	-		214	32	246	246	-		-	-		-
8	Prepare/submit License Termination Plan	-	-	-	-		175	26	201	201	-		-	-		-
9	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
10.1	Re-activate plant & temporary facilities	-	-	-	-		315	47	362	326	36		-	-		-
10.2	Plant systems	-	-	-	-		178	27	205	184	20		-	-		-
10.3	Reactor internals	-	-	-	-		304	46	349	349	-		-	-		-
10.4	Reactor vessel	-	-	-	-		278	42	320	320	-		-	-		-
10.5	Biological shield	-	-	-	-		21	3	25	25	-		-	-		-
10.6	Steam generators	-	-	-	-		133	20	153	153	-		-	-		-
10.7	Reinforced concrete	-	-	-	-		68	10	79	39	39		-	-		-
10.8	Turbine & condenser	-	-	-	-		34	5	39	-	39		-	-		-
10.9	Plant structures & buildings	-	-	-	-		133	20	153	77	77		-	-		-
10.10	Waste management	-	-	-	-		197	30	226	226	-		-	-		-
10.11	Facility & site closeout	-	-	-	-		38	6	44	22	22		-	-		-
10	Total	-	-	-	-		1,701	255	1,956	1,722	234		-	-		-
Planning & Site Preparations																
11	Prepare dismantling sequence	-	-	-	-		103	15	118	118	-		-	-		-
12	Plant prep & temp svces	-	-	-	-		1,895	284	2,180	2,180	-		-	-		-
13	Design water clean-up system	-	-	-	-		60	9	69	69	-		-	-		-
14	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-		1,604	241	1,845	1,845	-		-	-		-
15	Procure casks/liners & containers	-	-	-	-		53	8	60	60	-		-	-		-
Detailed Work Procedures																
16.1	Plant systems	-	-	-	-		202	30	233	209	23		-	-		-
16.2	Reactor internals	-	-	-	-		107	16	123	123	-		-	-		-
16.3	Remaining buildings	-	-	-	-		58	9	66	17	50		-	-		-
16.4	CRD cooling assembly	-	-	-	-		43	6	49	49	-		-	-		-
16.5	CRD housings & ICI tubes	-	-	-	-		43	6	49	49	-		-	-		-
16.6	Incore instrumentation	-	-	-	-		43	6	49	49	-		-	-		-
16.7	Reactor vessel	-	-	-	-		155	23	179	179	-		-	-		-
16.8	Facility closeout	-	-	-	-		51	8	59	30	30		-	-		-
16.9	Missile shields	-	-	-	-		19	3	22	22	-		-	-		-
16.10	Biological shield	-	-	-	-		51	8	59	59	-		-	-		-
16.11	Steam generators	-	-	-	-		197	30	226	226	-		-	-		-
16.12	Reinforced concrete	-	-	-	-		43	6	49	25	25		-	-		-
16.13	Turbine & condensers	-	-	-	-		133	20	153	-	153		-	-		-
16.14	Auxiliary building	-	-	-	-		117	18	134	121	13		-	-		-
16.15	Reactor building	-	-	-	-		117	18	134	121	13		-	-		-
16	Total	-	-	-	-		1,379	207	1,586	1,278	307		-	-		-
17	Asbestos removal program	-	217	37	1	231	7	117	610	427	184	640	-	-		-

TABLE C-4
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Period 3 Additional Costs																
18	Site Characterization Survey	-	-	-	-		1,024	154	1,178	1,178	-		-	-		-
Subtotal Period 3 Activity Costs		-	217	37	1	231	8,963	1,460	10,910	10,185	725	640	-	-		-
Period 3 Undistributed Costs																
1	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
2	Insurance	-	-	-	-		291	29	320	320	-		-	-		-
3	Property taxes	-	-	-	-		310	31	341	341	-		-	-		-
4	Health physics supplies	-	208	-	-		-	52	260	260	-		-	-		-
5	Heavy equipment rental	-	448	-	-		-	67	515	515	-		-	-		-
6	Disposal of DAW generated	-	-	17	5	791	-	200	1,013	1,013	-	2,570	-	-	177,395	-
7	Plant energy budget	-	-	-	-		646	97	743	743	-		-	-		-
8	NRC Fees	-	-	-	-		304	30	335	335	-		-	-		-
9	Site Security	-	-	-	-		427	64	491	491	-		-	-		-
10	Fixed Overhead	-	-	-	-		1,090	163	1,253	1,253	-		-	-		-
Subtotal Undistributed Costs Period 3		-	1,677	17	5	791	3,069	888	6,446	6,446	-	2,570	-	-	177,395	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		3,516	527	4,043	4,043	-		-	-		-
	Utility Staff Cost	-	-	-	-		7,848	1,177	9,025	9,025	-		-	-		-
TOTAL PERIOD 3 COST		-	1,894	54	7	1,022	23,396	4,053	30,424	29,699	725	3,210	-	-	177,395	-

TABLE C-4
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 4																
Nuclear Steam Supply System Removal																
19.1	Reactor Coolant Piping	26	40	4	5	131	-	57	263	263	-	319	-	-	29,769	-
19.2	Pressurizer Relief Tank	11	58	3	3	87	-	43	205	205	-	300	-	-	19,699	-
19.3	Reactor Coolant Pumps & Motors	21	30	21	27	2,789	-	721	3,609	3,609	-	2,253	-	-	633,930	-
19.4	Pressurizer	16	27	4	9	943	-	252	1,250	1,250	-	1,771	-	-	214,343	-
19.5	Steam Generators	113	920	2,067	1,977	4,530	-	1,922	11,530	11,530	-	18,876	-	-	2,339,184	-
19.6	Old Steam Generator Lower Shell Units	-	-	1,650	1,578	1,696	-	876	6,000	6,000	-	7,899	-	-	1,134,000	-
19.7	CRDMs/ICIs/Service Structure Removal	64	44	41	10	185	-	95	439	439	-	2,253	-	-	64,288	-
19.8	Reactor Vessel Internals	45	1,218	2,363	349	3,688	-	3,458	11,120	11,120	-	786	393	1,020	223,389	-
19.9	Vessel & Internals GTCC Disposal	-	-	-	-	12,355	-	6,178	18,533	18,533	-	-	-	-	-	553
19.10	Reactor Vessel	96	3,071	176	263	3,865	-	4,394	11,865	11,865	-	3,930	1,703	-	786,229	-
19	Totals	392	5,408	6,330	4,220	30,469	-	17,995	64,813	64,813	-	38,386	2,096	1,020	5,444,831	553
20	Remove spent fuel racks	204	22	-	-	86	166	154	634	634	-	285	-	-	31,590	-
Removal of Major Equipment																
21	Main Turbine/Generator	-	46	-	-		-	7	53	-	53	-	-	-	-	-
22	Main Condensers	-	371	-	-		-	56	426	-	426	-	-	-	-	-
Disposal of Plant Systems																
23.1	Amertep	-	40	-	-	-	-	6	46	-	46	-	-	-	-	-
23.2	Auxiliary Bldg HVAC	-	176	-	-	42	129	74	420	420	-	83	-	-	9,533	-
23.3	Auxiliary Feedwater	-	8	-	-	-	-	1	9	-	9	-	-	-	-	-
23.4	Auxiliary Feedwater - Insulated	-	14	-	-	-	-	2	16	-	16	-	-	-	-	-
23.5	Auxiliary Feedwater - Insulated - RCA	-	20	-	-	-	-	3	23	23	-	-	-	-	-	-
23.6	Auxiliary Feedwater - RCA	-	5	-	-	-	-	1	5	5	-	-	-	-	-	-
23.7	Auxiliary Steam	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.8	Auxiliary Steam - Insulated	-	23	-	-	-	-	3	26	-	26	-	-	-	-	-
23.9	Auxiliary Steam - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.10	Auxiliary Steam - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.11	Breathing Air - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.12	Breathing Air - RCA	-	9	-	-	-	-	1	11	11	-	-	-	-	-	-
23.13	Chemical & Volume Control	-	239	-	-	1,660	-	475	2,373	2,373	-	5,495	-	-	377,166	-
23.14	Chemical & Volume Control - Insulated	-	304	-	-	427	-	183	913	913	-	803	-	-	96,999	-
23.15	Circulating Water	-	59	-	-	-	-	9	68	-	68	-	-	-	-	-
23.16	Component Cooling Water	-	105	-	-	-	-	16	121	-	121	-	-	-	-	-
23.17	Component Cooling Water - RCA	-	62	-	-	-	-	9	72	72	-	-	-	-	-	-
23.18	Condensate	-	105	-	-	-	-	16	120	-	120	-	-	-	-	-
23.19	Condensate - Insulated	-	41	-	-	-	-	6	47	-	47	-	-	-	-	-
23.20	Condensate Polishing	-	18	-	-	-	-	3	20	-	20	-	-	-	-	-
23.21	Condensate Polishing - Ins	-	53	-	-	-	-	8	61	-	61	-	-	-	-	-
23.22	Condensate Recovery	-	12	-	-	-	-	2	14	-	14	-	-	-	-	-
23.23	Condensate Recovery - Insulated	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.24	Condensate Recovery - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.25	Condensate Recovery - RCA	-	4	-	-	-	-	1	4	4	-	-	-	-	-	-
23.26	Condensate Storage	-	38	-	-	-	-	6	44	-	44	-	-	-	-	-
23.27	Condenser	-	14	-	-	-	-	2	16	-	16	-	-	-	-	-
23.28	Containment Emergency Filter	-	3	-	-	0	2	1	6	6	-	1	-	-	105	-
23.29	Containment Normal & Emerg Cooling	-	431	-	-	93	273	172	970	970	-	179	-	-	21,249	-
23.30	Containment Normal & Emerg Cooling - Ins	-	5	-	-	7	-	3	15	15	-	12	-	-	1,653	-
23.31	Containment Post Accident Eval	-	8	-	-	4	0	3	14	14	-	7	-	-	826	-
23.32	Containment Post Accident Eval - Ins	-	16	-	-	23	-	10	50	50	-	42	-	-	5,328	-
23.33	Containment Purge	-	29	-	-	47	0	19	96	96	-	89	-	-	10,743	-
23.34	Containment Spray	-	54	-	-	161	-	54	268	268	-	307	-	-	36,569	-
23.35	Containment Spray - Insulated	-	47	-	-	91	-	34	172	172	-	167	-	-	20,642	-
23.36	Control Building HVAC	-	16	-	-	-	-	2	19	-	19	-	-	-	-	-
23.37	EDG Building HVAC	-	2	-	-	-	-	0	3	-	3	-	-	-	-	-
23.38	Electrical - Clean	-	1,085	-	-	-	-	163	1,248	-	1,248	-	-	-	-	-

TABLE C-4
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
23.39	Electrical - Contaminated	-	542	-	-	23	94	155	814	814	-	46	-	-	5,279	-
23.40	Electrical - Decontaminated	-	466	-	-	-	-	70	536	536	-	-	-	-	-	-
23.41	Emergency Diesel Engine & Oil	-	39	-	-	-	-	6	44	-	44	-	-	-	-	-
23.42	Emergency Diesel Engine & Oil - Ins	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.43	Extraction Steam	-	7	-	-	-	-	1	8	-	8	-	-	-	-	-
23.44	Extraction Steam - Insulated	-	41	-	-	-	-	6	47	-	47	-	-	-	-	-
23.45	Feedwater	-	73	-	-	-	-	11	84	-	84	-	-	-	-	-
23.46	Feedwater - Insulated	-	122	-	-	-	-	18	140	-	140	-	-	-	-	-
23.47	Feedwater - Insulated - RCA	-	14	-	-	-	-	2	16	16	-	-	-	-	-	-
23.48	Feedwater - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.49	Feedwater Heater Drains & Vents	-	26	-	-	-	-	4	30	-	30	-	-	-	-	-
23.50	Feedweter Heater Drains & Vents - Ins	-	195	-	-	-	-	29	224	-	224	-	-	-	-	-
23.51	Fire Protection	-	178	-	-	-	-	27	204	-	204	-	-	-	-	-
23.52	Fire Protection - RCA	-	121	-	-	-	-	18	139	139	-	-	-	-	-	-
23.53	Fuel Handling HVAC	-	38	-	-	7	27	15	88	88	-	13	-	-	1,541	-
23.54	Generator	-	3	-	-	-	-	0	3	-	3	-	-	-	-	-
23.55	Generator - Insulatad	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.56	HVAC - Clean	-	165	-	-	-	-	25	190	-	190	-	-	-	-	-
23.57	HVAC - Contaminated	-	39	-	-	6	26	15	87	87	-	13	-	-	1,459	-
23.58	Instrument Air	-	11	-	-	-	-	2	13	-	13	-	-	-	-	-
23.59	Instrument Air - Insulated	-	10	-	-	-	-	1	11	-	11	-	-	-	-	-
23.60	Instrument Air - Insulated - RCA	-	14	-	-	-	-	2	17	17	-	-	-	-	-	-
23.61	Instrument Air - RCA	-	10	-	-	-	-	1	11	11	-	-	-	-	-	-
23.62	Intake Cooling Water	-	108	-	-	-	-	16	124	-	124	-	-	-	-	-
23.63	Main Steam - Insulated	-	105	-	-	-	-	16	120	-	120	-	-	-	-	-
23.64	Main Steam - Insulated - RCA	-	7	-	-	-	-	1	9	9	-	-	-	-	-	-
23.65	Miscellaneous - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.66	Nitrogen & Hydrogen	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.67	Nitrogen & Hydrogen - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.68	Primary Water Makeup	-	38	-	-	-	-	6	44	-	44	-	-	-	-	-
23.69	Radwaste Building HVAC	-	85	-	-	14	56	33	189	189	-	28	-	-	3,160	-
23.70	Reactor Coolant - Insulated	-	52	-	-	75	-	32	158	158	-	143	-	-	17,098	-
23.71	Refueling Equipment	-	88	-	-	368	-	114	570	570	-	724	-	-	83,568	-
23.72	Residual Heat Removal	-	49	-	-	1,172	-	305	1,526	1,526	-	2,192	-	-	266,278	-
23.73	Residual Heat Removal - Insulated	-	260	-	-	793	-	263	1,315	1,315	-	1,524	-	-	180,132	-
23.74	Safety Injection	-	107	-	-	43	145	59	355	355	-	141	-	-	9,862	-
23.75	Safety Injection - Insulated	-	115	-	-	313	-	107	536	536	-	603	-	-	71,183	-
23.76	Safety Injection Accumulator	-	185	-	-	164	28	91	468	468	-	332	-	-	37,187	-
23.77	Sample - NSSS	-	26	-	-	14	1	10	51	51	-	23	-	-	3,089	-
23.78	Sample - NSSS - Ins	-	33	-	-	18	-	13	64	64	-	30	-	-	4,088	-
23.79	Screen Wash	-	17	-	-	-	-	3	20	-	20	-	-	-	-	-
23.80	Secondary Sampla	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.81	Secondary Sample - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.82	Secondary Wet Layup	-	12	-	-	-	-	2	14	-	14	-	-	-	-	-
23.83	Secondary Wet Layup - RCA	-	3	-	-	-	-	0	3	3	-	-	-	-	-	-
23.84	Service Water	-	11	-	-	-	-	2	13	-	13	-	-	-	-	-
23.85	Service Water - Insulated	-	5	-	-	-	-	1	5	-	5	-	-	-	-	-
23.86	Service Water - Insulated - RCA	-	9	-	-	-	-	1	10	10	-	-	-	-	-	-
23.87	Service Water - RCA	-	20	-	-	-	-	3	23	23	-	-	-	-	-	-
23.88	Spent Fuel Pool Cooling	-	74	-	-	232	-	77	383	383	-	463	-	-	52,708	-
23.89	Spent Fuel Pool Cooling - Insulated	-	43	-	-	92	-	34	169	169	-	174	-	-	20,987	-
23.90	Steam Generator Wet Layup	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.91	Steam Generator Wet Layup - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.92	Turbine Building HVAC	-	11	-	-	-	-	2	13	-	13	-	-	-	-	-
23.93	Turbine Lube Oil	-	27	-	-	-	-	4	31	-	31	-	-	-	-	-
23.94	Turbine Plant Chemical Addition	-	3	-	-	-	-	0	3	-	3	-	-	-	-	-
23.95	Turbine Plant Cooling Water	-	53	-	-	-	-	8	61	-	61	-	-	-	-	-
23.96	Turbine Plant Cooling Water - Insulated	-	31	-	-	-	-	5	36	-	36	-	-	-	-	-
23.97	Turbine Steam	-	47	-	-	-	-	7	54	-	54	-	-	-	-	-

