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10 CFR 50.82

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
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South Texas Project
Units 1 and 2
Docket Nos. STN 50-498 and STN 50-499
Request for Exemption from 10 CFR 50.82(a)(8)

Pursuant to 10 CFR 50.12, STP Nuclear Operating Company (STPNOC), acting on behalf of NRG South Texas LP (NRG South Texas), the City Public Service Board of San Antonio (CPS) and the City of Austin, Texas (Austin Energy) (together, the "STP Owners"), hereby requests an exemption from Nuclear Regulatory Commission (NRC) regulations to permit the immediate withdrawal of certain funds from the nuclear decommissioning trust funds (NDTs) maintained by the STP Owners for South Texas Project Electric Generating Station Units 1 and 2 (the "Facility"). Specifically, the STP Owners request an exemption from provisions of 10 CFR 50.82(a)(8)(i) and (ii) which may restrict the withdrawal of funds from NDTs until after permanent plant shutdown.

The purpose of this exemption request is to permit the use of NDT funds, not to exceed $20 million per unit, in order to pay for the prompt disposal of certain major radioactive components (MRCs). These MRCs are the reactor pressure vessel (RPV) heads to be removed from the Facility in the upcoming Fall 2009 Unit 1 outage and the Spring 2010 Unit 2 outage, as well as the steam generators that were removed from the Facility in 2000 and 2002. If an exemption cannot be granted by July 1, 2008, to permit the use of NDTs for the immediate permanent disposal of the Unit 1 RPV head, STPNOC will need to initiate contracts to plan, design and construct a mausoleum for on-site RPV head storage at a projected cost of $1.4 million. This cost, as well as the cost of ongoing maintenance and eventual decommissioning of the mausoleum, would be avoided altogether if NDT funds can be used to fund disposal of the RPV heads upon removal in 2009 and 2010.

The cost of disposal of these MRCs is included in the site-specific decommissioning cost estimates for the Facility, and funds are being accumulated in the NDTs to cover these costs. If approved, this exemption will facilitate the prompt removal of radiologically contaminated material from the Facility, reduce overall decommissioning costs, and reduce unnecessary regulatory burdens on the STP Owners associated with maintaining the MRCs on-site.

As described more fully in the attachment, the STP Owners collect funds in their NDTs through rates established by their City rate-setting authorities or by the Public Utility Commission of Texas (PUCT) for the purpose of decommissioning the Facility, including MRC disposal. The

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rate-setting authorities do not set any limitation on the timing of decommissioning activities and use of funds for such expenditures, but NRC regulations appear to restrict the use of such commingled funds prior to permanent shutdown of the plant. The requested exemption would provide clear authorization for the STP Owners to use NDT funds for prompt disposal of MRCs prior to permanent plant shutdown.

STPNOC requests that the NRC grant the exemption because:

- The exemption is "authorized by law, will not present an undue risk to the public health and safety, and [is] consistent with the common defense and security," in accordance with 10 CFR 50.12(a)(1), and
- Special circumstances are present that satisfy 10 CFR 50.12(a)(2).

STPNOC demonstrates in the attachment that the request satisfies these provisions.

Granting this exemption will be consistent with the NRC decommissioning regulations as it: (1) would not foreclose release of the site for possible unrestricted use (in fact, it would enhance STPNOC's ability to achieve unrestricted release); (2) would not result in significant environmental impacts not previously reviewed by the NRC; and (3) would not undermine the existing and continuing reasonable assurance that adequate funds will be available for decommissioning. Disposal of the MRCs would facilitate eventual unrestricted release of the Facility, thus improving environmental conditions. In addition, authorizing prompt disposal would give STPNOC the ability to take advantage of cost effective disposal alternatives and thereby eliminate the uncertainty associated with the future cost and availability of disposal capacity. Prompt disposal of MRC source terms that otherwise would remain on-site until much later in time is prudent and consistent with the underlying purpose of the Commission's decommissioning regulations.

In sum, granting this request will facilitate the decommissioning process by removing the MRCs from the site so that: (1) the inventory of radioactive waste and associated source term at the site will be reduced; (2) the costs and inconveniences associated with maintaining the MRCs on-site will be avoided; (3) the overall cost to decommission the site will be reduced; (4) uncertainty regarding future disposal cost and capacity for these MRCs will be eliminated; and (5) assurance of adequate funds to decommission the reactors at the time the reactors cease operation will be maintained. Finally, assurance of the adequacy of the availability of funds for Facility decommissioning is supported by a site-specific decommissioning cost estimate and the associated funding program.

STPNOC recognizes that on May 29, 2007, Energy*Solutions* submitted a rulemaking petition to the NRC (RM 50-88) seeking to amend the Commission's regulations to provide a process for NRC approval of the use of decommissioning trust funds for the disposal of MRCs by licensees for operating reactors. NRC provided Notice regarding this pending petition and an opportunity for public comment on August 21, 2007 (72 FR 46569).

STPNOC is submitting this exemption request now, because timely resolution of this issue is needed in order to support STPNOC's outage planning activities in mid-2008 for the Fall 2009 Unit 1 outage, which will include removal and replacement of the Unit's RPV head. STPNOC currently anticipates construction of onsite facilities to store the RPV heads from Units 1 and 2 unless the STP Owners' NDT funds may be used to pay for prompt disposal. NRC's consideration of the rulemaking petition is unlikely to be timed to support STPNOC's schedule. Accordingly, STPNOC respectfully requests a response from the NRC by July 1, 2008, in order to avoid the resource allocation and other expenses associated with the design and construction of a new storage facility for the RPV heads from Units 1 and 2, and continued onsite storage of

other MRCs (steam generators previously removed from Units 1 and 2), which would be avoided if NDT funds can be used for the prompt disposal of the MRCs.

This letter and attachment contain no new commitments.

If NRC requires additional information concerning this request, please contact Mr. Scott Head, STPNOC Licensing Manager, at (361) 972-7136.

J. J. Sheppard
President & Chief Executive Officer

Enclosures: 1) Exemption Request
2) Decommissioning Cost Update for the South Texas Project Electric Generating Station - May 2004

cc:
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ENCLOSURE 1

EXEMPTION REQUEST

ENCLOSURE 1

EXEMPTION REQUEST

SOUTH TEXAS PROJECT
UNITS 1 AND 2

I. EXEMPTION REQUEST

In accordance with the provisions of 10 CFR 50.12, "Specific Exemptions," STP Nuclear Operating Company (STPNOC), acting on behalf of NRG South Texas LP (NRG South Texas), the City Public Service Board of San Antonio (CPS) and the City of Austin, Texas (Austin Energy) (together, the "STP Owners"), requests that the Nuclear Regulatory Commission (NRC) grant an exemption from provisions of 10 CFR 50.82, "Termination of License." Specifically, the STP Owners request an exemption from the requirements of 10 CFR 50.82(a)(8)(i) and (ii), to the extent required in order to permit the immediate withdrawal of funds from the nuclear decommissioning trust funds (NDTs) maintained by the STP Owners for South Texas Project Electric Generating Station, Units 1 and 2 (the "Facility" or "STP") to cover the cost of disposal of certain contaminated large components prior to the permanent cessation of operations.