TABLE C-4
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
23.98	Turbine Steam - Insulated	-	22	-	-	-	-	3	25	-	25	-	-	-	-	-
23.99	Waste Disposal	-	219	-	-	1,050	-	317	1,586	1,586	-	3,190	-	-	238,605	-
23.100	Waste Disposal - Insulated	-	338	-	-	523	-	215	1,077	1,077	-	956	-	-	118,930	-
23.101	Water Treatment Plant	-	69	-	-	-	-	10	79	-	79	-	-	-	-	-
23.102	Water Treatment Plant - Insulated	-	52	-	-	-	-	8	59	-	59	-	-	-	-	-
23	Totals	-	7,494	-	-	7,462	781	3,467	19,205	15,618	3,587	17,780	-	-	1,695,965	-
24	Erect scaffolding for systems removal	-	441	-	-	14	47	121	624	624	-	46	-	-	5,086	-
Decontamination of Site Buildings																
25.1	Reactor Building	462	300	44	22	2,867	128	1,050	4,873	4,873	-	5,936	-	-	672,211	-
25.2	Auxiliary Building	192	21	10	5	402	32	208	870	870	-	1,304	-	-	135,745	-
25.3	Fuel Handling	167	169	2	1	58	105	156	658	658	-	188	-	-	20,478	-
25.4	Miscellaneous Structures - Contaminated	6	0	0	0	13	0	6	26	26	-	43	-	-	4,541	-
25.5	Radwaste Solidification Building	72	12	3	2	138	9	75	312	312	-	449	-	-	47,077	-
25	Totals	899	503	59	29	3,478	275	1,496	6,739	6,739	-	7,921	-	-	880,051	-
26	ORISE confirmatory survey	-	-	-	-		1,064	319	1,383	1,383	-		-	-		-
27	Terminate license								Note 1							
Period 4 Additional Costs																
28	License Termination Survey	-	-	-	-		5,447	817	6,264	6,264	-		-	-		-
29	ISFSI License Termination	-	938	11	5	227	878	425	2,485	2,485	-	1,234	-	-		-
Subtotal Period 4 Activity Costs		1,495	15,223	6,400	4,255	41,739	8,658	24,857	102,627	98,561	4,066	65,651	2,096	1,020	8,057,523	553
Period 4 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	410	-	-	-		-	102	512	512	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	212	-	78	147	799	-	336	1,572	1,572	-		1,441	-	181,650	-
5	Insurance	-	-	-	-		629	63	692	692	-		-	-		-
6	Property taxes	-	-	-	-		691	69	760	684	76		-	-		-
7	Health physics supplies	-	1,819	-	-		-	455	2,273	2,273	-		-	-		-
8	Heavy equipment rental	-	5,242	-	-		-	786	6,028	5,425	603		-	-		-
9	Small tool allowance	-	171	-	-		-	26	197	177	20		-	-		-
10	Pipe cutting equipment	-	749	-	-		-	112	862	862	-		-	-		-
11	Disposal of DAW generated	-	-	37	11	1,761	-	446	2,255	2,255	-	5,719	-	-	394,813	-
12	Decommissioning Equipment Disposition	-	-	-	-	83	278	63	424	424	-	270	-	-	30,000	-
13	Plant energy budget	-	-	-	-		1,215	182	1,398	1,258	140		-	-		-
14	NRC Fees	-	-	-	-		852	85	938	938	-		-	-		-
15	Site Security	-	-	-	-		3,234	485	3,719	3,719	-		-	-		-
16	Fixed Overhead	-	-	-	-		2,425	364	2,789	2,789	-		-	-		-
17	Radwaste Processing Skids	-	-	-	-		932	140	1,072	1,072	-		-	-		-
Subtotal Undistributed Costs Period 4		1,112	9,002	115	159	2,644	10,258	3,940	27,230	26,392	838	5,989	1,441	-	606,463	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		18,847	2,827	21,674	21,674	-		-	-		-
	Utility Staff Cost	-	-	-	-		35,893	5,384	41,277	41,277	-		-	-		-
TOTAL PERIOD 4		2,607	24,225	6,514	4,413	44,383	73,655	37,009	192,807	187,903	4,904	71,640	3,537	1,020	8,663,986	553

TABLE C-4
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 5																
Demolition of Remaining Site Buildings																
30.1	Reactor Building	-	2,696	-	-		-	404	3,101	465	2,636		-	-		-
30.2	Auxiliary Building	-	831	-	-		-	125	955	96	860		-	-		-
30.3	Control Building	-	81	-	-		-	12	93	-	93		-	-		-
30.4	Fuel Handling	-	340	-	-		-	51	391	39	352		-	-		-
30.5	Intake	-	186	-	-		-	28	214	-	214		-	-		-
30.6	Miscellaneous Structures - Clean	-	1,721	-	-		-	258	1,979	-	1,979		-	-		-
30.7	Miscellaneous Structures - Contaminated	-	69	-	-		-	10	79	4	75		-	-		-
30.8	Radwaste Solidification Building	-	532	-	-		-	80	612	61	551		-	-		-
30.9	Sealwell	-	182	-	-		-	27	209	-	209		-	-		-
30.1	Turbine Building	-	297	-	-		-	44	341	-	341		-	-		-
30.11	Turbine Pedestal	-	256	-	-		-	38	294	-	294		-	-		-
30	Totals	-	7,190	-	-		-	1,078	8,268	665	7,604		-	-		-
Site Closeout Activities																
31	Remove Rubble	-	619	-	-		-	93	712	-	712		-	-		-
32	Grade & landscape site	-	94	-	-		-	14	108	-	108		-	-		-
33	Final report to NRC	-	-	-	-		67	10	77	77	-		-	-		-
Period 5 Additional Costs																
34	ISFSI Demolition and Site Restoration	-	216	-	-		89	67	372	372	-		-	-		-
Subtotal Period 5 Activity Costs		-	8,118	-	-	-	155	1,263	9,536	1,113	8,423	-	-	-	-	-
Period 5 Undistributed Costs																
1	Insurance	-	-	-	-		120	12	132	132	-		-	-		-
2	Property taxes	-	-	-	-		227	23	249	-	249		-	-		-
3	Heavy equipment rental	-	1,577	-	-		-	237	1,813	-	1,813		-	-		-
4	Small tool allowance	-	55	-	-		-	8	63	-	63		-	-		-
5	Plant energy budget	-	-	-	-		68	10	78	-	78		-	-		-
6	Site Security	-	-	-	-		362	54	417	-	417		-	-		-
Subtotal Undistributed Costs Period 5		-	1,632	-	-		777	344	2,752	132	2,621		-	-		-
Staff Costs																
	DOC Staff Cost	-	-	-	-		4,380	657	5,038	-	5,038		-	-		-
	Utility Staff Cost	-	-	-	-		2,672	401	3,073	2,766	307		-	-		-
TOTAL PERIOD 5		-	9,750	-	-	-	7,985	2,665	20,400	4,011	16,388	-	-	-	-	-
TOTAL COST TO DECOMMISSION		4,534	36,453	6,684	4,557	48,415	263,949	68,369	432,962	410,944	22,018	82,807	4,730	1,020	9,168,712	553

Total cost to decommission with	18 75%	contingency:	$ 432,961,617	
Total NRC license termination cost is	94 91%	or	$ 410,943,962	
Non-nuclear demolition cost is	5 09%	or	$ 22,017,656	
Total site radwaste volume buried			88,557	cubic feet
Total site radwaste weight buried			9,168,712	pounds
Total 10CFR61 greater than class C waste buried			553	cubic feet
Total scrap metal released from site			16,090	tons
Total craft labor requirements			819,320	person hours

NOTES:
1) This activity is performed by the decommissioning staff following plant shutdown, the costs for this are included in this period's staff cost
2) This activity, while performed after final plant shutdown, is considered part of operations and therefore no decommissioning costs are included for this activity

APPENDIX D

DECOMMISSIONING COSTS: DECON AND SAFSTOR ALTERNATIVES
No On-Site ISFSI Fuel Storage

SUMMARY:

The results for the base case DECON and SAFSTOR alternatives, provided in Appendix C, assume that spent fuel will be stored in an on-site dry Independent Spent Fuel Storage Facility (ISFSI) to accommodate the anticipated DOE fuel acceptance schedule. The costs associated with designing, licensing, constructing, maintaining, and decommissioning an ISFSI are substantial. This appendix provides cost information based on a revised assumption (alternate scenarios) that the DOE will have removed all fuel from the plant within a 5 year, 2 month period from plant shutdown, thereby eliminating the requirement to maintain an on-site ISFSI.

The results of these alternate scenarios are summarized in Table D-1, "Estimated Impact of Spent Fuel Related Costs." Tables D-2 and D-3 provide cost results for the DECON alternative (no on-site ISFSI) for decommissioning Turkey Point Units 3 and 4, respectively. Tables D-4 and D-5 provide cost results for the SAFSTOR alternative (no on-site ISFSI) for decommissioning Turkey Point Units 3 and 4, respectively. In these scenarios it is assumed that the DOE will have accepted and removed all spent fuel no later than 5 years and 2 months after plant shutdown. This five-year acceptance period is based on nominal fuel assembly cool down requirements associated with transportation cask design limitations. Spent fuel assemblies are assumed to be stored during this 5-year period in the existing Fuel Handling Building's storage pool.

"Avoided" costs associated with the elimination of a requirement for on-site fuel storage include:

- ISFSI capital, including engineering, licensing, and construction costs
- Fuel storage cask costs
- Costs associated with personnel required to support ISFSI operation
- ISFSI license fees
- ISFSI decontamination costs
- ISFSI demolition costs

TABLE D-1

TURKEY POINT PLANT
ESTIMATED IMPACT OF SPENT FUEL RELATED COSTS
(Thousands of 1998 Dollars)

DECON

	Unit 3	Unit 4
With Long-Term Dry Fuel Storage	369,478	415,261
Without Long-Term Dry Fuel Storage	305,873	343,762
Impact of Long-Term Dry Fuel Storage	**63,605**	**71,499**
Major Cost Components		
Capital Costs/Construction	46,431	46,431
ISFSI Operations	14,317	22,211
ISFSI Decommissioning	2,857	2,857
TOTAL	**63,605**	**71,499**

SAFSTOR

	Unit 3	Unit 4
With Long Term Dry Fuel Storage	489,098	432,962
Without Long Term Dry Fuel Storage	421,291	369,843
Impact of Long Term Dry Fuel Storage	**67,807**	**63,119**
Major Cost Components		
Capital Costs/Construction	46,431	46,431
ISFSI Operations	18,519	13,831
ISFSI Decommissioning	2,857	2,857
TOTAL	**67,807**	**63,119**

TABLE D-2
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 1																
1	Prepare preliminary decommissioning c	-	-	-	-		130	20	150	150	-		-	-		-
2	Notification of Cessation of Operations								Note 1							
3	Remove fuel & source material								Note 2							
4	Notification of Permanent Defueling								Note 1							
5	Deactivate plant systems & process waste								Note 1							
6	Prepare and submit PSDAR	-	-	-	-		200	30	230	230	-		-	-		-
7	Review plant dwgs & specs.	-	-	-	-		460	69	529	529	-		-	-		-
8	Perform detailed rad survey								Note 1							
9	Estimate by-product inventory	-	-	-	-		100	15	115	115	-		-	-		-
10	End product description	-	-	-	-		100	15	115	115	-		-	-		-
11	Detailed by-product inventory	-	-	-	-		130	20	150	150	-		-	-		-
12	Define major work sequence	-	-	-	-		750	113	863	863	-		-	-		-
13	Perform SER and EA	-	-	-	-		310	47	357	357	-		-	-		-
14	Perform Site-Specific Cost Study	-	-	-	-		500	75	575	575	-		-	-		-
15	Prepare/submit License Termination Pl	-	-	-	-		410	61	471	471	-		-	-		-
16	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
17.1	Plant & temporary facilities	-	-	-	-		492	74	566	509	57		-	-		-
17.2	Plant systems	-	-	-	-		417	63	479	431	48		-	-		-
17.3	NSSS Decontamination Flush	-	-	-	-		50	8	58	58	-		-	-		-
17.4	Reactor internals	-	-	-	-		710	107	817	817	-		-	-		-
17.5	Reactor vessel	-	-	-	-		650	98	748	748	-		-	-		-
17.6	Biological shield	-	-	-	-		50	8	58	58	-		-	-		-
17.7	Steam generators	-	-	-	-		312	47	359	359	-		-	-		-
17.8	Reinforced concrete	-	-	-	-		160	24	184	92	92		-	-		-
17.9	Turbine & condenser	-	-	-	-		80	12	92	-	92		-	-		-
17.10	Plant structures & buildings	-	-	-	-		312	47	359	179	179		-	-		-
17.11	Waste management	-	-	-	-		460	69	529	529	-		-	-		-
17.12	Facility & site closeout	-	-	-	-		90	14	104	52	52		-	-		-
17	Total	-	-	-	-		3,783	567	4,350	3,830	520		-	-		-
Planning & Site Preparations																
18	Prepare dismantling sequence	-	-	-	-		240	36	276	276	-		-	-		-
19	Plant prep & temp. svces	-	-	-	-		1,895	284	2,180	2,180	-		-	-		-
20	Design water clean-up system	-	-	-	-		140	21	161	161	-		-	-		-
21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-		1,604	241	1,845	1,845	-		-	-		-
22	Procure casks/liners & containers	-	-	-	-		123	18	141	141	-		-	-		-
Detailed Work Procedures																
23.1	Plant systems	-	-	-	-		473	71	544	490	54		-	-		-
23.2	NSSS Decontamination Flush	-	-	-	-		100	15	115	115	-		-	-		-
23.3	Reactor internals	-	-	-	-		250	38	288	288	-		-	-		-
23.4	Remaining buildings	-	-	-	-		135	20	155	39	116		-	-		-
23.5	CRD cooling assembly	-	-	-	-		100	15	115	115	-		-	-		-
23.6	CRD housings & ICI tubes	-	-	-	-		100	15	115	115	-		-	-		-
23.7	Incore instrumentation	-	-	-	-		100	15	115	115	-		-	-		-
23.8	Reactor vessel	-	-	-	-		363	54	417	417	-		-	-		-
23.9	Facility closeout	-	-	-	-		120	18	138	69	69		-	-		-
23.10	Missile shields	-	-	-	-		45	7	52	52	-		-	-		-
23.11	Biological shield	-	-	-	-		120	18	138	138	-		-	-		-
23.12	Steam generators	-	-	-	-		460	69	529	529	-		-	-		-
23.13	Reinforced concrete	-	-	-	-		100	15	115	58	58		-	-		-
23.14	Turbine & condensers	-	-	-	-		312	47	359	-	359		-	-		-
23.15	Auxiliary building	-	-	-	-		273	41	314	283	31		-	-		-
23.16	Reactor building	-	-	-	-		273	41	314	283	31		-	-		-
23	Total	-	-	-	-		3,324	499	3,823	3,104	719		-	-		-

TABLE D-2
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
24	Decon primary loop	516	-	-	-		-	258	774	774	-		-	-		-
25	Asbestos removal program	-	217	37	1	231	7	117	610	427	184	640	-	-		-
Period 1 Additional Costs																
26	Site Characterization Survey	-	-	-	-		683	102	785	785	-		-	-		-
Subtotal Period 1 Activity Costs		516	217	37	1	231	14,889	2,607	18,499	17,077	1,422	640	-	-		-
Period 1 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	30	-	-	-		-	7	37	37	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	67	-	273	289	3,292	-	927	4,849	4,849	-		4,552	-	748,128	-
5	Insurance	-	-	-	-		2,060	206	2,266	2,266	-		-	-		-
6	Property taxes	-	-	-	-		310	31	341	341	-		-	-		-
7	Health physics supplies	-	209	-	-		-	52	262	262	-		-	-		-
8	Heavy equipment rental	-	211	-	-		-	32	242	242	-		-	-		-
9	Small tool allowance	-	3	-	-		-	1	4	4	-		-	-		-
10	Disposal of DAW generated	-	-	17	5	790	-	200	1,011	1,011	-	2,564	-	-	177,002	-
11	Plant energy budget	-	-	-	-		540	81	621	621	-		-	-		-
12	NRC Fees	-	-	-	-		304	30	334	334	-		-	-		-
13	Emergency Planning Fees	-	-	-	-		76	8	83	83	-		-	-		-
14	Site Security Cost	-	-	-	-		1,056	158	1,214	1,214	-		-	-		-
15	Fixed Overhead	-	-	-	-		1,087	163	1,250	1,250	-		-	-		-
Subtotal Undistributed Costs Period 1		587	1,445	290	295	4,081	5,432	2,123	14,253	14,253	-	2,564	4,552	-	925,130	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		5,326	799	6,125	6,125	-		-	-		-
	Utility Staff Cost	-	-	-	-		18,819	2,823	21,642	21,642	-		-	-		-
TOTAL PERIOD 1 COST		1,103	1,662	327	296	4,312	44,467	8,352	60,519	59,097	1,422	3,204	4,552	-	925,130	-