The purpose of this exemption request is to permit the use of NDT funds, up to $20 million per unit, in order to pay for the prompt disposal of the following major radioactive components (MRCs): the reactor pressure vessel (RPV) heads to be removed from the Facility in 2009 and 2010 and the eight steam generators that were removed from Facility in 2000 and 2002. Prompt disposal will result in several benefits, as follows: (1) the inventory of radioactive waste and associated source term at the site will be reduced; (2) the costs and inconveniences associated with maintaining the MRCs on-site will be avoided; (3) the overall cost to decommission the site will be reduced; (4) uncertainty regarding future disposal cost and capacity for these MRCs will be eliminated; and (5) assurance of adequate funds to decommission the reactors at the time the reactors cease operation will be maintained. Finally, assurance of the adequacy of the availability of funds for Facility decommissioning is supported by a site-specific decommissioning cost estimate and the associated funding program.

Authorization of the use of NDT funds for prompt disposal of the MRCs is in the public interest, because it will immediately reduce on-site waste inventories, eliminate risks associated with future disposal, and reduce the eventual cost and complexity of decommissioning the Facility. Consequently, authorization to expend NDT funds for prompt disposal of the MRCs would further the purpose of 10 CFR 50.82(a)(8), which is to provide reasonable assurance that the decommissioning trust funds will be adequate to accomplish their intended purpose.

II. REQUIREMENTS

The NRC regulations in 10 CFR 50.82(a)(8)(i) provide that decommissioning trust funds may be used by licensees if:

> (A) The withdrawals are for expenses for legitimate decommissioning activities consistent with the definition of decommissioning in section 50.2;
>
> (B) The expenditure would not reduce the value of the decommissioning fund below an amount necessary to place and maintain the reactor in a safe storage condition if unforeseen conditions or expenses arise; and
>
> (C) The withdrawals would not inhibit the ability of the licensee to complete funding of any shortfalls in the decommissioning trust needed to ensure the availability of funds to ultimately release the site and terminate the license.

NRC has further conditioned the withdrawal of decommissioning trust funds by limiting the withdrawal rate from the trust. Section 50.82(a)(8)(ii) provides:

> Initially, 3 percent of the generic amount specified in § 50.75 may be used for decommissioning planning. For licensees that have submitted the certifications required under § 50.82(a)(1) and commencing 90 days after the NRC has received the [post-shutdown decommissioning activities report] PSDAR, an additional 20 percent may be used. A site-specific decommissioning cost estimate must be submitted to the NRC prior to the licensee using any funding in excess of these amounts.

Section 50.82 refers to the definition of "decommissioning" in section 50.2, which defines the term "decommission" rather than "decommissioning." By that definition, the term "decommission" means:

> to remove a facility or site safely from service and reduce residual radioactivity to a level that permits (1) release of the property for unrestricted use and termination of the license; or (2) release of the property under restricted conditions and termination of the license.

These provisions restrict the ability of the STP Owners to use NDT funds for the disposal of MRCs, even though removal of the MRCs would reduce the level of radioactivity at the STP site and would not adversely impact the ability to fund future decommissioning.

A request for an exemption from these requirements must satisfy the requirements of 10 CFR 50.12. As demonstrated below, this exemption request satisfies the provisions of section 50.12.

III. BACKGROUND

In the Statements of Consideration for the 1996 amendments to 10 CFR 50.82, NRC stated in response to a comment as follows:

> The NRC has concluded that allowing decommissioning trust funds withdrawals for disposals by nuclear power plants that continue to operate is not warranted. These activities are more appropriately considered operating activities and should be financed that way.

(61 FR 39278, 39293).

Consequently, licensees have been precluded from using decommissioning trust funds for prompt disposal of radioactive waste, including MRCs that are prematurely removed from service and effectively "decommissioned." The estimated cost of disposal of MRCs is very substantial and is specifically addressed in plant-specific decommissioning cost estimates. Unlike other waste routinely generated during normal plant operations, replacement of MRCs is not an anticipated operating activity, but rather these MRCs were originally expected to remain in service throughout the life of the plant. As it has become necessary to replace MRCs, STPNOC has stored them on-site rather than expend funds from limited annual budgets to pay for near-term permanent disposal. STPNOC understands that such on-site storage is a common practice in the industry, and that of the approximately 200 steam generators that have been removed or are planned to be removed from reactors in the United States, about 150 are stored on-site, or are planned to be stored, in specially constructed mausoleums.

Significantly, NRC's rules do not address the reality that MRCs need to be removed from service during plant operating life. For example, the definition of "major decommissioning activities" in 10 CFR 50.2 includes removal of "major radioactive components," which specifically includes reactor vessels and steam generators. In fact, 10 CFR 50.82(a)(5) contemplates that "major decommissioning activities," *i.e.*, removal of MRCs, would not be performed by licensees until after permanent cessation of operations. This regulatory scheme

implicitly acknowledges that removal and disposal of MRCs such as steam generators and RPV heads is not a routine operational activity, but rather is a decommissioning activity. Further support for this conclusion is found in the 1996 rulemaking history where NRC stated that removal and disposal of some "large components" would be considered "routine operations," but specifically excluded from such routine operations the removal of any large components that fall within the definition of "major radioactive component" (61 FR 39286). In fact, the response to comments made clear that a definition of "major radioactive component" was added for this very purpose, *i.e.*, to distinguish the removal and disposal of certain equipment during normal operations from the removal of components such as steam generators and RPVs that would constitute "major decommissioning activity" *per se.*

STPNOC and the STP Owners have elected to improve plant operations and long term performance by replacing the specified MRCs with components made of improved materials. The eight original steam generators were removed from the Facility in 2000 and 2002, and they are now stored on-site in a storage facility specifically constructed for that purpose. STPNOC estimates that its ongoing cost to maintain this storage facility is approximately $10,000 per year. Moreover, since the time when this storage facility was first planned and constructed, STPNOC has developed plans for the construction of two additional units at the STP site, and it is preparing an application for licenses to construct and operate those new units. The old steam generator storage facility is adjacent to the planned location of the new units, and occupies space that would otherwise be used for construction activities. For example, this land could be used as a convenient lay down area to support on-site construction activities.

There are significant advantages to disposing of the MRCs now rather than waiting until the cessation of operations and complete decommissioning of the plant. STPNOC is planning RPV head improvements to STP Units 1 and 2 that will result in the replacement of the existing RPV head from STP Unit 1 in a planned Fall 2009 outage and replacement of the existing RPV head from STP Unit 2 in a planned Spring 2010 outage. If the STP Owners are unable to use NDT funds to pay approximately $4.5 million for the near-term permanent disposal of these RPV heads, the STP Owners will instead use funds from the STP annual budget to plan, design and construct a new storage facility for the RPV heads, at a cost of approximately $1.4 million. This expenditure will not reduce the future cost of permanent disposal, but rather will simply defer the $4.5 million expense until NDT funds can be accessed to pay for it. However, the $1.4 million for the RPV head mausoleum, as well as the eventual cost to then decommission it, could be avoided altogether if the STP Owners could access existing NDT funds to pay for permanent disposal upon their replacement.

Moreover, STPNOC has an opportunity to enter into favorable contractual arrangements for disposal of the existing steam generators, eliminating risks associated with future changes in disposal cost and/or availability of disposal capacity. The cost of disposal of the old steam generators was estimated to exceed $35 million in 2004, but STPNOC now projects that it can be accomplished in 2008 for less than $31 million.

In addition, prompt disposal will eliminate the need for ongoing maintenance of the existing storage facility, allowing its removal to make more room for construction activities. It also would reduce the on-site inventory of waste.

By using NDT funds to pay for prompt disposal, the STP Owners will be paying in current dollars to eliminate this future cost of decommissioning, and they will forgo future earnings on these funds. However, the loss of the benefit of future earnings is off-set by the elimination of future risk and uncertainty relating to the cost and availability of disposal capacity, as well as the benefits of eliminating the burdens associated with on-site storage and reducing the on-site

inventory of waste. Moreover, the remaining funds and planned ratepayer contributions will be sufficient to fully decommission the site consistent with the activities planned in the site-specific estimate.

IV. BASIS

The permanent disposal of an MRC is a decommissioning activity, because such disposal involves the removal from service of a "major radioactive component," which is a large item of capital equipment. However, the NRC definition of "decommission" implies that an entire reactor facility must be removed from service before related activities fall within NRC-sanctioned decommissioning (10 CFR 50.2). Further, when the NRC promulgated the decommissioning rule in 1988, it noted in the Statements of Consideration to the final rule that "[d]ecommissioning activities are initiated when a licensee decides to terminate licensed activities" (53 FR 24,018, 24,019). If this exemption is granted, the MRCs will be disposed by STPNOC during plant operation rather than waiting until the entire site is being decommissioned. The cost of disposal would be paid from NDT funds placed there for the purpose of disposing of just such components.

The MRCs at issue here have been or will be removed from service well in advance of the rest of the Facility. Absent this exemption, the MRCs would remain on-site until the facility ceases operation. Accordingly, an exemption with respect to 10 CFR 50.82(a)(8)(i)(A) is needed because the Facility and site are not being removed from service, and therefore, payment for MRC disposal falls outside the definition "decommissioning activity" as the NRC Staff has interpreted 10 CFR 50.82(a)(8)(i)(A). It should be noted, however, that the regulations and this interpretation appear to be internally inconsistent, because 10 CFR 50.2 also provides that the permanent removal of "major radioactive components" is a "major decommissioning activity" and steam generators and RPVs are included as examples in the definition of "major radioactive component."

An exemption also is needed because section 50.82(a)(8)(ii) provides only for planning costs to be paid from decommissioning trust funds in advance of submittal of a PSDAR, implying that no other pre-PSDAR decommissioning costs are allowed. The expenditures for which the exemptions are being requested are not planning activities. Rather, they are necessary to remove the MRCs from the plant site and dispose of them, and the exemption request is to permit the funds necessary for that purpose to be withdrawn from the NDTs to fund current disposal activities irrespective of the 10 CFR 50.82(a)(8)(ii) restrictions.

A. Facility Decommissioning Trust Fund

1. Status of the Decommissioning Trust Fund

The NDTs maintained by the STP Owners are currently very robustly funded and fully meet NRC's decommissioning financial assurance requirements. As reflected in STPNOC's decommissioning funding status report dated March 27, 2007, and submitted to NRC in accordance with 10 CFR 50.75(f), the minimum decommissioning fund estimate required for the South Texas Project, Units 1 and 2 based on the NRC formula in 10 CFR 50.75 is approximately $365.5 million per unit. The reported NDT balances as of December 31, 2006 totaled $364.9 million for Unit 1 and $445.8 million for Unit 2, for a total of $810.7 million. Thus, with projected earnings taken into account as permitted by NRC's rules, the NDT balances already substantially exceed NRC minimum requirements and are sufficient to be considered fully "pre-paid" for purposes of compliance with 10 CFR 50.75(e)(1)(i).

Moreover, the STP Owners continue to make periodic contributions to their NDTs, and under Texas law, ongoing ratepayer contributions will be made so that decommissioning funding will

be fully assured. The rates of collection are reviewed by the rate-setting authorities from time-to-time to assure that the rates of collections are adequate and appropriate to provide sufficient funds for decommissioning. These reviews are based on site-specific cost estimates that are maintained by the STP Owners, and regularly updated. At current rates of collection and contribution, the annual amounts remaining to be collected total $220.2 million for Unit 1 and $215.8 million for Unit 2, or $436 million.

Notably, the General Accounting Office (GAO) recently analyzed the adequacy of funds for each reactor site to address concerns about the adequacy of the amounts of decommissioning funds that various reactor licensees have and are collecting. GAO concluded that 33 owners had accumulated fewer funds than needed and 20 owners were not contributing enough for them to meet their decommissioning fund goals. In the case of the South Texas Project, however, GAO found no such problem. STP's fund balances and contributions exceeded the benchmarks used by GAO by 50%.[1]

2. Site-Specific Decommissioning Cost Estimate Is Comprehensive

The NRC requires in 10 CFR 50.75(f)(2) that each licensee prepare and submit a Decommissioning Cost Estimate (DCE) at least five years prior to the projected end of operations. As noted above, however, even though operations are projected to continue for at least 20 years, the STP Owners already have a detailed DCE. The most recent DCE update, which was done in 2004, resulted in a total estimated cost, including spent fuel storage and Greenfield costs, of $1.419 billion: $642 million for Unit 1 and $777 million for Unit 2. Of this total cost, $1.026 billion is attributed to license termination with $501 million for Unit 1 and $525 million for Unit 2. All costs are in 2004 dollars.