TABLE D-2
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burinl site A CF	Burinl site B CF	Burinl site C CF	Burinl site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 2																
Nuclear Steam Supply System Removal																
27.1	Reactor Coolant Piping	30	45	4	5	131	-	60	275	275	-	319	-	-	29,769	-
27.2	Pressurizer Relief Tank	13	65	3	3	87	-	45	217	217	-	300	-	-	19,699	-
27.3	Reactor Coolant Pumps & Motors	24	34	21	27	2,789	-	724	3,618	3,618	-	2,256	-	-	633,930	-
27.4	Pressurizer	18	27	4	9	943	-	253	1,253	1,253	-	1,771	-	-	214,343	-
27.5	Steam Generators	129	920	2,067	1,977	4,530	-	1,930	11,554	11,554	-	18,876	-	-	2,339,184	-
27.6	Old Steam Generator Lower Shell Units	-	-	1,650	1,578	1,896	-	876	6,000	6,000	-	7,899	-	-	1,134,000	-
27.7	CRDMs/ICIs/Service Structure Remov	73	46	41	10	185	-	100	456	456	-	2,253	-	-	64,288	-
27.8	Reactor Vessel Internals	55	1,599	2,397	427	4,789	-	4,327	13,594	13,594	-	655	539	1,020	223,866	-
27.9	Vessel & Internals GTCC Disposal	-	-	-	-	12,355	-	6,178	18,533	18,533	-	-	-	-	-	553
27.10	Reactor Vessel	110	4,037	176	263	5,835	-	6,110	16,530	16,530	-	3,930	1,703	-	786,229	-
27	Totals	451	6,774	6,364	4,299	33,540	-	20,603	72,030	72,030	-	38,258	2,242	1,020	5,445,308	553
28	Remove spent fuel racks	229	22	-	-	88	166	167	672	672	-	285	-	-	31,590	-
Removal of Major Equipment																
29	Main Turbine/Generator	-	46	-	-		-	7	53	-	53		-	-		-
30	Main Condensers	-	371	-	-		-	56	426	-	426		-	-		-
Disposal of Plant Systems																
31.1	Ametap	-	37	-	-		-	6	43	-	43		-	-		-
31.2	Auxiliary Feedwater	-	2	-	-		-	0	2	-	2		-	-		-
31.3	Auxiliary Feedwater - Insulated	-	9	-	-		-	1	10	-	10		-	-		-
31.4	Auxiliary Feedwater - Insulated - RCA	15	13	-	-		-	10	39	39	-		-	-		-
31.5	Auxiliary Feedwater - RCA	4	3	-	-		-	2	9	9	-		-	-		-
31.6	Auxiliary Steam	-	0	-	-		-	0	0	-	0		-	-		-
31.7	Auxiliary Steam - Insulated	-	16	-	-		-	2	19	-	19		-	-		-
31.8	Auxiliary Steam - Insulated - RCA	1	1	-	-		-	1	2	2	-		-	-		-
31.9	Auxiliary Steam - RCA	0	0	-	-		-	0	0	0	-		-	-		-
31.10	Breathing Air - Insulated - RCA	1	1	-	-		-	0	1	1	-		-	-		-
31.11	Breathing Air - RCA	2	2	-	-		-	1	6	6	-		-	-		-
31.12	Chemical & Volume Control	38	57	-	-	280	-	103	478	478	-	748	-	-	63,666	-
31.13	Chemical & Volume Control - Insulated	192	197	-	-	245	-	207	842	842	-	456	-	-	55,760	-
31.14	Circulating Water	-	49	-	-		-	7	56	-	56		-	-		-
31.15	Component Cooling Water	-	78	-	-		-	12	90	-	90		-	-		-
31.16	Component Cooling Water - RCA	53	44	-	-		-	33	130	130	-		-	-		-
31.17	Condensate	-	89	-	-		-	13	102	-	102		-	-		-
31.18	Condensate - Insulated	-	28	-	-		-	4	32	-	32		-	-		-
31.19	Condensate Polishing	-	17	-	-		-	2	19	-	19		-	-		-
31.20	Condensate Polishing - Ins	-	43	-	-		-	6	50	-	50		-	-		-
31.21	Condensate Recovery	-	8	-	-		-	1	10	-	10		-	-		-
31.22	Condensate Recovery - Insulated	-	1	-	-		-	0	2	-	2		-	-		-
31.23	Condensate Recovery - Insulated - RC	1	1	-	-		-	0	2	2	-		-	-		-
31.24	Condensate Recovery - RCA	3	3	-	-		-	2	7	7	-		-	-		-
31.25	Condensate Storage	-	36	-	-		-	5	42	-	42		-	-		-
31.26	Condenser	-	12	-	-		-	2	14	-	14		-	-		-
31.27	Containment Emergency Filter	-	3	-	-	0	2	1	6	6	-	1	-	-	105	-
31.28	Containment Normal & Emerg Coolng	-	479	-	-	88	277	183	1,027	1,027	-	170	-	-	20,009	-
31.29	Containment Normal & Emerg Coolng -	-	4	-	-	5	-	2	12	12	-	9	-	-	1,238	-
31.30	Containment Post Accident Eval	-	0	-	-	0	0	0	1	1	-	0	-	-	35	-
31.31	Containment Purge	-	33	-	-	47	0	20	101	101	-	89	-	-	10,743	-
31.32	Containment Spray	-	56	-	-	154	-	53	263	263	-	293	-	-	34,998	-
31.33	Containment Spray - Insulated	-	49	-	-	84	-	33	166	166	-	154	-	-	19,070	-
31.34	EDG Building HVAC	-	1	-	-		-	0	2	-	2		-	-		-
31.35	Electrical - Clean	-	712	-	-		-	107	819	-	819		-	-		-
31.36	Electrical - Contaminated	-	375	-	-	16	65	108	564	564	-	32	-	-	3,664	-
31.37	Electrical - Decontaminated	68	305	-	-		-	80	452	452	-		-	-		-

TABLE D-2
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
31.38	Emergency Diesel Engine & Oil	-	35	-	-		-	5	40	-	40		-	-		-
31.39	Emergency Diesel Engine & Oil - Ins	-	1	-	-		-	0	2	-	2		-	-		-
31.40	Extraction Steam	-	5	-	-		-	1	6	-	6		-	-		-
31.41	Extraction Steam - Insulated	-	26	-	-		-	4	29	-	29		-	-		-
31.42	Feedwater	-	25	-	-		-	4	29	-	29		-	-		-
31.43	Feedwater - Insulated	-	72	-	-		-	11	83	-	83		-	-		-
31.44	Feedwater - insulated - RCA	9	8	-	-		-	6	23	23	-		-	-		-
31.45	Feedwater - RCA	1	1	-	-		-	1	2	2	-		-	-		-
31.46	Feedwater Heater Drains & Vents	-	23	-	-		-	3	27	-	27		-	-		-
31.47	Feedwater Heater Drains & Vents - Ins	-	156	-	-		-	23	180	-	180		-	-		-
31.48	Fire Protection	-	9	-	-		-	1	10	-	10		-	-		-
31.49	Fire Protection - RCA	11	13	-	-		-	7	31	31	-		-	-		-
31.50	Fuel Handling HVAC	-	43	-	-	7	27	17	94	94	-	13	-	-	1,541	-
31.51	Generator	-	3	-	-		-	0	3	-	3		-	-		-
31.52	Generator - Insulated	-	1	-	-		-	0	1	-	1		-	-		-
31.53	Instrument Air	-	7	-	-		-	1	7	-	7		-	-		-
31.54	Instrument Air - Insulated	-	5	-	-		-	1	6	-	6		-	-		-
31.55	Instrument Air - Insulated - RCA	9	8	-	-		-	5	22	22	-		-	-		-
31.56	Instrument Air - RCA	6	5	-	-		-	4	14	14	-		-	-		-
31.57	Intake Cooling Water	-	77	-	-		-	12	89	-	89		-	-		-
31.58	Main Steam - Insulated	-	86	-	-		-	13	99	-	99		-	-		-
31.59	Main Steam - Insulated - RCA	6	5	-	-		-	4	15	15	-		-	-		-
31.60	Miscellaneous - RCA	1	1	-	-		-	1	3	3	-		-	-		-
31.61	Primary Water Makeup	-	38	-	-		-	6	44	-	44		-	-		-
31.62	Reactor Coolant - Insulated	44	54	-	-	69	-	53	221	221	-	132	-	-	15,773	-
31.63	Refueling Equipment	-	83	-	-	290	-	93	466	466	-	569	-	-	65,804	-
31.64	Residual Heat Removal	74	51	-	-	1,155	-	338	1,617	1,617	-	2,159	-	-	262,460	-
31.65	Residual Heat Removal - Insulated	164	223	-	-	617	-	292	1,295	1,295	-	1,176	-	-	140,165	-
31.66	Safety Injection	-	121	-	-	43	145	63	373	373	-	140	-	-	9,813	-
31.67	Safety Injection - Insulated	-	93	-	-	215	-	77	386	386	-	412	-	-	48,960	-
31.68	Safety Injection Accumulator	-	175	-	-	137	29	82	423	423	-	279	-	-	31,098	-
31.69	Sample - NSSS	-	14	-	-	7	1	5	28	28	-	12	-	-	1,602	-
31.70	Sample - NSSS - Ins	-	14	-	-	8	-	6	28	28	-	14	-	-	1,858	-
31.71	Screen Wash	-	12	-	-		-	2	14	-	14		-	-		-
31.72	Secondary Sample	-	2	-	-		-	0	2	-	2		-	-		-
31.73	Secondary Sample - RCA	1	0	-	-		-	0	2	2	-		-	-		-
31.74	Secondary Wet Layup	-	11	-	-		-	2	13	-	13		-	-		-
31.75	Secondary Wet Layup - RCA	2	2	-	-		-	2	6	6	-		-	-		-
31.76	Service Water	-	0	-	-		-	0	0	-	0		-	-		-
31.77	Service Water - RCA	1	0	-	-		-	0	1	1	-		-	-		-
31.78	Spent Fuel Pool Cooling	68	77	-	-	216	-	107	467	467	-	431	-	-	49,000	-
31.79	Spent Fuel Pool Cooling - Insulated	40	42	-	-	79	-	50	212	212	-	149	-	-	18,053	-
31.80	Steam Generator Wet Layup	-	1	-	-		-	0	1	-	1		-	-		-
31.81	Steam Generator Wet Layup - RCA	0	0	-	-		-	0	0	0	-		-	-		-
31.82	Turbine Building HVAC	-	10	-	-		-	1	11	-	11		-	-		-
31.83	Turbine Lube Oil	-	20	-	-		-	3	23	-	23		-	-		-
31.84	Turbine Plant Chemical Addition	-	2	-	-		-	0	2	-	2		-	-		-
31.85	Turbine Plant Cooling Water	-	43	-	-		-	6	50	-	50		-	-		-
31.86	Turbine Plant Cooling Water - Insulated	-	24	-	-		-	4	27	-	27		-	-		-
31.87	Turbine Steam	-	32	-	-		-	5	37	-	37		-	-		-
31.88	Turbine Steam - Insulated	-	14	-	-		-	2	17	-	17		-	-		-
31.89	Waste Disposal	17	24	-	-	49	-	27	117	117	-	113	-	-	11,136	-
31.90	Waste Disposal - Insulated	66	63	-	-	90	-	72	292	292	-	167	-	-	20,538	-
31	Totals	897	4,629	-	-	3,903	547	2,433	12,409	10,245	2,164	7,719	-	-	887,090	-
32	Erect scaffolding for systems removal	-	210	-	-	5	17	56	288	288	-	16	-	-	1,829	-

TABLE D-2
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
Decontamination of Site Buildings																
33.1	Reactor Building	522	340	44	22	2,867	128	1,090	5,013	5,013	-	5,936	-	-	672,211	-
33.2	Fuel Handling	190	191	2	1	58	105	173	720	720	-	188	-	-	20,478	-
33	Totals	712	532	46	22	2,925	233	1,263	5,733	5,733	-	6,124	-	-	692,689	-
34	ORISE confirmatory survey	-	-	-	-		1,064	319	1,383	1,383	-		-	-		-
35	Terminate license								Note 1							
Period 2 Additional Costs																
36	Mixed/Hazardous Waste	-	-	-	-		3,289	493	3,782	3,782	-		-	-		-
37	Seaweed Remediation & Disposal	-	-	-	-		2,250	338	2,588	2,588	-		-	-		-
38	License Termination Survey	-	-	-	-		1,669	250	1,919	1,919	-		-	-		-
Subtotal Period 2 Activity Costs		2,289	12,582	6,410	4,321	40,461	9,235	25,985	101,283	98,640	2,643	52,402	2,242	1,020	7,058,506	553
Period 2 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	312	-	-	-		-	78	390	390	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	217	-	165	235	1,867	-	627	3,111	3,111	-		2,889	-	424,336	-
5	Insurance	-	-	-	-		1,133	113	1,246	1,246	-		-	-		-
6	Property taxes	-	-	-	-		1,240	124	1,364	1,227	136		-	-		-
7	Health physics supplies	-	1,674	-	-		-	419	2,093	2,093	-		-	-		-
8	Heavy equipment rental	-	9,309	-	-		-	1,396	10,706	9,635	1,071		-	-		-
9	Small tool allowance	-	140	-	-		-	21	161	145	16		-	-		-
10	Pipe cutting equipment	-	749	-	-		-	112	862	862	-		-	-		-
11	Decon rig	974	-	-	-		-	146	1,120	1,120	-		-	-		-
12	Disposal of DAW generated	-	-	66	22	3,476	-	879	4,443	4,443	-	11,286	-	-	759,731	-
13	Decommissioning Equipment Disposit	-	-	-	-	83	278	63	424	424	-	270	-	-	30,000	-
14	Plant energy budget	-	-	-	-		2,865	430	3,295	2,965	329		-	-		-
15	NRC Fees	-	-	-	-		1,530	153	1,683	1,683	-		-	-		-
16	Emergency Planning Fees	-	-	-	-		146	15	161	161	-		-	-		-
17	Site Security Cost	-	-	-	-		4,315	647	4,962	4,962	-		-	-		-
18	Fixed Overhead	-	-	-	-		4,353	653	5,006	5,006	-		-	-		-
19	Radwaste Processing Skids	-	-	-	-		535	80	615	615	-		-	-		-
Subtotal Undistributed Costs Penod 2		1,994	12,894	232	256	5,426	16,395	6,183	43,380	41,828	1,552	11,556	2,889	-	1,214,067	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		24,630	3,694	28,324	28,324	-		-	-		-
	Utility Staff Cost	-	-	-	-		53,881	8,082	61,963	61,963	-		-	-		-
TOTAL PERIOD 2		**4,282**	**25,476**	**6,641**	**4,577**	**45,887**	**104,141**	**43,945**	**234,950**	**230,755**	**4,195**	**63,958**	**5,131**	**1,020**	**8,272,572**	**553**

TABLE D-2
TURKEY POINT PLANT - UNIT 3
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 3																
Demolition of Remaining Site Buildings																
39.1	Reactor Building	-	2,696	-	-		-	404	3,101	465	2,636		-	-		-
39.2	Fuel Handling	-	340	-	-		-	51	391	39	352		-	-		-
39.3	Miscellaneous Structures	-	115	-	-		-	17	132	-	132		-	-		-
39.4	Seatwell	-	182	-	-		-	27	209	-	209		-	-		-
39.5	Turbine Building	-	314	-	-		-	47	361	-	361		-	-		-
39.6	Turbine Pedestal	-	256	-	-		-	38	294	-	294		-	-		-
39	Totals	-	3,902	-	-		-	585	4,488	504	3,983		-	-	-	-
Site Closeout Activities																
40	Grade & landscape site	-	94	-	-		-	14	108	-	108		-	-		-
41	Final report to NRC	-	-	-	-		156	23	179	179	-		-	-		-
Subtotal Period 3 Activity Costs		-	3,996	-	-	-	156	623	4,775	684	4,091	-	-	-	-	-
Period 3 Undistributed Costs																
1	Insurance	-	-	-	-		120	12	132	132	-		-	-		-
2	Property taxes	-	-	-	-		227	23	250	-	250		-	-		-
3	Heavy equipment rental	-	1,563	-	-		-	235	1,798	-	1,798		-	-		-
4	Small tool allowance	-	28	-	-		-	4	33	-	33		-	-		-
5	Plant energy budget	-	-	-	-		59	9	68	-	68		-	-		-
6	Site Security Cost	-	-	-	-		159	24	183	-	183		-	-		-
Subtotal Undistributed Costs Period 3		-	1,592	-	-		565	306	2,463	132	2,331		-	-		-
Staff Costs																
	DOC Staff Cost	-	-	-	-		2,185	328	2,513	-	2,513		-	-		-
	Utility Staff Cost	-	-	-	-		567	85	652	587	65		-	-		-
TOTAL PERIOD 3		-	5,588	-	-	-	3,474	1,342	10,403	1,403	9,000	-	-	-		-
TOTAL COST TO DECOMMISSION		5,386	32,726	6,969	4,873	50,199	152,081	53,639	305,873	291,255	14,618	67,163	9,683	1,020	9,197,702	553

Total cost to decommission with	21.27%	contingency:	$	305,872,847
Total NRC license termination cost is	95.22%	or	$	291,255,202
Non-nuclear demolition cost is	4.78%	or	$	14,617,648
Total site radwaste volume buried			77,866	cubic feet
Total site radwaste weight buried			9,197,702	pounds
Total 10CFR61 greater than class C waste buried			553	cubic feet
Total scrap metal released from site			12,064	tons
Total craft labor requirements			494,699	person hours

NOTES:
1) This activity is performed by the decommissioning staff following plant shutdown; the costs for this are included in this period's staff cost.
2) This activity, while performed after final plant shutdown, is considered part of operations and therefore no decommissioning costs are included for this activity.