The current site-specific estimates reflect the significant industry experience with the conduct of decommissioning as of 2004. By that time, there were several commercial nuclear power plants undergoing decommissioning, including Maine Yankee, Connecticut Yankee, Yankee Rowe, Trojan, and Big Rock Point. These projects were building on the lessons learned from other completed decommissioning projects such as Elk River and Shippingport. This experience included some generally acknowledged missteps made in the beginning stages of the current projects that led to additional costs beyond what had been projected. By 2004 these problems had been resolved, the projects were proceeding rapidly toward license termination, and the causes of the early-stage problems were well understood.

The STP cost estimates take into account the industry lessons learned. For example, the 2004 update includes an improved Greater than Class C (GTCC) segmentation analysis, reducing the assumed volume of this waste. It also assumes that the reactor vessel and reactor vessel internals would be removed by an outside contractor, which is consistent with current decommissioning practices.

The STP cost estimates take into account site-specific parameters that affect the total cost. These parameters include site-specific equipment and material inventories, STPNOC staffing costs, projected spent fuel inventories, and site-specific spent fuel storage and shipping schedules. The end result is a site-specific decommissioning cost estimate in which STPNOC has a high degree of confidence.

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[1] Nuclear Regulation: NRC Needs More Effective Analysis to Ensure Accumulation of Funds to Decommission Nuclear Power Plants, GAO-04-032, at 34-35 (October 2003)

3. The Site-Specific Decommissioning Cost Estimate Is Reliable

As discussed above, the DCE contains a thorough and comprehensive analysis of the costs of decommissioning. The reliability of current industry DCEs is demonstrated by recent decommissioning experience. Data for the three large PWRs that have been fully demolished (Connecticut Yankee, Maine Yankee, and Trojan) show that final decommissioning costs were less than projected in the DCE for two (Maine Yankee and Trojan) and 24% higher for one (Connecticut Yankee). Despite the Connecticut Yankee experience, a table top review of the data indicates that the DCEs are reliable planning tools.[2] Furthermore, the cause of the difference in the case of Connecticut Yankee is now well understood, as explained below.

Both Maine Yankee and Connecticut Yankee started the decommissioning process after an unplanned shutdown. Maine Yankee shut down in December of 1996 and made the decision to decommission in August of 1997. Maine Yankee decided on a Decommissioning Operations Contractor (DOC) approach, with a DOC selected in August of 1998, approximately 20 months after shutdown. Connecticut Yankee shut down in December of 1996 after the decision was made to decommission. Connecticut Yankee also elected to utilize a DOC approach, selecting a DOC in April 1999, more than two years after shutdown.

Connecticut Yankee experienced problems with the selected DOC, and terminated the contract in 2003. These management problems significantly increased the decommissioning costs, resulting in an actual cost some 24 percent higher than the Connecticut Yankee DCE. While management problems also could cause future decommissioning costs to be unnecessarily high, it is likely that such significant problems will be avoided.

The experience of Maine Yankee shows that the cost associated with the type of problems experienced by Connecticut Yankee can be adequately mitigated if they occur in future decommissioning projects. Maine Yankee also had problems with its selected DOC and decided to terminate its contract. Maine Yankee, however, acted more quickly than Connecticut Yankee. While Connecticut Yankee terminated its DOC contract four years after DOC selection, Maine Yankee did so after only two years. As a result, Maine Yankee was able to quickly return its decommissioning project to schedule and budget and complete decommissioning within the DCE. The Maine Yankee experience shows that significant management problems can be overcome if promptly recognized and addressed.

The industry experience with decommissioning plants over the last decade contributes significantly to the reliability of current industry DCEs and provides a knowledge base that will result in more cost-efficient decommissioning in the future. Future decommissioning projects will be able to avoid mistakes and reduce costs through lessons-learned. Since the STP units have longer projected operating lives than most currently operating plants, it is likely to benefit from the decommissioning experiences of dozens of much older plants that will be decommissioned during the remaining operating lives of the STP units. The predictable result will be further lessons learned and opportunities for more efficiency.

4. Decommissioning Trust Fund Addresses the Removal of the MRCs

The existing STP decommissioning cost estimates include not only the radiological cleanup required by the NRC, but also the costs of dismantling the facilities and restoring the site as

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[2] *Table Top Review – Decommissioning Costs for Power Reactors*, CAF and Associates, April 2007.

closely as possible to its natural state.[3] The estimate also includes funds intended for ultimate storage and monitoring of spent nuclear fuel remaining on-site following shutdown in the event the U.S. Department of Energy has not fulfilled its obligation to take custody of the spent fuel. Further, the most recent cost estimate, on which current fund collections are based, specifically includes the cost of disposal of the old steam generators currently stored on-site.

The DCE line item cost to remove, pack, ship and dispose of the old steam generators is $17.587 million for Unit 1 (2004 Cost Study, Appendix A, page 4 of 19, Table A-1, Line 27.6) and $17.587 million for Unit 2 (2004 Cost Study, Appendix A, page 13 of 19, Table A-2, Line 27.6), in 2004 dollars. There is also a line item cost of $305,000 to remove the steam generator mausoleum (2004 Cost Study, Appendix A, page 18 of 19, Table A-2, Line 35.15), also in 2004 dollars. Thus, the total cost for these activities was estimated (in 2004 dollars) to exceed $35.5 million. In contrast, STPNOC now has the opportunity to complete these activities for less than $31 million (in 2008 dollars).

B. Withdrawal of Funds Now From the Decommissioning Trust Fund Will Not Jeopardize STPNOC's Ability to Fully Decommission the Facility

1. There Will Be Sufficient Funds Available To Decommission Facility

As noted above, NDT balances for Units 1 and 2 reported for the end of 2006 were approximately $365 and $446 million, respectively. If these balances were reduced by $20 million from the NDTs for each Unit in order to fund MRC disposal activities, the remaining Unit 2 balance of $426 million would continue to exceed the NRC minimum "formula" amount of $365.5 million. The Unit 1 balance of $345 million would exceed the NRC minimum, if earnings were taken into account for just three years assuming a 2 percent real rate of return as specified in 10 CFR 50.75(e)(1)(ii). With just three years worth of earnings, the Unit 1 NDT value would exceed $365.5 million. As such, even after the withdrawal of funds to pay for MRC disposal, the NDT balances are sufficient to be considered fully prepaid for purposes of meeting NRC's requirements to provide financial assurance for decommissioning, in accordance with 10 CFR 50.75(e)(1)(i) (prepayment method).