TABLE D-3
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 1																
1	Prepare preliminary decommissioning c	-	-	-	-		56	8	64	64	-		-	-		-
2	Notification of Cessation of Operations								Note 1							
3	Remove fuel & source material								Note 2							
4	Notification of Permanent Defueling								Note 1							
5	Deactivate plant systems & process waste								Note 1							
6	Prepare and submit PSDAR	-	-	-	-		86	13	98	98	-		-	-		-
7	Review plant dwgs & specs.	-	-	-	-		197	30	226	226	-		-	-		-
8	Perform detailed rad survey								Note 1							
9	Estimate by-product inventory	-	-	-	-		43	6	49	49	-		-	-		-
10	End product description	-	-	-	-		43	6	49	49	-		-	-		-
11	Detailed by-product inventory	-	-	-	-		56	8	64	64	-		-	-		-
12	Define major work sequence	-	-	-	-		321	48	369	369	-		-	-		-
13	Perform SER and EA	-	-	-	-		133	20	152	152	-		-	-		-
14	Perform Site-Specific Cost Study	-	-	-	-		214	32	246	246	-		-	-		-
15	Prepare/submit License Termination Pl	-	-	-	-		175	26	201	201	-		-	-		-
16	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
17.1	Plant & temporary facilities	-	-	-	-		210	32	242	218	24		-	-		-
17.2	Plant systems	-	-	-	-		178	27	205	184	20		-	-		-
17.3	NSSS Decontamination Flush	-	-	-	-		21	3	25	25	-		-	-		-
17.4	Reactor internals	-	-	-	-		304	46	349	349	-		-	-		-
17.5	Reactor vessel	-	-	-	-		278	42	320	320	-		-	-		-
17.6	Biological shield	-	-	-	-		21	3	25	25	-		-	-		-
17.7	Steam generators	-	-	-	-		133	20	153	153	-		-	-		-
17.8	Reinforced concrete	-	-	-	-		68	10	79	39	39		-	-		-
17.9	Turbine & condenser	-	-	-	-		34	5	39	-	39		-	-		-
17.10	Plant structures & buildings	-	-	-	-		133	20	153	77	77		-	-		-
17.11	Waste management	-	-	-	-		197	30	226	226	-		-	-		-
17.12	Facility & site closeout	-	-	-	-		38	6	44	22	22		-	-		-
17	Total	-	-	-	-		1,617	243	1,860	1,638	222		-	-		-
Planning & Site Preparations																
18	Prepare dismantling sequence	-	-	-	-		103	15	118	118	-		-	-		-
19	Plant prep. & temp. svces	-	-	-	-		1,895	284	2,180	2,180	-		-	-		-
20	Design water clean-up system	-	-	-	-		60	9	69	69	-		-	-		-
21	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-		1,604	241	1,845	1,845	-		-	-		-
22	Procure casks/liners & containers	-	-	-	-		53	8	60	60	-		-	-		-
Detailed Work Procedures																
23.1	Plant systems	-	-	-	-		202	30	233	209	23		-	-		-
23.2	NSSS Decontamination Flush	-	-	-	-		43	6	49	49	-		-	-		-
23.3	Reactor internals	-	-	-	-		107	16	123	123	-		-	-		-
23.4	Remaining buildings	-	-	-	-		58	9	66	17	50		-	-		-
23.5	CRD cooling assembly	-	-	-	-		43	6	49	49	-		-	-		-
23.6	CRD housings & ICI tubes	-	-	-	-		43	6	49	49	-		-	-		-
23.7	Incore instrumentation	-	-	-	-		43	6	49	49	-		-	-		-
23.8	Reactor vessel	-	-	-	-		155	23	179	179	-		-	-		-
23.9	Facility closeout	-	-	-	-		51	8	59	30	30		-	-		-
23.10	Missile shields	-	-	-	-		19	3	22	22	-		-	-		-
23.11	Biological shield	-	-	-	-		51	8	59	59	-		-	-		-
23.12	Steam generators	-	-	-	-		197	30	226	226	-		-	-		-
23.13	Reinforced concrete	-	-	-	-		43	6	49	25	25		-	-		-
23.14	Turbine & condensers	-	-	-	-		133	20	153	-	153		-	-		-
23.15	Auxiliary building	-	-	-	-		117	18	134	121	13		-	-		-
23.16	Reactor building	-	-	-	-		117	18	134	121	13		-	-		-
23	Total	-	-	-	-		1,421	213	1,635	1,327	307		-	-		-

0001184

TABLE D-3
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
24	Decon primary loop	516	-	-	-		-	258	774	774	-		-	-		-
25	Asbestos removal program	-	217	37	1	231	7	117	610	427	184	640	-	-		-
Period 1 Additional Costs																
26	Site Characterization Survey	-	-	-	-		1,024	154	1,178	1,178	-		-	-		-
Subtotal Period 1 Activity Costs		516	217	37	1	231	9,106	1,740	11,849	11,136	713	640	-	-		-
Period 1 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	30	-	-	-		-	7	37	37	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	67	-	273	289	3,292	-	927	4,849	4,849	-		4,552	-	748,128	-
5	Insurance	-	-	-	-		2,060	206	2,266	2,266	-		-	-		-
6	Property taxes	-	-	-	-		310	31	341	341	-		-	-		-
7	Health physics supplies	-	209	-	-		-	52	262	262	-		-	-		-
8	Heavy equipment rental	-	211	-	-		-	32	242	242	-		-	-		-
9	Small tool allowance	-	3	-	-		-	1	4	4	-		-	-		-
10	Disposal of DAW generated	-	-	17	5	790	-	200	1,011	1,011	-	2,564	-	-	177,002	-
11	Plant energy budget	-	-	-	-		635	95	730	730	-		-	-		-
12	NRC Fees	-	-	-	-		304	30	334	334	-		-	-		-
13	Emergency Planning Fees	-	-	-	-		76	8	83	83	-		-	-		-
14	Site Security Cost	-	-	-	-		752	113	865	865	-		-	-		-
15	Fixed Overhead	-	-	-	-		1,087	163	1,250	1,250	-		-	-		-
Subtotal Undistributed Costs Period 1		587	1,445	290	295	4,081	5,223	2,092	14,013	14,013	-	2,564	4,552	-	925,130	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		5,326	799	6,125	6,125	-		-	-		-
	Utility Staff Cost	-	-	-	-		18,819	2,823	21,642	21,642	-		-	-		-
TOTAL PERIOD 1 COST		1,103	1,662	327	296	4,312	38,475	7,453	53,629	52,916	713	3,204	4,552	-	925,130	-

TABLE D-3
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	pounds	10 CFR 61 GTCC Cu Ft
PERIOD 2																
Nuclear Steam Supply System Removal																
27.1	Reactor Coolant Piping	30	45	4	5	131	-	60	275	275	-	319	-	-	29,769	-
27.2	Pressurizer Relief Tank	13	65	3	3	87	-	45	217	217	-	300	-	-	19,699	-
27.3	Reactor Coolant Pumps & Motors	24	34	21	27	2,789	-	724	3,618	3,618	-	2,253	-	-	633,930	-
27.4	Pressurizer	18	27	4	9	943	-	253	1,253	1,253	-	1,771	-	-	214,343	-
27.5	Steam Generators	129	920	2,067	1,977	4,530	-	1,930	11,554	11,554	-	18,876	-	-	2,339,184	-
27.6	Old Steam Generator Lower Shell Units	-	-	1,650	1,578	1,896	-	876	6,000	6,000	-	7,899	-	-	1,134,000	-
27.7	CRDMs/ICIs/Service Structure Remov	73	46	41	10	185	-	100	456	456	-	2,253	-	-	64,288	-
27.8	Reactor Vessel Internals	55	1,599	2,397	427	4,789	-	4,327	13,594	13,594	-	655	539	1,020	223,866	-
27.9	Vessel & Internals GTCC Disposal	-	-	-	-	12,355	-	6,178	18,533	18,533	-		-	-		553
27.1	Reactor Vessel	110	4,037	176	263	5,835	-	6,110	16,530	16,530	-	3,930	1,703	-	786,229	-
27	Totals	451	6,774	6,364	4,299	33,540	-	20,603	72,030	72,030	-	38,255	2,242	1,020	5,445,308	553
28	Remove spent fuel racks	229	22	-	-	88	166	167	672	672	-	285	-	-	31,590	-
Removal of Major Equipment																
29	Main Turbine/Generator	-	46	-	-		-	7	53	-	53		-	-		-
30	Main Condensers	-	371	-	-		-	56	426	-	426		-	-		-
Disposal of Plant Systems																
31.1	Ameriap	-	40	-	-		-	6	46	-	46		-	-		-
31.2	Auxiliary Bldg HVAC	-	197	-	-	42	129	79	447	447	-	83	-	-	9,533	-
31.3	Auxiliary Feedwater	-	8	-	-		-	1	9	-	9		-	-		-
31.4	Auxiliary Feedwater - Insulated	-	14	-	-		-	2	16	-	16		-	-		-
31.5	Auxiliary Feedwater - Insulated - RCA	24	20	-	-		-	15	59	59	-		-	-		-
31.6	Auxiliary Feedwater - RCA	5	5	-	-		-	3	14	14	-		-	-		-
31.7	Auxiliary Steam	-	1	-	-		-	0	1	-	1		-	-		-
31.8	Auxiliary Steam - Insulated	-	23	-	-		-	3	26	-	26		-	-		-
31.9	Auxiliary Steam - Insulated - RCA	1	1	-	-		-	1	3	3	-		-	-		-
31.10	Auxiliary Steam - RCA	0	0	-	-		-	0	0	0	-		-	-		-
31.11	Breathing Air - Insulated - RCA	1	1	-	-		-	0	2	2	-		-	-		-
31.12	Breathing Air - RCA	11	9	-	-		-	7	27	27	-		-	-		-
31.13	Chemical & Volume Control	282	271	-	-	1,660	-	624	2,836	2,836	-	5,495	-	-	377,166	-
31.14	Chemical & Volume Control - Insulated	308	346	-	-	427	-	347	1,428	1,428	-	803	-	-	96,999	-
31.15	Circulating Water	-	59	-	-		-	9	68	-	68		-	-		-
31.16	Component Cooling Water	-	105	-	-		-	16	121	-	121		-	-		-
31.17	Component Cooling Water - RCA	75	62	-	-		-	47	185	185	-		-	-		-
31.18	Condensate	-	105	-	-		-	16	120	-	120		-	-		-
31.19	Condensate - Insulated	-	41	-	-		-	6	47	-	47		-	-		-
31.20	Condensate Polishing	-	18	-	-		-	3	20	-	20		-	-		-
31.21	Condensate Polishing - Ins	-	53	-	-		-	8	61	-	61		-	-		-
31.22	Condensate Recovery	-	12	-	-		-	2	14	-	14		-	-		-
31.23	Condensate Recovery - Insulated	-	2	-	-		-	0	2	-	2		-	-		-
31.24	Condensate Recovery - Insulated - RC	1	1	-	-		-	1	3	3	-		-	-		-
31.25	Condensate Recovery - RCA	4	4	-	-		-	3	11	11	-		-	-		-
31.26	Condensate Storage	-	38	-	-		-	6	44	-	44		-	-		-
31.27	Condenser	-	14	-	-		-	2	16	-	16		-	-		-
31.28	Containment Emergency Filter	-	3	-	-	0	2	1	6	6	-	1	-	-	105	-
31.29	Containment Normal & Emerg Cooing	-	484	-	-	93	273	185	1,036	1,036	-	179	-	-	21,249	-
31.30	Containment Normal & Emerg Cooing -	-	6	-	-	7	-	3	16	16	-	12	-	-	1,653	-
31.31	Containment Post Accident Eval	-	9	-	-	4	0	3	16	16	-	7	-	-	826	-
31.32	Containment Post Accident Eval - Ins	-	19	-	-	23	-	11	53	53	-	42	-	-	5,328	-
31.33	Containment Purge	-	33	-	-	47	0	20	101	101	-	89	-	-	10,743	-
31.34	Containment Spray	-	60	-	-	161	-	55	276	276	-	307	-	-	36,569	-
31.35	Containment Spray - Insulated	-	53	-	-	91	-	36	179	179	-	167	-	-	20,642	-
31.36	Control Building HVAC	-	16	-	-		-	2	19	-	19		-	-		-
31.37	EDG Building HVAC	-	2	-	-		-	0	3	-	3		-	-		-

000186

TABLE D-3
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
31.38	Electrical - Clean	-	1,085	-	-		-	163	1,248	-	1,248		-	-		-
31.39	Electrical - Contaminated	-	608	-	-	23	94	172	897	897	-	46	-	-	5,279	-
31.40	Electrical - Decontaminated	88	466	-	-		-	114	668	668	-		-	-		-
31.41	Emergency Diesel Engine & Oil	-	39	-	-		-	6	44	-	44		-	-		-
31.42	Emergency Diesel Engine & Oil - Ins	-	2	-	-		-	0	2	-	2		-	-		-
31.43	Extraction Steam	-	7	-	-		-	1	8	-	8		-	-		-
31.44	Extraction Steam - Insulated	-	41	-	-		-	6	47	-	47		-	-		-
31.45	Feedwater	-	73	-	-		-	11	84	-	84		-	-		-
31.46	Feedwater - Insulated	-	122	-	-		-	18	140	-	140		-	-		-
31.47	Feedwater - Insulated - RCA	15	14	-	-		-	10	39	39	-		-	-		-
31.48	Feedwater - RCA	2	1	-	-		-	1	4	4	-		-	-		-
31.49	Feedwater Heater Drains & Vents	-	26	-	-		-	4	30	-	30		-	-		-
31.50	Feedwater Heater Drains & Vents - Ins	-	195	-	-		-	29	224	-	224		-	-		-
31.51	Fire Protection	-	178	-	-		-	27	204	-	204		-	-		-
31.52	Fire Protection - RCA	147	121	-	-		-	92	359	359	-		-	-		-
31.53	Fuel Handling HVAC	-	43	-	-	7	27	17	94	94	-	13	-	-	1,541	-
31.54	Generator	-	3	-	-		-	0	3	-	3		-	-		-
31.55	Generator - Insulated	-	1	-	-		-	0	1	-	1		-	-		-
31.56	HVAC - Clean	-	165	-	-		-	25	190	-	190		-	-		-
31.57	HVAC - Contaminated	-	44	-	-	6	26	17	93	93	-	13	-	-	1,459	-
31.58	Instrument Air	-	11	-	-		-	2	13	-	13		-	-		-
31.59	Instrument Air - Insulated	-	10	-	-		-	1	11	-	11		-	-		-
31.60	Instrument Air - Insulated - RCA	16	14	-	-		-	10	41	41	-		-	-		-
31.61	Instrument Air - RCA	11	10	-	-		-	7	27	27	-		-	-		-
31.62	Intake Cooling Water	-	108	-	-		-	16	124	-	124		-	-		-
31.63	Main Steam - Insulated	-	105	-	-		-	16	120	-	120		-	-		-
31.64	Main Steam - Insulated - RCA	8	7	-	-		-	5	21	21	-		-	-		-
31.65	Miscellaneous - RCA	1	1	-	-		-	1	3	3	-		-	-		-
31.66	Nitrogen & Hydrogen	-	1	-	-		-	0	1	-	1		-	-		-
31.67	Nitrogen & Hydrogen - RCA	0	0	-	-		-	0	0	0	-		-	-		-
31.68	Primary Water Makeup	-	38	-	-		-	6	44	-	44		-	-		-
31.69	Radwaste Building HVAC	-	96	-	-	14	56	36	202	202	-	28	-	-	3,160	-
31.70	Reactor Coolant - Insulated	48	59	-	-	75	-	58	240	240	-	143	-	-	17,098	-
31.71	Refueling Equipment	-	100	-	-	368	-	117	584	584	-	724	-	-	83,568	-
31.72	Residual Heat Removal	76	56	-	-	1,172	-	345	1,648	1,648	-	2,192	-	-	266,278	-
31.73	Residual Heat Removal - Insulated	211	292	-	-	793	-	377	1,672	1,672	-	1,524	-	-	180,132	-
31.74	Safety Injection	-	121	-	-	43	145	63	373	373	-	141	-	-	9,862	-
31.75	Safety Injection - Insulated	-	131	-	-	313	-	111	555	555	-	603	-	-	71,183	-
31.76	Safety Injection Accumulator	-	209	-	-	164	28	97	498	498	-	332	-	-	37,187	-
31.77	Sample - NSSS	-	29	-	-	14	1	11	55	55	-	23	-	-	3,089	-
31.78	Sample - NSSS - Ins	-	37	-	-	18	-	14	68	68	-	30	-	-	4,088	-
31.79	Screen Wash	-	17	-	-		-	3	20	-	20		-	-		-
31.80	Secondary Sample	-	2	-	-		-	0	2	-	2		-	-		-
31.81	Secondary Sample - RCA	0	0	-	-		-	0	1	1	-		-	-		-
31.82	Secondary Wet Layup	-	12	-	-		-	2	14	-	14		-	-		-
31.83	Secondary Wet Layup - RCA	3	3	-	-		-	2	7	7	-		-	-		-
31.84	Service Water	-	11	-	-		-	2	13	-	13		-	-		-
31.85	Service Water - Insulated	-	5	-	-		-	1	5	-	5		-	-		-
31.86	Service Water - Insulated - RCA	8	9	-	-		-	5	22	22	-		-	-		-
31.87	Service Water - RCA	19	20	-	-		-	12	51	51	-		-	-		-
31.88	Spent Fuel Pool Cooling	73	84	-	-	232	-	116	504	504	-	463	-	-	52,708	-
31.89	Spent Fuel Pool Cooling - Insulated	45	48	-	-	92	-	58	243	243	-	174	-	-	20,987	-
31.90	Steam Generator Wet Layup	-	1	-	-		-	0	1	-	1		-	-		-
31.91	Steam Generator Wet Layup - RCA	0	0	-	-		-	0	0	0	-		-	-		-
31.92	Turbine Building HVAC	-	11	-	-		-	2	13	-	13		-	-		-
31.93	Turbine Lube Oil	-	27	-	-		-	4	31	-	31		-	-		-
31.94	Turbine Plant Chemical Addition	-	3	-	-		-	0	3	-	3		-	-		-
31.95	Turbine Plant Cooling Water	-	53	-	-		-	8	61	-	61		-	-		-
31.96	Turbine Plant Cooling Water - Insulated	-	31	-	-		-	5	36	-	36		-	-		-

TABLE D-3
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
31.97	Turbine Steam	-	47	-	-		-	7	54	-	54		-	-		-
31.98	Turbine Steam - Insulated	-	22	-	-		-	3	25	-	25		-	-		-
31.99	Waste Disposal	251	248	-	-	1,050	-	450	1,998	1,998	-	3,190	-	-	238,605	-
31.100	Waste Disposal - Insulated	445	383	-	-	523	-	449	1,801	1,801	-	956	-	-	118,930	-
31.101	Water Treatment Plant	-	69	-	-		-	10	79	-	79		-	-		-
31.102	Water Treatment Plant - Insulated	-	52	-	-		-	8	59	-	59		-	-		-
31	Totals	2,179	7,958	-	-	7,462	781	4,673	23,053	19,466	3,587	17,780	-	-	1,695,965	-
32	Erect scaffolding for systems removal	-	495	-	-	14	47	134	690	690	-	46	-	-	5,086	-
Decontamination of Site Buildings																
33.1	Reactor Building	522	340	44	22	2,867	128	1,090	5,013	5,013	-	5,936	-	-	672,211	-
33.2	Auxiliary Building	216	25	10	5	402	32	221	910	910	-	1,304	-	-	135,745	-
33.3	Fuel Handling	190	191	2	1	58	105	173	720	720	-	188	-	-	20,478	-
33.4	Miscellaneous Structures - Contaminal	7	0	0	0	13	0	7	27	27	-	43	-	-	4,541	-
33.5	Radwaste Solidification Building	81	14	3	2	138	9	80	328	328	-	449	-	-	47,077	-
33	Totals	1,016	570	59	29	3,478	275	1,571	6,998	6,998	-	7,921	-	-	880,051	-
34	ORISE confirmatory survey	-	-	-	-		1,064	319	1,383	1,383	-		-	-		-
35	Terminate license								Note 1							
Period 2 Additional Costs																
36	Mixed/Hazardous Waste	-	-	-	-		3,289	493	3,782	3,782	-		-	-		-
37	Seaweed Remediation & Disposal	-	-	-	-		2,250	338	2,588	2,588	-		-	-		-
38	License Termination Survey	-	-	-	-		5,447	817	6,264	6,264	-		-	-		-
Subtotal Penod 2 Activity Costs		3,875	16,234	6,423	4,327	44,582	13,319	29,178	117,940	113,874	4,066	64,287	2,242	1,020	8,058,000	553
Period 2 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	448	-	-	-		-	112	560	560	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	431	-	279	418	3,106	-	1,083	5,317	5,317	-		4,927	-	705,931	-
5	Insurance	-	-	-	-		1,157	116	1,273	1,273	-		-	-		-
6	Property taxes	-	-	-	-		1,090	109	1,199	1,079	120		-	-		-
7	Health physics supplies	-	2,252	-	-		-	563	2,815	2,815	-		-	-		-
8	Heavy equipment rental	-	8,185	-	-		-	1,228	9,413	8,472	941		-	-		-
9	Small tool allowance	-	211	-	-		-	32	242	218	24		-	-		-
10	Pipe cutting equipment	-	749	-	-		-	112	862	862	-		-	-		-
11	Decon rig	974	-	-	-		-	146	1,120	1,120	-		-	-		-
12	Disposal of DAW generated	-	-	58	20	3,245	-	820	4,144	4,144	-	10,537	-	-	698,671	-
13	Decommissioning Equipment Dispositi	-	-	-	-	83	278	63	424	424	-	270	-	-	30,000	-
14	Plant energy budget	-	-	-	-		2,817	423	3,239	2,915	324		-	-		-
15	NRC Fees	-	-	-	-		1,345	135	1,480	1,480	-		-	-		-
16	Emergency Planning Fees	-	-	-	-		148	15	162	162	-		-	-		-
17	Site Security Cost	-	-	-	-		6,184	928	7,112	7,112	-		-	-		-
18	Fixed Overhead	-	-	-	-		3,828	574	4,402	4,402	-		-	-		-
19	Radwaste Processing Skids	-	-	-	-		409	61	470	470	-		-	-		-
Subtotal Undistributed Costs Period 2		2,344	12,419	337	438	6,435	17,256	6,745	45,973	44,563	1,409	10,807	4,927	-	1,434,603	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		29,620	4,443	34,062	34,062	-		-	-		-
	Utility Staff Cost	-	-	-	-		62,866	9,430	72,296	72,296	-		-	-		-
TOTAL PERIOD 2		**6,219**	**28,653**	**6,760**	**4,765**	**51,017**	**123,061**	**49,795**	**270,271**	**264,796**	**5,475**	**75,094**	**7,169**	**1,020**	**9,492,602**	**553**

TABLE D-3
TURKEY POINT PLANT - UNIT 4
DECON DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingncy	Total	NRC LicTerm	Site Restore	Burial site A CF	Burial site B CF	Burial site C CF	Burial site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 3																
Demolition of Remaining Site Buildings																
39.1	Reactor Building	-	2,696	-	-		-	404	3,101	465	2,636		-	-		-
39.2	Auxiliary Building	-	831	-	-		-	125	955	96	860		-	-		-
39.3	Control Building	-	81	-	-		-	12	93	-	93		-	-		-
39.4	Fuel Handling	-	340	-	-		-	51	391	39	352		-	-		-
39.5	Intake	-	186	-	-		-	28	214	-	214		-	-		-
39.6	Miscellaneous Structures - Clean	-	1,721	-	-		-	258	1,979	-	1,979		-	-		-
39.7	Miscellaneous Structures - Contaminat	-	69	-	-		-	10	79	4	75		-	-		-
39.8	Radwaste Solidification Building	-	532	-	-		-	80	612	61	551		-	-		-
39.9	Sealwell	-	182	-	-		-	27	209	-	209		-	-		-
39.10	Turbine Building	-	297	-	-		-	44	341	-	341		-	-		-
39.11	Turbine Pedestal	-	256	-	-		-	38	294	-	294		-	-		-
39	Totals	-	7,190	-	-		-	1,078	8,268	665	7,604		-	-		-
Site Closeout Activities																
40	Remove Rubble	-	619	-	-		-	93	712	-	712		-	-		-
41	Grade & landscape site	-	94	-	-		-	14	108	-	108		-	-		-
42	Final report to NRC	-	-	-	-		67	10	77	77	-		-	-		-
Subtotal Period 3 Activity Costs		-	7,903	-	-	-	67	1,195	9,165	742	8,423	-	-	-	-	-
Period 3 Undistributed Costs																
1	Insurance	-	-	-	-		120	12	132	132	-		-	-		-
2	Property taxes	-	-	-	-		227	23	250	-	250		-	-		-
3	Heavy equipment rental	-	1,563	-	-		-	235	1,798	-	1,798		-	-		-
4	Small tool allowance	-	55	-	-		-	8	63	-	63		-	-		-
5	Plant energy budget	-	-	-	-		68	10	78	-	78		-	-		-
6	Site Security Cost	-	-	-	-		382	57	440	-	440		-	-		-
Subtotal Undistnbuted Costs Period 3		-	1,618	-	-		797	345	2,761	132	2,629		-	-		-
Staff Costs																
	DOC Staff Cost	-	-	-	-		4,392	659	5,050	-	5,050		-	-		-
	Utility Staff Cost	-	-	-	-		2,510	376	2,886	2,598	289		-	-		-
TOTAL PERIOD 3		-	**9,521**	-	-	-	**7,766**	**2,576**	**19,863**	**3,472**	**16,391**	-	-	-		-
TOTAL COST TO DECOMMISSION		**7,322**	**39,836**	**7,088**	**5,061**	**55,329**	**169,301**	**59,824**	**343,762**	**321,183**	**22,579**	**78,298**	**11,721**	**1,020**	**10,417,732**	**553**

Total cost to decommission with	21 07%	conlingency:	$ 343,762,203	
Total NRC license termination cost is	93 43%	or	$ 321,182,956	
Non-nuclear demolition cost is	6 57%	or	$ 22,579,248	
Total site radwaste volume buried			91,039	cubic feet
Total site radwaste weight buried			10,417,732	pounds
Total 10CFR61 greater than class C wasle buried			553	cubic feet
Total scrap metal released from site			16,090	tons
Total craft labor requirements			860,794	person hours

NOTES:
1) This activity is performed by the decommissioning staff following plant shutdown; the costs for this are included in this period's staff cost
2) This activity, while performed after final plant shutdown, is considered part of operations and therefore no decommissioning costs are included for this activity.

TABLE D-4
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 1: Mothballing Activities																
1	Prepare preliminary decommissioning cost	-	-	-	-		130	20	150	150	-	-	-	-		-
2	Notification of Cessation of Operations								Note 1							
3	Remove fuel & source material								Note 2							
4	Notification of Permanent Defueling								Note 1							
5	Deactivate plant systems & process waste								Note 1							
6	Prepare and submit PSDAR	-	-	-	-		200	30	230	230	-		-	-		-
7	Review plant dwgs & specs.	-	-	-	-		130	20	150	150	-		-	-		-
8	Perform detailed rad survey								Note 1							
9	Estimate by-product inventory	-	-	-	-		100	15	115	115	-		-	-		-
10	End product description	-	-	-	-		100	15	115	115	-		-	-		-
11	Detailed by-product inventory	-	-	-	-		150	23	173	173	-		-	-		-
12	Define major work sequence	-	-	-	-		100	15	115	115	-		-	-		-
13	Perform SER and EA	-	-	-	-		310	47	357	357	-		-	-		-
14	Perform Site-Specific Cost Study	-	-	-	-		500	75	575	575	-		-	-		-
15	Prepare/submit License Termination Plan	-	-	-	-		410	61	471	471	-		-	-		-
16	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
17.1	Prepare plant and facilities for SAFSTOR	-	-	-	-		492	74	566	566	-		-	-		-
17.2	Plant systems	-	-	-	-		417	63	479	479	-		-	-		-
17.3	Plant structures and buildings	-	-	-	-		312	47	359	359	-		-	-		-
17.4	Waste management	-	-	-	-		200	30	230	230	-		-	-		-
17.5	Facility and site dormancy	-	-	-	-		200	30	230	230	-		-	-		-
17	Total	-	-	-	-		1,621	243	1,864	1,864	-		-	-		-
Detailed Work Procedures																
18.1	Plant systems	-	-	-	-		473	71	544	544	-		-	-		-
18.2	Facility closeout & dormancy	-	-	-	-		120	18	138	138	-		-	-		-
18	Total	-	-	-	-		593	89	682	682	-		-	-		-
19	Procure vacuum drying system	-	-	-	-		10	2	12	12	-		-	-		-
20	Drain/de-energize non-cont. systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
21	Drain & dry NSSS	-	-	-	-		-	-	Note 1	-	-		-	-		-
22	Drain/de-energize contaminated systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
23	Decon/secure contaminated systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
Decontamination of Site Buildings																
24.1	Reactor Building	462	-	-	-		-	231	694	694	-		-	-	-	-
24.2	Fuel Handling	181	-	-	-		-	91	272	272	-		-	-	-	-
24	Totals	644	-	-	-	-	-	322	966	966	-	-	-	-	-	-
25	Prepare support equipment for storage	-	278	-	-		-	42	320	320	-		-	-		-
26	Install containment pressure equal. lines	-	19	-	-		-	3	22	22	-		-	-		-
27	Interim survey prior to dormancy	-	-	-	-		320	48	369	369	-		-	-		-
28	Secure building accesses	-	-	-	-		-	-	Note 1	-	-		-	-		-
29	Prepare & submit interim report	-	-	-	-		58	9	67	67	-		-	-		-

061000

TABLE D-4
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Period 1 Additional Costs																
30	Mixed/Hazardous Waste	-	-	-	-		3,289	493	3,782	3,782	-		-	-		-
31	Seaweed Remediation & Disposal	-	-	-	-		2,250	338	2,588	2,588	-		-	-		-
Sublolal Period 1 Activity Costs		644	297	-	-	-	10,271	1,907	13,119	13,119	-	-	-	-	-	-
Period 1 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	223	-	-	-		-	56	279	279	-		-	-		-
3	Process liquid waste	169	-	62	117	637	-	268	1,254	1,254	-	-	1,149	-	144,884	-
4	Insurance	-	-	-	-		2,060	206	2,266	2,266	-		-	-		-
5	Property taxes	-	-	-	-		310	31	341	341	-		-	-		-
6	Health physics supplies	-	250	-	-		-	63	313	313	-		-	-		-
7	Small tool allowance	-	10	-	-		-	2	12	12	-		-	-		-
8	Disposal of DAW generated	-	-	17	5	790	-	200	1,011	1,011	-	2,564	-	-	177,002	-
9	Plant energy budget	-	-	-	-		733	110	842	842	-		-	-		-
10	NRC Fees	-	-	-	-		304	30	334	334	-		-	-		-
11	Emergency Planning Fees	-	-	-	-		76	8	83	83	-		-	-		-
12	Site Security Cost	-	-	-	-		1,004	151	1,155	1,155	-		-	-		-
13	Fixed Overhead	-	-	-	-		1,088	163	1,251	1,251	-		-	-		-
Subtotal Undistribuled Costs Period 1		883	260	78	122	1,427	5,574	1,360	9,705	9,705	-	2,564	1,149	-	321,886	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		-	-	-	-	-		-	-		-
	Utility Staff Cost	-	-	-	-		17,993	2,699	20,692	20,692	-		-	-		-
TOTAL COST TO SAFSTOR		1,527	557	78	122	1,427	33,838	5,966	43,516	43,516	-	2,564	1,149	-	321,886	-

Total cost to SAFSTOR with	15.89%	contingency	43,515,883
Total site radwaste volume buried			3,713 cubic feet
Total craft labor requirements			28,753 person hours

TABLE D-4
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 2: SAFSTOR Dormancy Activities																
1	Quarterly Inspection								Note 1							
2	Semi-annual environmental survey								Note 1							
3	Prepare reports								Note 1							
4	Health physics supplies	-	-	-	-		46	11	57	57	-		-	-		-
5	Insurance	-	-	-	-		67	7	74	74	-		-	-		-
6	Property taxes	-	-	-	-		206	21	227	227	-		-	-		-
7	Disposal of contaminated solid waste	-	-	1	0	29	-	7	38	38	-	102	-	-		-
8	Bituminous roof replacement	-	-	-	-		-	-	-	-	-	-	-	-		-
9	Maintenance supplies	-	-	-	-		99	25	123	123	-		-	-		-
10	Plant energy budget	-	-	-	-		136	20	156	156	-		-	-		-
11	NRC Fees	-	-	-	-		162	16	178	178	-		-	-		-
12	Emergency Planning Fees	-	-	-	-		4	0	4	4	-		-	-		-
13	Site Security Cost	-	-	-	-		220	33	253	253	-		-	-		-
14	Fixed Overhead	-	-	-	-		72	11	83	83	-		-	-		-
15	Site maintenance staff	-	-	-	-		1,319	198	1,517	1,517	-		-	-		-
PERIOD 2 ANNUAL MAINTENANCE TOTALS		-	-	1	0	29	2,330	349	2,710	2,710	-	102	-	-	-	-

Total cost SAFSTOR dormancy with	52.3133	years equals	141,755,845	
Total site radwaste volume buried			5,331	cubic feet

TABLE D-4
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 3																
1	Review plant dwgs & specs.	-	-	-	-		460	69	529	529	-		-	-		-
2	Perform detailed rad survey								Note 1							
3	End product description	-	-	-	-		100	15	115	115	-		-	-		-
4	Detailed by-product inventory	-	-	-	-		130	20	150	150	-		-	-		-
5	Define major work sequence	-	-	-	-		750	113	863	863	-		-	-		-
6	Perform SER and EA	-	-	-	-		310	47	357	357	-		-	-		-
7	Perform Site-Specific Cost Study	-	-	-	-		500	75	575	575	-		-	-		-
8	Prepare/submit License Termination Plan	-	-	-	-		410	61	471	471	-		-	-		-
9	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
10.1	Re-activate plant & temporary facilities	-	-	-	-		737	111	848	763	85		-	-		-
10.2	Plant systems	-	-	-	-		417	63	479	431	48		-	-		-
10.3	Reactor internals	-	-	-	-		710	107	817	817	-		-	-		-
10.4	Reactor vessel	-	-	-	-		650	98	748	748	-		-	-		-
10.5	Biological shield	-	-	-	-		50	8	58	58	-		-	-		-
10.6	Steam generators	-	-	-	-		312	47	359	359	-		-	-		-
10.7	Reinforced concrete	-	-	-	-		160	24	184	92	92		-	-		-
10.8	Turbine & condenser	-	-	-	-		80	12	92	-	92		-	-		-
10.9	Plant structures & buildings	-	-	-	-		312	47	359	179	179		-	-		-
10.10	Waste management	-	-	-	-		460	69	529	529	-		-	-		-
10.11	Facility & site closeout	-	-	-	-		90	14	104	52	52		-	-		-
10	Total	-	-	-	-		3,978	597	4,574	4,026	548		-	-		-
Planning & Site Preparations																
11	Prepare dismantling sequence	-	-	-	-		240	36	276	276	-		-	-		-
12	Plant prep. & temp. svces	-	-	-	-		1,895	284	2,180	2,180	-		-	-		-
13	Design water clean-up system	-	-	-	-		140	21	161	161	-		-	-		-
14	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-		1,604	241	1,845	1,845	-		-	-		-
15	Procure casks/liners & containers	-	-	-	-		123	18	141	141	-		-	-		-
Detailed Work Procedures																
16.1	Plant systems	-	-	-	-		473	71	544	490	54		-	-		-
16.2	Reactor internals	-	-	-	-		250	38	288	288	-		-	-		-
16.3	Remaining buildings	-	-	-	-		135	20	155	39	116		-	-		-
16.4	CRD cooling assembly	-	-	-	-		100	15	115	115	-		-	-		-
16.5	CRD housings & ICI tubes	-	-	-	-		100	15	115	115	-		-	-		-
16.6	Incore instrumentation	-	-	-	-		100	15	115	115	-		-	-		-
16.7	Reactor vessel	-	-	-	-		363	54	417	417	-		-	-		-
16.8	Facility closeout	-	-	-	-		120	18	138	69	69		-	-		-
16.9	Missile shields	-	-	-	-		45	7	52	52	-		-	-		-
16.10	Biological shield	-	-	-	-		120	18	138	138	-		-	-		-
16.11	Steam generators	-	-	-	-		460	69	529	529	-		-	-		-
16.12	Reinforced concrete	-	-	-	-		100	15	115	58	58		-	-		-
16.13	Turbine & condensers	-	-	-	-		312	47	359	-	359		-	-		-
16.14	Auxiliary building	-	-	-	-		273	41	314	283	31		-	-		-
16.15	Reactor building	-	-	-	-		273	41	314	283	31		-	-		-
16	Total	-	-	-	-		3,224	484	3,708	2,989	719		-	-		-
17	Asbestos removal program	-	217	37	1	231	7	117	610	427	184	640	-	-		-