In addition to fully meeting NRC's requirements when the NDT balances are compared to the NRC "formula" amount for the STP units, the STP Owners continue to make annual contributions to the NDTs. In establishing the amounts of their annual contributions, the STP owners assess the NDT balances against not only the NRC minimum, but also against the site-specific decommissioning cost estimates for STP Units 1 and 2. When necessary, the need for adjustment to the rate of collections is reviewed with the rate-making authorities, such as the Public Utility Commission of Texas (PUCT).

The total 2004 site-specific estimates for Units 1 and 2 are $642.2 million and $777.3 million, respectively, including nearly $17.6 million in each estimate for the disposal of the old steam generators, and $0.3 million in the Unit 2 estimate for demolition of the mausoleum. If credit were taken for earnings assuming a 2 percent real rate of return for all NDT funds for 20 and 21 years respectively, based upon the end of 2006 balances reduced by $20 million each to pay for current disposal ($345 million and $426 million), the "value" of these current balances for Units 1 and 2 would exceed $510 million and $645 million, respectively. Taking into consideration the currently planned future contributions to each unit's funds of $220.2 and $215.8 million, respectively, there is clearly reasonable assurance that the NDTs will be sufficient to fund the

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[3] Because the relevant orders by the State Commissions do not yet specifically allocate collections among the types of decommissioning costs, the funds for all decommissioning purposes currently are commingled in the trust, including those for NRC-jurisdictional radiological decommissioning.

decommissioning activities contemplated by the site-specific estimate, after the requested withdrawals of $20 million from each unit's NDTs are made over the next few years.

2. The Withdrawal Will Not Reduce the Value of the Decommissioning Fund Below an Amount Necessary to Place and Maintain the Reactor in a Safe Storage Condition If Unforeseen Conditions or Expenses Arise

The use of NDT funds for the requested purpose will not reduce the value of the NDTs below an amount necessary to place and maintain the reactors in a safe storage condition. As discussed in Section IV.B.1 above, the remaining NDT balances (after withdrawals of up to $20 million per unit were made) would continue to exceed the NRC minimum requirements for financial assurance for decommissioning. Thus, the NDT balances would remain sufficient to be considered "fully funded" for purposes of compliance with NRC's rules.

Moreover, the STP Owners will continue to make annual contributions to the their NDTs, so that it is projected that the NDTs will be sufficient to fund the entire site-specific decommissioning cost estimate at the end of plant life, when the additional contributions and assumed earnings are taken into account.

Thus, even with the requested withdrawals, the STP Owners not only have sufficient funds to place and maintain the reactor in a safe storage condition, but the STP Owners also have sufficient funds to complete the NRC-required radiological decommissioning based on its site-specific decommissioning cost estimate, as well as other planned decommissioning activities.

3. Decommissioning Funding for STP Units 1 and 2 Is Assured Even in the Event of Any Shortfall in Available Funds

The current status of NDT funding and program of continued contributions provide reasonable assurance that the NDT funds will continue to be adequate to fund decommissioning after the requested withdrawals are made. Even if this analysis were incorrect, NRC can further rely on the fact that the STP Owners will be able to obtain the funds necessary to complete decommissioning, even if there were a shortfall.

The STP Owners have the ability to collect additional funds from the ratepayers, if the NDT balances became inadequate. CPS and Austin Energy are governmental entities that have the ability to set rates and collect funds for decommissioning from their ratepayers. With respect to the legacy interests in STP Units 1 and 2 originally licensed to Houston Lighting & Power Company (30.8%) and Central Power and Light (25.2%), Texas law provides that CPS and NRG South Texas can seek collection of funds from Texas retail customers for the decommissioning liability for these interests pursuant to "cost of service" ratemaking. Section 39.205 of the Texas Utilities Code provides that, after January 1, 2002, costs associated with nuclear decommissioning obligations for the existing nuclear plants shall continue to be subject to cost-of-service rate regulation and will be included as a non-bypassable charge to retail customers.[4]

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[4] On October 6, 2004, the PUCT issued a final order adopting new Substantive Rule section 25.303. The new rule codifies the continuing responsibility of the electric transmission and distribution companies whose predecessors owned nuclear power plants prior to the restructuring of the Texas electricity industry, to collect funds necessary for the decommissioning of those facilities for the benefit of the transferee company. The rule provides that the annual decommissioning costs must be stated as a separate non-bypassable charge in the individual transmission and distribution company's rates, and provides for the periodic adjustment of the non-bypassable charge based on the most current estimate of the costs of decommissioning the

V. JUSTIFICATION OF EXEMPTION AND SPECIAL CIRCUMSTANCES

10 CFR 50.12, "Specific Exemptions," states that the NRC may grant exemptions from the requirements of the regulations in 10 CFR Part 50 if three conditions are met. The three conditions are: (1) the exemption is authorized by law; (2) the exemption will not present an undue risk to the public health and safety; and (3) the exemption is consistent with the common defense and security. In addition, 10 CFR 50.12 provides that the NRC will not consider granting an exemption unless special circumstances are present.

A. The Requested Exemption is Authorized by Law

The NRC has the authority under the Atomic Energy Act to grant exemptions from its regulations if doing so would not violate the requirements of law. This exemption is authorized by law as is required by 10 CFR 50.12(a)(1). No law exists that precludes the activities covered by this exemption request. The provisions of 10 CFR 50.82 were adopted at the discretion of the Commission consistent with its statutory authority. No statute required the NRC to adopt the specific provisions from which STP seeks an exemption. Rather, the NRC may determine that alternative means are adequate to provide reasonable assurance of safety.

B. The Requested Exemption Will Not Present an Undue Risk to the Public Health and Safety

This exemption will not present an undue risk to the public health and safety. To the contrary, granting this exemption will result in increasing the protection to the public health and safety as multiple source terms will be removed from the site and properly disposed of decades in advance of the time the MRCs would be removed if they were stored on-site until the reactor ceases operation. This will provide for permanent disposal of the MRCs and eliminate any risk of future exposures from these sources at STP. Moreover, ample decommissioning funding assurance will continue to be provided after withdrawals are made to pay for the near-term MRC disposal activity.

C. The Requested Exemption is Consistent with the Common Defense and Security

This exemption is consistent with the common defense and security because the use of NDT funds to dispose of the MRCs will have no effect on the physical security of the site or the protection of special nuclear material from theft. Moreover, to the extent that residual radioactivity in the MRCs maintained in storage represents any potential threat, near-term permanent disposal enhances security.