TABLE D-4
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Period 3 Additional Costs																
18	Site Characterization Survey	-	-	-	-		683	102	785	785	-		-	-		-
Subtotal Period 3 Activity Costs		-	217	37	1	231	14,554	2,299	17,340	15,889	1,450	640	-	-		-
Period 3 Undistributed Costs																
1	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
2	Insurance	-	-	-	-		290	29	319	319	-		-	-		-
3	Property taxes	-	-	-	-		309	31	340	340	-		-	-		-
4	Health physics supplies	-	207	-	-		-	52	259	259	-		-	-		-
5	Heavy equipment rental	-	446	-	-		-	67	513	513	-		-	-		-
6	Disposal of DAW generated	-	-	17	5	788	-	199	1,009	1,009	-	2,560	-	-	176,707	-
7	Plant energy budget	-	-	-	-		759	114	872	872	-		-	-		-
8	NRC Fees	-	-	-	-		303	30	333	333	-		-	-		-
9	Site Security Cost	-	-	-	-		714	107	821	821	-		-	-		-
10	Fixed Overhead	-	-	-	-		1,086	163	1,248	1,248	-		-	-		-
Subtotal Undistributed Costs Period 3		-	1,674	17	5	788	3,461	945	6,890	6,890	-	2,560	-	-	176,707	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		5,331	800	6,130	6,130	-		-	-		-
	Utility Staff Cost	-	-	-	-		16,565	2,485	19,049	19,049	-		-	-		-
TOTAL PERIOD 3 COST		**-**	**1,891**	**54**	**7**	**1,019**	**39,910**	**6,529**	**49,410**	**47,959**	**1,450**	**3,200**	**-**	**-**	**176,707**	**-**

TABLE D-4
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 4																
	Nuclear Steam Supply System Removal															
19.1	Reactor Coolant Piping	26	40	4	5	131	-	57	263	263	-	319	-	-	29,769	-
19.2	Pressurizer Relief Tank	11	58	3	3	87	-	43	205	205	-	300	-	-	19,699	-
19.3	Reactor Coolant Pumps & Motors	21	30	21	27	2,789	-	721	3,609	3,609	-	2,256	-	-	633,930	-
19.4	Pressunzer	16	27	4	9	943	-	252	1,250	1,250	-	1,771	-	-	214,343	-
19.5	Steam Generators	113	920	2,067	1,977	4,530	-	1,922	11,530	11,530	-	18,876	-	-	2,339,184	-
19.6	Old Steam Generator Lower Shell Units	-	-	1,650	1,578	1,896	-	876	6,000	6,000	-	7,899	-	-	1,134,000	-
19.7	CRDMs/ICIs/Service Structure Removal	64	44	41	10	185	-	95	439	439	-	2,253	-	-	64,288	-
19.8	Reactor Vessel Internals	45	1,218	2,363	349	3,688	-	3,458	11,119	11,119	-	786	393	1,020	223,389	-
19.9	Vessel & Internals GTCC Disposal	-	-	-	-	12,355	-	6,178	18,533	18,533	-	-	-	-	-	553
19.1	Reactor Vessel	96	3,071	176	263	3,865	-	4,394	11,865	11,865	-	3,930	1,703	-	786,229	-
19	Totals	392	5,408	6,330	4,220	30,469	-	17,995	64,813	64,813	-	38,389	2,096	1,020	5,444,831	553
20	Remove spent fuel racks	204	22	-	-	88	166	154	634	634	-	285	-	-	31,590	-
	Removal of Major Equipment															
21	Main Turbine/Generator	-	46	-	-		-	7	53	-	53	-	-	-	-	-
22	Main Condensers	-	371	-	-		-	56	426	-	426	-	-	-	-	-
	Disposal of Plant Systems															
23.1	Ametap	-	37	-	-	-	-	6	43	-	43	-	-	-	-	-
23.2	Auxiliary Feedwater	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.3	Auxiliary Feedwater - Insulated	-	9	-	-	-	-	1	10	-	10	-	-	-	-	-
23.4	Auxiliary Feedwater - Insulated - RCA	-	13	-	-	-	-	2	15	15	-	-	-	-	-	-
23.5	Auxiliary Feedwater - RCA	-	3	-	-	-	-	0	4	4	-	-	-	-	-	-
23.6	Auxiliary Steam	-	0	-	-	-	-	0	0	-	0	-	-	-	-	-
23.7	Auxiliary Steam - Insulated	-	16	-	-	-	-	2	19	-	19	-	-	-	-	-
23.8	Auxiliary Steam - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.9	Auxiliary Steam - RCA	-	0	-	-	-	-	0	0	-	-	-	-	-	-	-
23.10	Breathing Air - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.11	Breathing Air - RCA	-	2	-	-	-	-	0	2	2	-	-	-	-	-	-
23.12	Chemical & Volume Control	-	50	-	-	280	-	83	413	413	-	748	-	-	63,666	-
23.13	Chemical & Volume Control - Insulated	-	173	-	-	245	-	105	523	523	-	456	-	-	55,760	-
23.14	Circulating Water	-	49	-	-	-	-	7	56	-	56	-	-	-	-	-
23.15	Component Cooling Water	-	78	-	-	-	-	12	90	-	90	-	-	-	-	-
23.16	Component Cooling Water - RCA	-	44	-	-	-	-	7	51	51	-	-	-	-	-	-
23.17	Condensate	-	89	-	-	-	-	13	102	-	102	-	-	-	-	-
23.18	Condensate - Insulated	-	28	-	-	-	-	4	32	-	32	-	-	-	-	-
23.19	Condensate Polishing	-	17	-	-	-	-	2	19	-	19	-	-	-	-	-
23.20	Condensate Polishing - Ins	-	43	-	-	-	-	6	50	-	50	-	-	-	-	-
23.21	Condensate Recovery	-	8	-	-	-	-	1	10	-	10	-	-	-	-	-
23.22	Condensate Recovery - Insulated	-	1	-	-	-	-	0	2	-	2	-	-	-	-	-
23.23	Condensate Recovery - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.24	Condensate Recovery - RCA	-	3	-	-	-	-	0	3	3	-	-	-	-	-	-
23.25	Condensate Storage	-	36	-	-	-	-	5	42	-	42	-	-	-	-	-
23.26	Condenser	-	12	-	-	-	-	2	14	-	14	-	-	-	-	-
23.27	Containment Emergency Filter	-	3	-	-	0	2	1	6	6	-	1	-	-	105	-
23.28	Containment Normal & Emerg Coolng	-	428	-	-	88	277	170	961	961	-	170	-	-	20,009	-
23.29	Containment Normal & Emerg Coolng - Ins	-	4	-	-	5	-	2	11	11	-	9	-	-	1,238	-
23.30	Containment Post Accident Eval	-	0	-	-	0	0	0	1	1	-	0	-	-	35	-
23.31	Containment Purge	-	29	-	-	47	0	19	96	96	-	89	-	-	10,743	-
23.32	Containment Spray	-	50	-	-	154	-	51	255	255	-	293	-	-	34,998	-
23.33	Containment Spray - Insulated	-	43	-	-	84	-	32	159	159	-	154	-	-	19,070	-
23.34	EDG Building HVAC	-	1	-	-	-	-	0	2	-	2	-	-	-	-	-
23.35	Electrical - Clean	-	712	-	-	-	-	107	819	-	819	-	-	-	-	-
23.36	Electrical - Contaminated	-	335	-	-	16	65	97	513	513	-	32	-	-	3,664	-
23.37	Electrical - Decontaminated	-	305	-	-	-	-	46	351	351	-	-	-	-	-	-
23.38	Emergency Diesel Engine & Oil	-	35	-	-	-	-	5	40	-	40	-	-	-	-	-

0001995

TABLE D-4
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
23.39	Emergency Diesel Engine & Oil - Ins	-	1	-	-	-	-	0	2	-	2	-	-	-	-	-
23.40	Extraction Steam	-	5	-	-	-	-	1	6	-	6	-	-	-	-	-
23.41	Extraction Steam - Insulated	-	26	-	-	-	-	4	29	-	29	-	-	-	-	-
23.42	Feedwater	-	25	-	-	-	-	4	29	-	29	-	-	-	-	-
23.43	Feedwater - Insulated	-	72	-	-	-	-	11	83	-	83	-	-	-	-	-
23.44	Feedwater - Insulated - RCA	-	8	-	-	-	-	1	9	9	-	-	-	-	-	-
23.45	Feedwater - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.46	Feedwater Heater Drains & Vents	-	23	-	-	-	-	3	27	-	27	-	-	-	-	-
23.47	Feedwater Heater Drains & Vents - Ins	-	156	-	-	-	-	23	180	-	180	-	-	-	-	-
23.48	Fire Protection	-	9	-	-	-	-	1	10	-	10	-	-	-	-	-
23.49	Fire Protection - RCA	-	13	-	-	-	-	2	15	15	-	-	-	-	-	-
23.50	Fuel Handling HVAC	-	38	-	-	7	27	15	88	88	-	13	-	-	1,541	-
23.51	Generator	-	3	-	-	-	-	0	3	-	3	-	-	-	-	-
23.52	Generator - Insulated	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.53	Instrument Air	-	7	-	-	-	-	1	7	-	7	-	-	-	-	-
23.54	Instrument Air - Insulated	-	5	-	-	-	-	1	6	-	6	-	-	-	-	-
23.55	Instrument Air - Insulated - RCA	-	8	-	-	-	-	1	9	9	-	-	-	-	-	-
23.56	Instrument Air - RCA	-	5	-	-	-	-	1	6	6	-	-	-	-	-	-
23.57	Intake Cooling Water	-	77	-	-	-	-	12	89	-	89	-	-	-	-	-
23.58	Main Steam - Insulated	-	86	-	-	-	-	13	99	-	99	-	-	-	-	-
23.59	Main Steam - Insulated - RCA	-	5	-	-	-	-	1	6	6	-	-	-	-	-	-
23.60	Miscellaneous - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.61	Primary Water Makeup	-	38	-	-	-	-	6	44	-	44	-	-	-	-	-
23.62	Reactor Coolant - Insulated	-	47	-	-	69	-	29	146	146	-	132	-	-	15,773	-
23.63	Refueling Equipment	-	73	-	-	290	-	91	454	454	-	569	-	-	65,804	-
23.64	Residual Heat Removal	-	45	-	-	1,155	-	300	1,499	1,499	-	2,159	-	-	262,460	-
23.65	Residual Heat Removal - Insulated	-	198	-	-	617	-	204	1,018	1,018	-	1,176	-	-	140,165	-
23.66	Safety Injection	-	107	-	-	43	145	59	355	355	-	140	-	-	9,813	-
23.67	Safety Injection - Insulated	-	83	-	-	215	-	75	373	373	-	412	-	-	48,960	-
23.68	Safety Injection Accumulator	-	154	-	-	137	29	77	397	397	-	279	-	-	31,098	-
23.69	Sample - NSSS	-	12	-	-	7	1	5	26	26	-	12	-	-	1,602	-
23.70	Sample - NSSS - Ins	-	12	-	-	8	-	5	26	26	-	14	-	-	1,858	-
23.71	Screen Wash	-	12	-	-	-	-	2	14	-	14	-	-	-	-	-
23.72	Secondary Sample	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.73	Secondary Sample - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.74	Secondary Wet Layup	-	11	-	-	-	-	2	13	-	13	-	-	-	-	-
23.75	Secondary Wet Layup - RCA	-	2	-	-	-	-	0	3	3	-	-	-	-	-	-
23.76	Service Water	-	0	-	-	-	-	0	0	-	0	-	-	-	-	-
23.77	Service Water - RCA	-	0	-	-	-	-	0	1	1	-	-	-	-	-	-
23.78	Spent Fuel Pool Cooling	-	68	-	-	216	-	71	355	355	-	431	-	-	49,000	-
23.79	Spent Fuel Pool Cooling - Insulated	-	37	-	-	79	-	29	146	146	-	149	-	-	18,053	-
23.80	Steam Generator Wet Layup	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.81	Steam Generator Wet Layup - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.82	Turbine Building HVAC	-	10	-	-	-	-	1	11	-	11	-	-	-	-	-
23.83	Turbine Lube Oil	-	20	-	-	-	-	3	23	-	23	-	-	-	-	-
23.84	Turbine Plant Chemical Addition	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.85	Turbine Plant Cooling Water	-	43	-	-	-	-	6	50	-	50	-	-	-	-	-
23.86	Turbine Plant Cooling Water - Insulated	-	24	-	-	-	-	4	27	-	27	-	-	-	-	-
23.87	Turbine Steam	-	32	-	-	-	-	5	37	-	37	-	-	-	-	-
23.88	Turbine Steam - Insulated	-	14	-	-	-	-	2	17	-	17	-	-	-	-	-
23.89	Waste Disposal	-	21	-	-	49	-	18	88	88	-	113	-	-	11,136	-
23.90	Waste Disposal - Insulated	-	56	-	-	90	-	37	183	183	-	167	-	-	20,538	-
23	Totals	-	4,365	-	-	3,903	547	1,919	10,734	8,570	2,164	7,719	-	-	887,090	-
24	Erect scaffolding for systems removal	-	191	-	-	5	17	51	264	264	-	16	-	-	1,829	-

TABLE D-4
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Decontamination of Site Buildings																
25.1	Reactor Building	462	300	44	22	2,867	128	1,050	4,873	4,873	-	5,936	-	-	672,211	-
25.2	Fuel Handling	167	169	2	1	58	105	156	658	658	-	188	-	-	20,478	-
25	Totals	629	469	46	22	2,925	233	1,206	5,531	5,531	-	6,124	-	-	692,689	-
26	ORISE confirmatory survey	-	-	-	-		1,064	319	1,383	1,383	-		-	-		-
27	Terminate license								Note 1							
Period 4 Additional Costs																
28	License Termination Survey	-	-	-	-		1,669	250	1,919	1,919	-		-	-		-
Subtotal Period 4 Activity Costs		1,225	10,871	6,375	4,243	37,390	3,696	21,958	85,757	83,115	2,643	52,533	2,096	1,020	7,058,029	553
Period 4 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	286	-	-	-		-	72	358	358	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	189	-	69	132	714	-	300	1,405	1,405	-		1,288	-	162,357	-
5	Insurance	-	-	-	-		748	75	822	822	-		-	-		-
6	Property taxes	-	-	-	-		968	97	1,065	958	106		-	-		-
7	Health physics supplies	-	1,392	-	-		-	348	1,741	1,741	-		-	-		-
8	Heavy equipment rental	-	7,348	-	-		-	1,102	8,450	7,605	845		-	-		-
9	Small tool allowance	-	121	-	-		-	18	140	126	14		-	-		-
10	Pipe cutting equipment	-	749	-	-		-	112	862	862	-		-	-		-
11	Disposal of DAW generated	-	-	52	16	2,469	-	625	3,161	3,161	-	8,016	-	-	553,426	-
12	Decommissioning Equipment Disposition	-	-	-	-	83	278	63	424	424	-	270	-	-	30,000	-
13	Plant energy budget	-	-	-	-		2,041	306	2,348	2,113	235		-	-		-
14	NRC Fees	-	-	-	-		1,077	108	1,185	1,185	-		-	-		-
15	Site Security Cost	-	-	-	-		3,485	523	4,008	4,008	-		-	-		-
16	Fixed Overhead	-	-	-	-		3,400	510	3,909	3,909	-		-	-		-
17	Radwaste Processing Skids	-	-	-	-		554	83	637	637	-		-	-		-
Subtotal Undistributed Costs Period 4		966	10,632	121	147	3,267	12,551	4,568	32,253	31,052	1,200	8,287	1,288	-	745,783	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		19,917	2,988	22,905	22,905	-		-	-		-
	Utility Staff Cost	-	-	-	-		30,506	4,576	35,082	35,082	-		-	-		-
TOTAL PERIOD 4		2,191	21,503	6,496	4,390	40,656	66,671	34,089	175,997	172,154	3,843	60,819	3,384	1,020	7,803,812	553

TABLE D-4
TURKEY POINT PLANT - UNIT 3
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 5																
Demolition of Remaining Site Buildings																
29.1	Reactor Building	-	2,696	-	-		-	404	3,101	465	2,636		-	-		-
29.2	Fuel Handling	-	340	-	-		-	51	391	39	352		-	-		-
29.3	Miscellaneous Structures	-	115	-	-		-	17	132	-	132		-	-		-
29.4	Sealwell	-	182	-	-		-	27	209	-	209		-	-		-
29.5	Turbine Building	-	314	-	-		-	47	361	-	361		-	-		-
29.6	Turbine Pedestal	-	256	-	-		-	38	294	-	294		-	-		-
29	Totals	-	3,902	-	-		-	585	4,488	504	3,983		-	-		-
Site Closeout Activities																
30	Grade & landscape site	-	94	-	-		-	14	108	-	108		-	-		-
31	Final report to NRC	-	-	-	-		156	23	179	179	-		-	-		-
Subtotal Period 5 Activity Costs		-	3,996	-	-	-	156	623	4,775	684	4,091	-	-	-	-	-
Period 5 Undistributed Costs																
1	Insurance	-	-	-	-		120	12	132	132	-		-	-		-
2	Property taxes	-	-	-	-		227	23	249	-	249		-	-		-
3	Heavy equipment rental	-	1,577	-	-		-	237	1,813	-	1,813		-	-		-
4	Small tool allowance	-	28	-	-		-	4	33	-	33		-	-		-
5	Plant energy budget	-	-	-	-		59	9	67	-	67		-	-		-
6	Site Security Cost	-	-	-	-		151	23	174	-	174		-	-		-
Subtotal Undistributed Costs Period 5		-	1,605	-	-		556	307	2,468	132	2,336		-	-		-
Staff Costs																
	DOC Staff Cost	-	-	-	-		2,179	327	2,506	-	2,506		-	-		-
	Utility Staff Cost	-	-	-	-		751	113	863	777	86		-	-		-
TOTAL PERIOD 5		-	5,601	-	-	-	3,642	1,369	10,613	1,593	9,020	-	-	-	-	-
TOTAL COST TO DECOMMISSION		3,718	29,553	6,664	4,530	44,643	265,950	66,233	421,291	406,978	14,313	71,914	4,533	1,020	8,302,405	553

Total cost to decommission with	18.65%	contingency	$	421,290,986
Total NRC license termination cost is	96.60%	or	$	406,977,661
Non-nuclear demolition cost is	3.40%	or	$	14,313,316
Total site radwaste volume buried			77,467	cubic feet
Total site radwaste weight buried			8,302,405	pounds
Total 10CFR61 greater than class C waste buried			553	cubic feet
Total scrap metal released from site			12,064	tons
Total craft labor requirements			472,508	person hours

NOTES:
1) This activity is performed by the decommissioning staff following plant shutdown; the costs for this are included in this period's staff cost.
2) This activity, while performed after final plant shutdown, is considered part of operations and therefore no decommissioning costs are included for this activity.