D. Special Circumstances

This exemption is justified based on five of the six special circumstances enumerated in 10 CFR 50.12(a)(2):

1. Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule. (10 CFR 50.12(a)(2)(ii))

The underlying purpose of the rule is to provide assurance that there will be adequate funds for the ultimate decommissioning of the site. The application of the regulation restricts the

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nuclear plant in question. Order Adopting New Section 25.303 as Approved at the September 30, 2004 Open Meeting, Project No. 29169 (October 6, 2004). Thus, the PUCT has issued implementing regulations to provide for the ongoing funding of decommissioning by ratepayers as required under Texas law.

expenditure of decommissioning trust funds in this circumstance, which is unnecessary to achieve the underlying purpose of the rule. The purpose of the restrictions on fund withdrawal is to protect the heath and safety of the public by assuring that there will be adequate funds available to complete NRC-required decommissioning activities following termination of the operating license. The above analysis in Section IV of the site-specific decommissioning cost estimate and the status of the NDTs demonstrates that funding will be adequate to complete decommissioning even if funds are withdrawn for early disposal of the MRCs.

This conclusion is further supported by the fact that the NRC regulations recognize that a site-specific decommissioning cost estimate provides a reasonable basis for not restricting licensee expenditure of decommissioning funds. Under 10 CFR 50.82(a)(8)(ii), after a licensee ceases operations, its expenditure of decommissioning funds is restricted until it has submitted a site-specific decommissioning cost estimate. Once this cost estimate is provided to the NRC, a licensee may withdraw unlimited funds without obtaining prior NRC approval. This interpretation of the regulation was specifically stated in the 1996 Statements of Consideration (61 FR 39285): ("*Response.* The NRC's intent in the proposed rule was not to use a formal approval mechanism for decommissioning expenditures once the licensee submits its site-specific decommissioning cost estimate. The final rule has been modified as suggested by the commenter."). Since STP's site-specific decommissioning cost estimate is being submitted with this exemption request, NRC has the information equivalent to that required by 10 CFR 50.82(a)(8)(ii).

The NRC's regulatory scheme relies in large part on the ability of licensees to effectively plan for and manage the decommissioning activity. The above discussion demonstrates that the STP Owners have an adequate basis upon which to make informed decisions regarding the effect and timing of activities and expenditure of funds. Further, it shows that they have a reasonable basis for determining that it is prudent from both a safety and economic sense to use NDT funds to dispose of these MRCs in the near-term, when permanent disposal can be accomplished on reasonable financial terms. In these circumstances, it is not necessary for NRC to prevent the licensees from exercising their sound business judgment regarding the timing of decommissioning expenditures.

2. Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated. (10 CFR 50.12(a)(2)(iii))

Compliance with the restrictions on the use of NDT funds presents an undue hardship on the STP Owners, because they will have to fund the planning, design and construction of an additional RPV head mausoleum, as well as eventual decommissioning of the mausoleum, that could otherwise be avoided. In addition, the STP Owners could avoid ongoing maintenance costs and other inconveniences from having to maintain storage facilities that would no longer need to exist, if the STP owners could use NDT funds to dispose of the MRCs. These are unnecessary regulatory burdens that were never contemplated when the regulation was adopted, because the rule never fully addressed the possibility of MRCs being removed during the operating life of the plant. For example, as discussed above in Section III, the definition of "major decommissioning activities" assumed to occur after permanent cessation of operations includes removal of MRCs.

STPNOC is planning on RPV head improvements to STP Units 1 and 2 that will result in the removal of the existing RPV head from STP Unit 1 in a planned Fall 2009 outage and removal of the existing RPV head from STP Unit 2 in a planned Spring 2010 outage. If the STP Owners

are unable to use NDT funds to pay approximately $4.5 million for the near-term permanent disposal of these RPV heads, the STP Owners will instead budget from operating funds to plan, design and construct a new storage facility for the RPV heads, at costs which are projected to exceed $1.4 million. This expenditure will not reduce the future cost of permanent disposal, but rather will simply defer the $4.5 million expense until NDT funds can be accessed to pay for it.

In addition to the burden of constructing this new RPV head mausoleum, the STP Owners will be burdened with ongoing annual maintenance costs for this new facility and the existing steam generator mausoleum, the nuisance of having these facilities on-site, and ultimately the need to plan for and fund the future demolition and decommissioning of these storage facilities, which is estimated to exceed $400,000 in 2007 dollars for both mausoleums.

All of the costs associated with the new RPV head mausoleum would be avoided if NDT funds collected for the purpose of funding MRC disposal could be used to dispose the RPV heads in 2009 and 2010. Moreover, additional costs and inconveniences associated with the steam generator mausoleum could also be avoided if NDT funds could be used for the near-term disposal of these MRCs. As noted above in section IV.B.1, use of NDT funds would not have an adverse impact of the ability to decommission the site to unrestricted use standards. In fact, plans and funding for future decommissioning would be enhanced by reducing future risks and uncertainties. Consequently, application of the rule without granting this exemption results in unnecessary and avoidable costs and burdens to the STP Owners and their ratepayers that were not anticipated when this rule was adopted.

3. The exemption would result in benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption. (10 CFR 50.12(a)(2)(iv))

While STPNOC clearly is capable of maintaining protection of the public health and safety if the MRCs are stored on-site, the exemption would result in benefit to the public health and safety, because removal of the MRCs would provide a permanent disposal solution. This eliminates any potential future risk associated with on-site storage, even if such risk is low. Furthermore, there is no associated decrease in safety. Thus, allowing the exemption will result in a net benefit to the public health and safety.

Prompt disposal of these MRCs furthers the objective of maintaining radiation exposures as low as reasonably achievable pursuant to 10 CFR 20.1101(b) by eliminating the potential for any future exposure from storing waste on-site. In addition, disposing of waste prior to the permanent cessation of operations is consistent with NRC policy to minimize the costs and complexity of decommissioning, which can only improve safety.

4. There is present any other material circumstance not considered when the regulation was adopted for which it would be in the public interest to grant an exemption. (10 CFR 50.12(a)(2)(vi))

As promulgated, the rule has never required that site-specific decommissioning cost estimates be developed during the operating life of the plant, but instead assumed that such estimates would be developed around the time a plant ceases operation. *See* 10 CFR 50.75(f)(2). In the absence of site-specific information, there may be an understandable preference for preserving funds in the NDTs, because it would be difficult to make informed decisions regarding the sequencing of decommissioning activities and expenses. However, where detailed information is available, NRC and the licensees have the ability to evaluate the cost and benefits of prompt disposal versus deferring expenditures. This changed circumstance provides NRC with the ability to determine if there is reasonable assurance that sufficient funds will be available at the time of decommissioning if funds are withdrawn to cover the disposal costs for these MRCs.