TABLE D-5
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 1: Mothballing Activities																
1	Prepare preliminary decommissioning cost	-	-	-	-		56	8	64	64	-	-	-	-		-
2	Notification of Cessation of Operations								Note 1							
3	Remove fuel & source material								Note 2							
4	Notification of Permanent Defueling								Note 1							
5	Deactivate plant systems & process waste								Note 1							
6	Prepare and submit PSDAR	-	-	-	-		86	13	98	98	-		-	-		-
7	Review plant dwgs & specs	-	-	-	-		56	8	64	64	-		-	-		-
8	Perform detailed rad survey								Note 1							
9	Estimate by-product inventory	-	-	-	-		43	6	49	49	-		-	-		-
10	End product description	-	-	-	-		43	6	49	49	-		-	-		-
11	Detailed by-product inventory	-	-	-	-		64	10	74	74	-		-	-		-
12	Define major work sequence	-	-	-	-		43	6	49	49	-		-	-		-
13	Perform SER and EA	-	-	-	-		133	20	152	152	-		-	-		-
14	Perform Site-Specific Cost Study	-	-	-	-		214	32	246	246	-		-	-		-
15	Prepare/submit License Termination Plan	-	-	-	-		175	26	201	201	-		-	-		-
16	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
17.1	Prepare plant and facilities for SAFSTOR	-	-	-	-		210	32	242	242	-		-	-		-
17.2	Plant systems	-	-	-	-		178	27	205	205	-		-	-		-
17.3	Plant structures and buildings	-	-	-	-		133	20	153	153	-		-	-		-
17.4	Waste management	-	-	-	-		86	13	98	98	-		-	-		-
17.5	Facility and site dormancy	-	-	-	-		86	13	98	98	-		-	-		-
17	Total	-	-	-	-		693	104	797	797	-		-	-		-
Detailed Work Procedures																
18.1	Plant systems	-	-	-	-		202	30	233	233	-		-	-		-
18.2	Facility closeout & dormancy	-	-	-	-		51	8	59	59	-		-	-		-
18	Total	-	-	-	-		254	38	292	292	-		-	-		-
19	Procure vacuum drying system	-	-	-	-		4	1	5	5	-		-	-		-
20	Drain/de-energize non-cont systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
21	Drain & dry NSSS	-	-	-	-		-	-	Note 1	-	-		-	-		-
22	Drain/de-energize contaminated systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
23	Decon/secure contaminated systems	-	-	-	-		-	-	Note 1	-	-		-	-		-
Decontamination of Site Buildings																
24.1	Reactor Building	462	-	-	-		-	231	694	694	-		-	-	-	-
24.2	Auxiliary Building	173	-	-	-		-	87	260	260	-		-	-	-	-
24.3	Fuel Handling	181	-	-	-		-	91	272	272	-		-	-	-	-
24.4	Miscellaneous Structures - Contaminated	5	-	-	-		-	3	8	8	-		-	-	-	-
24.5	Radwaste Solidification Building	66	-	-	-		-	33	99	99	-		-	-	-	-
24	Totals	888	-	-	-	-	-	444	1,332	1,332	-	-	-	-	-	-
25	Prepare support equipment for storage	-	278	-	-		-	42	320	320	-		-	-		-
26	Install containment pressure equal. lines	-	19	-	-		-	3	22	22	-		-	-		-
27	Interim survey prior to dormancy	-	-	-	-		320	48	369	369	-		-	-		-
28	Secure building accesses	-	-	-	-		-	-	Note 1	-	-		-	-		-
29	Prepare & submit interim report	-	-	-	-		25	4	29	29	-		-	-		-

TABLE D-5
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Period 1 Additional Costs																
30	Mixed/Hazardous Waste	-	-	-	-		3,289	493	3,782	3,782	-		-	-		-
31	Seaweed Remediation & Disposal	-	-	-	-		2,250	338	2,588	2,588	-		-	-		-
Subtotal Period 1 Activity Costs		888	297	-	-	-	7,746	1,651	10,582	10,582	-	-	-	-	-	-
Period 1 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	373	-	-	-		-	93	466	466	-		-	-		-
3	Process liquid waste	175	-	64	122	661	-	278	1,301	1,301	-	-	1,193	-	150,329	-
4	Insurance	-	-	-	-		2,060	206	2,266	2,266	-		-	-		-
5	Property taxes	-	-	-	-		310	31	341	341	-		-	-		-
6	Health physics supplies	-	273	-	-		-	68	341	341	-		-	-		-
7	Small tool allowance	-	13	-	-		-	2	15	15	-		-	-		-
8	Disposal of DAW generated	-	-	17	5	790	-	200	1,011	1,011	-	2,564	-	-	177,002	-
9	Plant energy budget	-	-	-	-		617	93	710	710	-		-	-		-
10	NRC Fees	-	-	-	-		304	30	334	334	-		-	-		-
11	Emergency Planning Fees	-	-	-	-		76	8	83	83	-		-	-		-
12	Site Security Cost	-	-	-	-		716	107	823	823	-		-	-		-
13	Fixed Overhead	-	-	-	-		1,088	163	1,251	1,251	-		-	-		-
Subtotal Undistributed Costs Penod 1		1,039	286	81	127	1,451	5,170	1,353	9,507	9,507	-	2,564	1,193	-	327,331	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		-	-	-	-	-		-	-		-
	Utility Staff Cost	-	-	-	-		17,993	2,699	20,692	20,692	-		-	-		-
TOTAL COST TO SAFSTOR		1,927	583	81	127	1,451	30,909	5,702	40,780	40,780	-	2,564	1,193	-	327,331	-

Total cost to SAFSTOR with	16.26% contingency.	40,780,437
Total site radwaste volume buried		3,756 cubic feet
Total craft labor requirements		38,454 person hours

000200

TABLE D-5
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 2: SAFSTOR Dormancy Activities																
1	Quarterly Inspection								Note 1							
2	Semi-annual environmental survey								Note 1							
3	Prepare reports								Note 1							
4	Health physics supplies	-	-	-	-		46	11	57	57	-		-	-		-
5	Insurance	-	-	-	-		67	7	74	74	-		-	-		-
6	Property taxes	-	-	-	-		206	21	227	227	-		-	-		-
7	Disposal of contaminated solid waste	-	-	1	0	29	-	7	38	38	-	102	-	-		-
8	Bituminous roof replacement	-	-	-	-		33	5	38	38	-	-	-	-		-
9	Maintenance supplies	-	-	-	-		99	25	123	123	-		-	-		-
10	Plant energy budget	-	-	-	-		127	19	146	146	-		-	-		-
11	NRC Fees	-	-	-	-		162	16	178	178	-		-	-		-
12	Emergency Planning Fees	-	-	-	-		3	0	4	4	-		-	-		-
13	Site Security Cost	-	-	-	-		73	11	83	83	-		-	-		-
14	Fixed Overhead	-	-	-	-		72	11	83	83	-		-	-		-
15	Site maintenance staff	-	-	-	-		538	81	619	619	-		-	-		-
PERIOD 2 ANNUAL MAINTENANCE TOTALS		-	-	1	0	29	1,426	214	1,670	1,670	-	102	-	-	-	-

Total cost SAFSTOR dormancy with	52.9267	years equals	88,378,621	
Total site radwaste volume buried			5,393	cubic feet

TABLE D-5
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 3																
1	Review plant dwgs & specs.	-	-	-	-		197	30	226	226	-		-	-		-
2	Perform detailed rad survey								Note 1							
3	End product description	-	-	-	-		43	6	49	49	-		-	-		-
4	Detailed by-product inventory	-	-	-	-		56	8	64	64	-		-	-		-
5	Define major work sequence	-	-	-	-		321	48	369	369	-		-	-		-
6	Perform SER and EA	-	-	-	-		133	20	152	152	-		-	-		-
7	Perform Site-Specific Cost Study	-	-	-	-		214	32	246	246	-		-	-		-
8	Prepare/submit License Termination Plan	-	-	-	-		175	26	201	201	-		-	-		-
9	Receive NRC approval of termination plan								Note 1							
Activity Specifications																
10 1	Re-activate plant & temporary facilities	-	-	-	-		315	47	362	326	36		-	-		-
10 2	Plant systems	-	-	-	-		178	27	205	184	20		-	-		-
10.3	Reactor internals	-	-	-	-		304	46	349	349	-		-	-		-
10 4	Reactor vessel	-	-	-	-		278	42	320	320	-		-	-		-
10.5	Biological shield	-	-	-	-		21	3	25	25	-		-	-		-
10.6	Steam generators	-	-	-	-		133	20	153	153	-		-	-		-
10 7	Reinforced concrete	-	-	-	-		68	10	79	39	39		-	-		-
10.8	Turbine & condenser	-	-	-	-		34	5	39	-	39		-	-		-
10 9	Plant structures & buildings	-	-	-	-		133	20	153	77	77		-	-		-
10 10	Waste management	-	-	-	-		197	30	226	226	-		-	-		-
10.11	Facility & site closeout	-	-	-	-		38	6	44	22	22		-	-		-
10	Total	-	-	-	-		1,701	255	1,956	1,722	234		-	-		-
Planning & Site Preparations																
11	Prepare dismantling sequence	-	-	-	-		103	15	118	118	-		-	-		-
12	Plant prep. & temp. svces	-	-	-	-		1,895	284	2,180	2,180	-		-	-		-
13	Design water clean-up system	-	-	-	-		60	9	69	69	-		-	-		-
14	Rigging/Cont. Cntrl Envlps/tooling/etc.	-	-	-	-		1,804	241	1,845	1,845	-		-	-		-
15	Procure casks/liners & containers	-	-	-	-		53	8	60	60	-		-	-		-
Detailed Work Procedures																
16.1	Plant systems	-	-	-	-		202	30	233	209	23		-	-		-
16.2	Reactor internals	-	-	-	-		107	16	123	123	-		-	-		-
16.3	Remaining buildings	-	-	-	-		58	9	66	17	50		-	-		-
16.4	CRD cooling assembly	-	-	-	-		43	6	49	49	-		-	-		-
16.5	CRD housings & ICI tubes	-	-	-	-		43	6	49	49	-		-	-		-
16.6	Incore instrumentation	-	-	-	-		43	6	49	49	-		-	-		-
16.7	Reactor vessel	-	-	-	-		155	23	179	179	-		-	-		-
16.8	Facility closeout	-	-	-	-		51	8	59	30	30		-	-		-
16.9	Missile shields	-	-	-	-		19	3	22	22	-		-	-		-
16.10	Biological shield	-	-	-	-		51	8	59	59	-		-	-		-
16.11	Steam generators	-	-	-	-		197	30	226	226	-		-	-		-
16 12	Reinforced concrete	-	-	-	-		43	6	49	25	25		-	-		-
16 13	Turbine & condensers	-	-	-	-		133	20	153	-	153		-	-		-
16.14	Auxiliary building	-	-	-	-		117	18	134	121	13		-	-		-
16.15	Reactor building	-	-	-	-		117	18	134	121	13		-	-		-
16	Total	-	-	-	-		1,379	207	1,586	1,278	307		-	-		-
17	Asbestos removal program	-	217	37	1	231	7	117	610	427	184	640	-	-		-

TABLE D-5
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Period 3 Additional Costs																
18	Site Characterization Survey	-	-	-	-		1,024	154	1,178	1,178	-		-	-		-
Subtotal Period 3 Activity Costs		-	217	37	1	231	8,963	1,460	10,910	10,185	725	640	-	-		-
Period 3 Undistributed Costs																
1	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
2	Insurance	-	-	-	-		291	29	320	320	-		-	-		-
3	Property taxes	-	-	-	-		310	31	341	341	-		-	-		-
4	Health physics supplies	-	208	-	-		-	52	260	260	-		-	-		-
5	Heavy equipment rental	-	448	-	-		-	67	515	515	-		-	-		-
6	Disposal of DAW generated	-	-	17	5	791	-	200	1,013	1,013	-	2,570	-	-	177,395	-
7	Plant energy budget	-	-	-	-		646	97	743	743	-		-	-		-
8	NRC Fees	-	-	-	-		304	30	335	335	-		-	-		-
9	Site Security Cost	-	-	-	-		427	64	491	491	-		-	-		-
10	Fixed Overhead	-	-	-	-		1,090	163	1,253	1,253	-		-	-		-
Subtotal Undistributed Costs Period 3		-	1,677	17	5	791	3,069	888	6,446	6,446	-	2,570	-	-	177,395	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		3,516	527	4,043	4,043	-		-	-		-
	Utility Staff Cost	-	-	-	-		7,848	1,177	9,025	9,025	-		-	-		-
TOTAL PERIOD 3 COST		-	**1,894**	**54**	**7**	**1,022**	**23,396**	**4,053**	**30,424**	**29,699**	**725**	**3,210**	-	-	**177,395**	-