The exemption request also satisfies the special circumstance criterion of 10 CFR 50.12(a)(2)(vi) in that, when this rule was adopted, the NRC did not consider that MRCs would be removed from the Facility long before permanent cessation of operation, and that the MRCs would be stored on-site because NDTs did not include sub-accounts to address disposal of large components.

NRC's rulemaking history makes clear that licensees may maintain sub-accounts in NDTs that might be used for purposes unrestricted by NRC, such as covering the disposal costs for MRCs. In one example, American Electric Power Company set aside funds that were dedicated for disposal of steam generators from DC Cook. However, some state utility commissions do not favor the use of sub-accounts. In adopting the regulation, NRC anticipated that sub-accounts would be used to separate the funds collected for NRC-jurisdiction decommissioning from other decommissioning uses, and did not contemplate that funds collected for non-NRC decommissioning purposes would be commingled with the NRC-required decommissioning funds (61 FR 39285).

In this case, the funds for NRC-jurisdictional decommissioning and other decommissioning are commingled in the NDTs. NRC did not intend to prevent the use of those funds solely because they are commingled, and to do so would create an unnecessary regulatory burden as it does not have a corresponding safety benefit. This is especially true in the current situation where the adequacy of decommissioning funding can be assessed based upon a site-specific decommissioning cost estimate that sets out the costs for the different elements of decommissioning (including the disposal of MRCs) to determine whether there are adequate funds to fulfill NRC decommissioning requirements.

5. Application of the regulation in the particular circumstances conflicts with other rules or requirements of the commission. (10 CFR 50.12(a)(2)(i))

Application of the regulations in 10 CFR 50.82(a) is in conflict with the NRC philosophy favoring the timely disposition of nuclear waste, under circumstances where doing so is practicable. For example, materials licensees of the NRC are subject to the 1994 Decommission Timeliness Rule, 10 CFR 30.36, 40.42, 70.38, and 72.54, which requires those licensees to decontaminate and decommission certain unused portions of operating nuclear materials facilities. Allowing contaminated land, buildings or equipment to remain on-site was seen as a possible public and environmental liability, and the NRC looked for ways to achieve early decommissioning of unused portions of materials facilities. For valid and sound reasons, reactor licensees are not subject to this rule and, in fact, are allowed the SAFSTOR option under 10 CFR 50.82. Nevertheless, NRC should look favorably upon efforts to pursue near-term permanent disposal of MRCs where justified.

Another example of NRC's preference for minimizing the on-site inventory of waste is reflected in 10 CFR 20.1406 which was added along with modifications to NRC's license termination rule in 1997 (62 FR 39058). This regulation provides:

> Applicants for licenses, other than renewals, after August 20, 1997, shall describe in the application how facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment, facilitate eventual decommissioning, and minimize to the extent practicable, the generation of radioactive waste.

The intent of 10 CFR 20.1406 is to diminish the occurrence and severity of site contamination by taking measures that will control contamination and facilitate eventual decommissioning. Consistent with this philosophy, early removal of large components is consistent with

10 CFR 20.1406. In contrast, storage of MRCs on-site until permanent cessation of operations will increase the complexity of decommissioning and volume of waste to be disposed at the end of plant life. Moreover, this complexity will be exacerbated by the inventory of MRCs stored on-site at multiple plants. Thus, permitting the phased disposal of large components over time will reduce the inventory of waste material and eliminate this future decommissioning activity, consistent with the philosophy underlying 10 CFR 20.1406.

Though not required to do so, reactor licensees should be permitted to utilize NDT funds to pay for the permanent disposal of MRCs prior to cessation of operations. This is justified where funds are being accumulated in NDTs and are available for this purpose, especially where early removal could take advantage of favorable disposal pricing. Unless the use of NDT funds is permitted, MRCs will likely remain on-site for additional decades, particularly given current trends towards license renewal.

Finally, delaying disposal introduces risks associated with potential changes in future disposal costs and availability of disposal capacity.

VI. CONCLUSION

Granting this exemption will be consistent with the NRC decommissioning regulations as it: (1) would not foreclose release of the site for possible unrestricted use (in fact, it would enhance STPNOC's ability to achieve unrestricted release); (2) would not result in significant environmental impacts not previously reviewed by the NRC; and (3) would not undermine the existing and continuing reasonable assurance that adequate funds will be available for decommissioning. Disposal of the MRCs would facilitate eventual unrestricted release of the Facility, thus improving environmental conditions. In addition, authorizing prompt disposal would give STPNOC the ability to take advantage of cost effective disposal alternatives and thereby eliminate the uncertainty associated with the future cost and availability of disposal capacity. Prompt disposal of MRC source terms that otherwise would remain on-site until much later in time is prudent and consistent with the underlying purpose of the Commission's decommissioning regulations.

It is prudent and consistent with the underlying purpose of the Decommission Timeliness Rule to remove large component source terms that otherwise would remain on-site till much later in time. In sum, it will facilitate the decommissioning process by removing the specified components from the site so that: (1) the inventory of radioactive waste and associated source term at the site will be reduced; (2) the costs and inconveniences associated with maintaining the MRCs on-site will be avoided; (3) the overall cost to decommission the site will be reduced; (4) uncertainty regarding future disposal cost and capacity for these MRCs will be eliminated; and (5) assurance of adequate funds to decommission the reactors at the time the reactors cease operation will be maintained. Finally, assurance of the adequacy of the availability of funds for Facility decommissioning is supported by a site-specific decommissioning cost estimate and the associated funding program.