TABLE D-5
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 4																
Nuclear Steam Supply System Removal																
19.1	Reactor Coolant Piping	26	40	4	5	131	-	57	263	263	-	319	-	-	29,769	-
19.2	Pressurizer Relief Tank	11	58	3	3	87	-	43	205	205	-	300	-	-	19,699	-
19.3	Reactor Coolant Pumps & Motors	21	30	21	27	2,789	-	721	3,609	3,609	-	2,253	-	-	633,930	-
19.4	Pressurizer	16	27	4	9	943	-	252	1,250	1,250	-	1,771	-	-	214,343	-
19.5	Steam Generators	113	920	2,067	1,977	4,530	-	1,922	11,530	11,530	-	18,876	-	-	2,339,184	-
19.6	Old Steam Generator Lower Shell Units	-	-	1,650	1,578	1,896	-	876	6,000	6,000	-	7,899	-	-	1,134,000	-
19.7	CRDMs/ICIs/Service Structure Removal	64	44	41	10	185	-	95	439	439	-	2,253	-	-	64,288	-
19.8	Reactor Vessel Internals	45	1,218	2,363	349	3,688	-	3,458	11,120	11,120	-	786	393	1,020	223,389	-
19.9	Vessel & Internals GTCC Disposal	-	-	-	-	12,355	-	6,178	18,533	18,533	-	-	-	-	-	553
19.1	Reactor Vessel	96	3,071	176	263	3,865	-	4,394	11,865	11,865	-	3,930	1,703	-	786,229	-
19	Totals	392	5,408	6,330	4,220	30,469	-	17,995	64,813	64,813	-	38,386	2,096	1,020	5,444,831	553
20	Remove spent fuel racks	204	22	-	-	88	166	154	634	634	-	285	-	-	31,590	-
Removal of Major Equipment																
21	Main Turbine/Generator	-	46	-	-		-	7	53	-	53	-	-	-	-	-
22	Main Condensers	-	371	-	-		-	56	426	-	426	-	-	-	-	-
Disposal of Plant Systems																
23.1	Ametap	-	40	-	-	-	-	6	46	-	46	-	-	-	-	-
23.2	Auxiliary Bldg HVAC	-	176	-	-	42	129	74	420	420	-	83	-	-	9,533	-
23.3	Auxiliary Feedwater	-	8	-	-	-	-	1	9	-	9	-	-	-	-	-
23.4	Auxiliary Feedwater - Insulated	-	14	-	-	-	-	2	16	-	16	-	-	-	-	-
23.5	Auxiliary Feedwater - Insulated - RCA	-	20	-	-	-	-	3	23	23	-	-	-	-	-	-
23.8	Auxiliary Feedwater - RCA	-	5	-	-	-	-	1	5	5	-	-	-	-	-	-
23.7	Auxiliary Steam	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.8	Auxiliary Steam - Insulated	-	23	-	-	-	-	3	26	-	26	-	-	-	-	-
23.9	Auxiliary Steam - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.10	Auxiliary Steam - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.11	Breathing Air - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.12	Breathing Air - RCA	-	9	-	-	-	-	1	11	11	-	-	-	-	-	-
23.13	Chemical & Volume Control	-	239	-	-	1,660	-	475	2,373	2,373	-	5,495	-	-	377,166	-
23.14	Chemical & Volume Control - Insulated	-	304	-	-	427	-	183	913	913	-	803	-	-	96,999	-
23.15	Circulating Water	-	59	-	-	-	-	9	68	-	68	-	-	-	-	-
23.16	Component Cooling Water	-	105	-	-	-	-	16	121	-	121	-	-	-	-	-
23.17	Component Cooling Water - RCA	-	62	-	-	-	-	9	72	72	-	-	-	-	-	-
23.18	Condensate	-	105	-	-	-	-	16	120	-	120	-	-	-	-	-
23.19	Condensate - Insulated	-	41	-	-	-	-	6	47	-	47	-	-	-	-	-
23.20	Condensate Polishing	-	18	-	-	-	-	3	20	-	20	-	-	-	-	-
23.21	Condensate Polishing - Ins	-	53	-	-	-	-	8	61	-	61	-	-	-	-	-
23.22	Condensate Recovery	-	12	-	-	-	-	2	14	-	14	-	-	-	-	-
23.23	Condensate Recovery - Insulated	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.24	Condensate Recovery - Insulated - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.25	Condensate Recovery - RCA	-	4	-	-	-	-	1	4	4	-	-	-	-	-	-
23.26	Condensate Storage	-	38	-	-	-	-	6	44	-	44	-	-	-	-	-
23.27	Condenser	-	14	-	-	-	-	2	16	-	16	-	-	-	-	-
23.28	Containment Emergency Filter	-	3	-	-	0	2	1	6	6	-	1	-	-	105	-
23.29	Containment Normal & Emerg Cooling	-	431	-	-	93	273	172	970	970	-	179	-	-	21,249	-
23.30	Containment Normal & Emerg Cooling - Ins	-	5	-	-	7	-	3	15	15	-	12	-	-	1,653	-
23.31	Containment Post Accident Eval	-	8	-	-	4	0	3	14	14	-	7	-	-	826	-
23.32	Containment Post Accident Eval - Ins	-	16	-	-	23	-	10	50	50	-	42	-	-	5,328	-
23.33	Containment Purge	-	29	-	-	47	0	19	96	96	-	89	-	-	10,743	-
23.34	Containment Spray	-	54	-	-	161	-	54	268	268	-	307	-	-	36,569	-
23.35	Containment Spray - Insulated	-	47	-	-	91	-	34	172	172	-	167	-	-	20,642	-
23.36	Control Building HVAC	-	16	-	-	-	-	2	19	-	19	-	-	-	-	-
23.37	EDG Building HVAC	-	2	-	-	-	-	0	3	-	3	-	-	-	-	-
23.38	Electrical - Clean	-	1,085	-	-	-	-	163	1,248	-	1,248	-	-	-	-	-

TABLE D-5
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
23.39	Electrical - Contaminated	-	542	-	-	23	94	155	814	814	-	46	-	-	5,279	-
23.40	Electrical - Decontaminated	-	466	-	-	-	-	70	536	536	-	-	-	-	-	-
23.41	Emergency Diesel Engine & Oil	-	39	-	-	-	-	6	44	-	44	-	-	-	-	-
23.42	Emergency Diesel Engine & Oil - Ins	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.43	Extraction Steam	-	7	-	-	-	-	1	8	-	8	-	-	-	-	-
23.44	Extraction Steam - Insulated	-	41	-	-	-	-	6	47	-	47	-	-	-	-	-
23.45	Feedwater	-	73	-	-	-	-	11	84	-	84	-	-	-	-	-
23.46	Feedwater - Insulated	-	122	-	-	-	-	18	140	-	140	-	-	-	-	-
23.47	Feedwater - Insulated - RCA	-	14	-	-	-	-	2	16	16	-	-	-	-	-	-
23.48	Feedwater - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.49	Feedwater Heater Drains & Vents	-	26	-	-	-	-	4	30	-	30	-	-	-	-	-
23.50	Feedwater Heater Drains & Vents - Ins	-	195	-	-	-	-	29	224	-	224	-	-	-	-	-
23.51	Fire Protection	-	178	-	-	-	-	27	204	-	204	-	-	-	-	-
23.52	Fire Protection - RCA	-	121	-	-	-	-	18	139	139	-	-	-	-	-	-
23.53	Fuel Handling HVAC	-	38	-	-	7	27	15	88	88	-	13	-	-	1,541	-
23.54	Generator	-	3	-	-	-	-	0	3	-	3	-	-	-	-	-
23.55	Generator - Insulated	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.56	HVAC - Clean	-	165	-	-	-	-	25	190	-	190	-	-	-	-	-
23.57	HVAC - Contaminated	-	39	-	-	6	26	15	87	87	-	13	-	-	1,459	-
23.58	Instrument Air	-	11	-	-	-	-	2	13	-	13	-	-	-	-	-
23.59	Instrument Air - Insulated	-	10	-	-	-	-	1	11	-	11	-	-	-	-	-
23.60	Instrument Air - Insulated - RCA	-	14	-	-	-	-	2	17	17	-	-	-	-	-	-
23.61	Instrument Air - RCA	-	10	-	-	-	-	1	11	11	-	-	-	-	-	-
23.62	Intake Cooling Water	-	108	-	-	-	-	16	124	-	124	-	-	-	-	-
23.63	Main Steam - Insulated	-	105	-	-	-	-	16	120	-	120	-	-	-	-	-
23.64	Main Steam - Insulated - RCA	-	7	-	-	-	-	1	9	9	-	-	-	-	-	-
23.65	Miscellaneous - RCA	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-
23.66	Nitrogen & Hydrogen	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.67	Nitrogen & Hydrogen - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.68	Primary Water Makeup	-	38	-	-	-	-	8	44	-	44	-	-	-	-	-
23.69	Radwaste Building HVAC	-	85	-	-	14	56	33	189	189	-	28	-	-	3,160	-
23.70	Reactor Coolant - Insulated	-	52	-	-	75	-	32	158	158	-	143	-	-	17,098	-
23.71	Refueling Equipment	-	88	-	-	368	-	114	570	570	-	724	-	-	83,568	-
23.72	Residual Heat Removal	-	49	-	-	1,172	-	305	1,526	1,526	-	2,192	-	-	266,278	-
23.73	Residual Heat Removal - Insulated	-	260	-	-	793	-	263	1,315	1,315	-	1,524	-	-	180,132	-
23.74	Safety Injection	-	107	-	-	43	145	59	355	355	-	141	-	-	9,862	-
23.75	Safety Injection - Insulated	-	115	-	-	313	-	107	536	536	-	603	-	-	71,183	-
23.76	Safety Injection Accumulator	-	185	-	-	164	28	91	468	468	-	332	-	-	37,187	-
23.77	Sample - NSSS	-	26	-	-	14	1	10	51	51	-	23	-	-	3,089	-
23.78	Sample - NSSS - Ins	-	33	-	-	18	-	13	64	64	-	30	-	-	4,088	-
23.79	Screen Wash	-	17	-	-	-	-	3	20	-	20	-	-	-	-	-
23.80	Secondary Sample	-	2	-	-	-	-	0	2	-	2	-	-	-	-	-
23.81	Secondary Sample - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.82	Secondary Wet Layup	-	12	-	-	-	-	2	14	-	14	-	-	-	-	-
23.83	Secondary Wet Layup - RCA	-	3	-	-	-	-	0	3	3	-	-	-	-	-	-
23.84	Service Water	-	11	-	-	-	-	2	13	-	13	-	-	-	-	-
23.85	Service Water - Insulated	-	5	-	-	-	-	1	5	-	5	-	-	-	-	-
23.86	Service Water - Insulated - RCA	-	9	-	-	-	-	1	10	10	-	-	-	-	-	-
23.87	Service Water - RCA	-	20	-	-	-	-	3	23	23	-	-	-	-	-	-
23.88	Spent Fuel Pool Cooling	-	74	-	-	232	-	77	383	383	-	463	-	-	52,708	-
23.89	Spent Fuel Pool Cooling - Insulated	-	43	-	-	92	-	34	169	169	-	174	-	-	20,987	-
23.90	Steam Generator Wet Layup	-	1	-	-	-	-	0	1	-	1	-	-	-	-	-
23.91	Steam Generator Wet Layup - RCA	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-
23.92	Turbine Building HVAC	-	11	-	-	-	-	2	13	-	13	-	-	-	-	-
23.93	Turbine Lube Oil	-	27	-	-	-	-	4	31	-	31	-	-	-	-	-
23.94	Turbine Plant Chemical Addition	-	3	-	-	-	-	0	3	-	3	-	-	-	-	-
23.95	Turbine Plant Cooling Water	-	53	-	-	-	-	8	61	-	61	-	-	-	-	-
23.96	Turbine Plant Cooling Water - Insulated	-	31	-	-	-	-	5	36	-	36	-	-	-	-	-
23.97	Turbine Steam	-	47	-	-	-	-	7	54	-	54	-	-	-	-	-

TABLE D-5
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
Disposal of Plant Systems (continued)																
23.98	Turbine Steam - Insulated	-	22	-	-	-	-	3	25	-	25	-	-	-	-	-
23.99	Waste Disposal	-	219	-	-	1,050	-	317	1,586	1,586	-	3,190	-	-	238,605	-
23.100	Waste Disposal - Insulated	-	338	-	-	523	-	215	1,077	1,077	-	956	-	-	118,930	-
23.101	Water Treatment Plant	-	69	-	-	-	-	10	79	-	79	-	-	-	-	-
23.102	Water Treatment Plant - Insulated	-	52	-	-	-	-	8	59	-	59	-	-	-	-	-
23	Totals	-	7,494	-	-	7,462	781	3,467	19,205	15,618	3,587	17,780	-	-	1,695,965	-
24	Erect scaffolding for systems removal	-	441	-	-	14	47	121	624	624	-	46	-	-	5,086	-
Decontamination of Site Buildings																
25.1	Reactor Building	462	300	44	22	2,867	128	1,050	4,873	4,873	-	5,936	-	-	672,211	-
25.2	Auxiliary Building	192	21	10	5	402	32	208	870	870	-	1,304	-	-	135,745	-
25.3	Fuel Handling	167	169	2	1	58	105	156	658	658	-	188	-	-	20,478	-
25.4	Miscellaneous Structures - Contaminated	6	0	0	0	13	0	6	26	26	-	43	-	-	4,541	-
25.5	Radwaste Solidification Building	72	12	3	2	138	9	75	312	312	-	449	-	-	47,077	-
25	Totals	899	503	59	29	3,478	275	1,496	6,739	6,739	-	7,921	-	-	880,051	-
26	ORISE confirmatory survey	-	-	-	-		1,064	319	1,383	1,383	-		-	-		-
27	Terminate license								Note 1							
Period 4 Additional Costs																
28	License Termination Survey	-	-	-	-		5,447	817	6,264	6,264	-		-	-		-
Subtotal Period 4 Activity Costs		1,495	14,285	6,389	4,249	41,511	7,780	24,432	100,141	96,076	4,066	64,418	2,096	1,020	8,057,523	553
Period 4 Undistributed Costs																
1	Decon equipment	491	-	-	-		-	74	564	564	-		-	-		-
2	Decon supplies	410	-	-	-		-	102	512	512	-		-	-		-
3	DOC staff relocation expenses	-	1,021	-	-		-	153	1,174	1,174	-		-	-		-
4	Process liquid waste	210	-	77	146	793	-	333	1,559	1,559	-		1,429	-	180,183	-
5	Insurance	-	-	-	-		629	63	692	692	-		-	-		-
6	Property taxes	-	-	-	-		691	69	760	684	76		-	-		-
7	Health physics supplies	-	1,757	-	-		-	439	2,196	2,196	-		-	-		-
8	Heavy equipment rental	-	5,242	-	-		-	786	6,028	5,425	603		-	-		-
9	Small tool allowance	-	171	-	-		-	26	197	177	20		-	-		-
10	Pipe cutting equipment	-	749	-	-		-	112	862	862	-		-	-		-
11	Disposal of DAW generated	-	-	37	11	1,761	-	446	2,255	2,255	-	5,719	-	-	394,813	-
12	Decommissioning Equipment Disposition	-	-	-	-	83	278	63	424	424	-	270	-	-	30,000	-
13	Plant energy budget	-	-	-	-		1,215	182	1,398	1,258	140		-	-		-
14	NRC Fees	-	-	-	-		852	85	938	938	-		-	-		-
15	Site Security Cost	-	-	-	-		3,234	485	3,719	3,719	-		-	-		-
16	Fixed Overhead	-	-	-	-		2,425	364	2,789	2,789	-		-	-		-
17	Radwaste Processing Skids	-	-	-	-		932	140	1,072	1,072	-		-	-		-
Subtotal Undistributed Costs Period 4		1,110	8,941	114	157	2,637	10,258	3,922	27,140	26,301	838	5,989	1,429	-	604,996	-
Staff Costs																
	DOC Staff Cost	-	-	-	-		18,847	2,827	21,674	21,674	-		-	-		-
	Utility Staff Cost	-	-	-	-		35,893	5,384	41,277	41,277	-		-	-		-
TOTAL PERIOD 4		2,605	23,225	6,503	4,406	44,149	72,778	36,566	190,231	185,327	4,904	70,407	3,525	1,020	8,662,518	553

TABLE D-5
TURKEY POINT PLANT - UNIT 4
SAFSTOR STATION DECOMMISSIONING COST ESTIMATE
(Thousands of 1998 Dollars)

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Site Restore.	Burial Site A CF	Burial Site B CF	Burial Site C CF	Burial Site pounds	10 CFR 61 GTCC Cu Ft
PERIOD 5																
Demolition of Remaining Site Buildings																
29.1	Reactor Building	-	2,696	-	-		-	404	3,101	465	2,636		-	-		-
29.2	Auxiliary Building	-	831	-	-		-	125	955	96	860		-	-		-
29.3	Control Building	-	81	-	-		-	12	93	-	93		-	-		-
29.4	Fuel Handling	-	340	-	-		-	51	391	39	352		-	-		-
29.5	Intake	-	186	-	-		-	28	214	-	214		-	-		-
29.6	Miscellaneous Structures - Clean	-	1,721	-	-		-	258	1,979	-	1,979		-	-		-
29.7	Miscellaneous Structures - Contaminated	-	69	-	-		-	10	79	4	75		-	-		-
29.8	Radwaste Solidification Building	-	532	-	-		-	80	612	61	551		-	-		-
29.9	Sealwell	-	182	-	-		-	27	209	-	209		-	-		-
29.1	Turbine Building	-	297	-	-		-	44	341	-	341		-	-		-
29.11	Turbine Pedestal	-	256	-	-		-	38	294	-	294		-	-		-
29	Totals	-	7,190	-	-		-	1,078	8,268	665	7,604		-	-		-
Site Closeout Activities																
30	Remove Rubble	-	619	-	-		-	93	712	-	712		-	-		-
31	Grade & landscape site	-	94	-	-		-	14	108	-	108		-	-		-
32	Final report to NRC	-	-	-	-		67	10	77	77	-		-	-		-
Subtotal Period 5 Activity Costs		-	7,903	-	-	-	67	1,195	9,165	742	8,423	-	-	-	-	-
Period 5 Undistributed Costs																
1	Insurance	-	-	-	-		120	12	132	132	-		-	-		-
2	Property taxes	-	-	-	-		227	23	249	-	249		-	-		-
3	Heavy equipment rental	-	1,577	-	-		-	237	1,813	-	1,813		-	-		-
4	Small tool allowance	-	55	-	-		-	8	63	-	63		-	-		-
5	Plant energy budget	-	-	-	-		68	10	78	-	78		-	-		-
6	Site Security Cost	-	-	-	-		362	54	417	-	417		-	-		-
Subtotal Undistributed Costs Period 5		-	1,632	-	-		777	344	2,752	132	2,621		-	-		-
Staff Costs																
	DOC Staff Cost	-	-	-	-		4,380	657	5,038	-	5,038		-	-		-
	Utility Staff Cost	-	-	-	-		2,672	401	3,073	2,766	307		-	-		-
TOTAL PERIOD 5		-	9,535	-	-	-	7,896	2,597	20,028	3,640	16,388	-	-	-	-	-
TOTAL COST TO DECOMMISSION		4,533	35,237	6,673	4,551	48,181	210,435	60,234	369,843	347,825	22,018	81,574	4,718	1,020	9,167,244	553

Total cost to decommission with	19.45%	contingency:	$ 369,843,008	
Total NRC license termination cost is	94.05%	or	$ 347,825,353	
Non-nuclear demolition cost is	5.95%	or	$ 22,017,656	
Total site radwaste volume buried			87,312	cubic feet
Total site radwaste weight buried			9,167,244	pounds
Total 10CFR61 greater than class C waste buried			553	cubic feet
Total scrap metal released from site			16,090	tons
Total craft labor requirements			789,604	person hours

NOTES:
1) This activity is performed by the decommissioning staff following plant shutdown, the costs for this are included in this period's staff cost
2) This activity, while performed after final plant shutdown, is considered part of operations and therefore no decommissioning costs are included for this activity.