ENCLOSURE 2

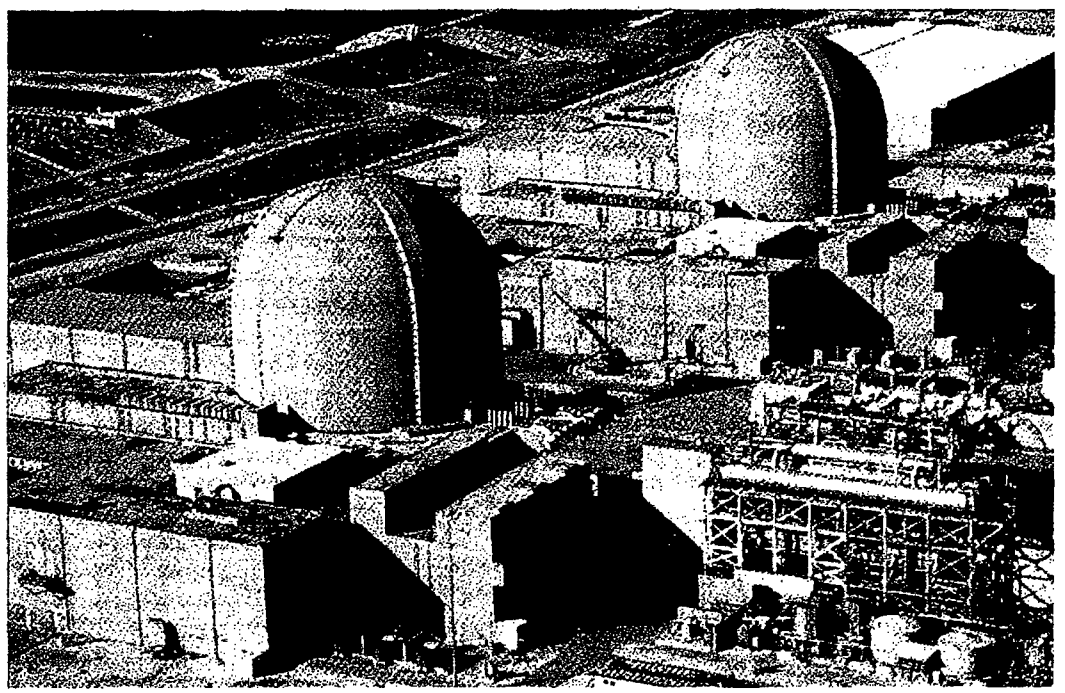
DECOMMISSIONING COST UPDATE

for the

SOUTH TEXAS PROJECT
ELECTRIC GENERATING STATION

May 2004

DECOMMISSIONING COST UPDATE
for the
SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION



prepared for

STP Nuclear Operating Company

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May 2004

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REVISION LOG

No.	CRA No.	Date	Item Revised	Reason for Revision
0		5/26/2004		Original Issue

DECOMMISSIONING COST STUDY
LIMITED TECHNICAL AND ECONOMIC UPDATE

This technical and economic update to the 1998 cost estimates prepared for decommissioning the South Texas Project Electric Generating Station (STPEGS or STP) incorporates changes in significant cost drivers that will impact the cost to decommission the station. The work is being done in accordance with the requirements of South Texas Project Nuclear Operating Company's (STPNOC) contract B02948 and extrapolates from the conclusions of the 1998 decommissioning cost study prepared for STPEGS (TLG Document H01-1323-002, Rev. 2). [Although that report was issued in 1999, the results were reported in 1998 dollars. That report will be referred to as the 1998 analysis.] The re-visited and updated cost drivers include:

- Spent Fuel Management and Strategy
- Program Management (includes Utility, Decommissioning Operations Contractor [DOC], and Security)
- NRC Reactor and Independent Spent Fuel Storage Installation [ISFSI] Fees
- Waste Processing and Disposal
- Reactor Vessel Disposition (includes Greater Than Class C (GTCC) disposal)
- Energy
- General Inflation

The basis for the update, as well as the results, are described in the following narrative.

1. BASIS OF ESTIMATE UPDATE

The cost estimate was developed by updating the economic inputs and spent fuel strategy from the decommissioning cost model used in preparing the 1998 STPEGS decommissioning cost study for the DECON scenario. Based on the recommendations in that study, and in TLG's current best judgment, DECON remains the preferred funding alternative for planning purposes. This estimate included updating the expected initiation of U.S. Department of Energy (DOE) spent fuel acceptance and acceptance rates, and incorporating industry experience associated with loading and transferring multi-purpose spent fuel canisters. This estimate also incorporated updated utility, security, DOC, and engineering staff costs based on current salary values, and staffing levels consistent with TLG's current estimating model (which incorporates industry experience over the past 5 years). In addition, this estimate updated waste disposal and waste processing costs based on current unit costs, revised U.S. Nuclear Regulatory Commissioning (NRC) fee costs based on published cost recovery schedules, and escalated all other costs (excluding property taxes) based on a general inflation index used in the NRC's 10CFR50.75(c) minimum funding calculation criteria.

The basis and assumptions used for each of the updated cost drivers are identified in sub-sections 1.1 through 1.9.

1.1 SPENT FUEL DISPOSITION

The cost to dispose of the spent fuel generated from plant operations is not reflected within the estimates to decommission STPEGS. Ultimate disposition of the spent fuel is under the DOE's Waste Management System, as defined by the NWPA. DOE Spent Fuel disposal is financed by a 1 mill/kWhr surcharge paid into the DOE's waste fund during operations. However, the NRC requires licensees to establish a program to manage and provide funding for the management of all irradiated fuel at the reactor until title of the fuel is transferred to the Secretary of Energy. This funding requirement is fulfilled through inclusion of certain high-level waste cost elements within the estimates, as described below.

The spent fuel assemblies stored in the spent fuel pool and in dry storage at the site will be transferred to the DOE, in accordance with the existing contract.Operation of the DOE's yet-to-be constructed geologic repository is contingent upon the review and approval of the facility's license application by the NRC, the successful resolution of pending litigation, and the development of a national transportation system. By comparison, the NRC's review of the

application for an interim storage facility submitted by the Private Fuel Storage consortium began in 1997 and is still ongoing. With a more technically complex and politically sensitive application for permanent disposal, it is not unreasonable to expect that NRC approval to construct the repository at Yucca Mountain will require at least as long a review period. Construction would therefore begin sometime around the year 2010, at the earliest. The spent fuel management plan described in this section is predicated upon the DOE beginning pickup of commercial fuel in the year 2015. This timetable is consistent with the findings of an evaluation recently issued to Congress by the Government Accounting Office in their report "Technical, Schedule, and Cost Uncertainties of the Yucca Mountain Repository Project," GAO-02-191, dated December 2001.

The total inventory of assemblies that will require handling during decommissioning and the timing of their removal is based upon several assumptions. DOE's removal of spent fuel from commercial reactors is projected to begin in 2015 as noted above. The rate at which spent fuel is removed from commercial reactors is based upon an annual capacity at the geologic repository that ramps up to 3,000 metric tonnes of uranium (MTU). This acceptance rate is consistent with the rate specified in the "Analysis of the Total System Life Cycle Cost of the Civilian Radioactive Waste Management Program" (DOE/RW-0533) issued in May 2001. Any delay in the startup of the repository or decrease in the rate of acceptance will correspondingly prolong the transfer process and result in spent fuel remaining at the site longer. DOE's contracts with commercial reactors allocates its capacity to accept spent fuel from commercial reactors based upon the date on which spent fuel was last removed from a reactor. The "oldest" fuel provides the utility with the highest priority for spent fuel removal.

Spent fuel acceptance schedules for each unit were developed by applying projected DOE acceptance against total industry discharges. STPEG's first core discharge was in 1989. The total industry discharge at that time was 19,482 MTU. Therefore, based on the acceptance schedule (described above), the first spent fuel would be picked up in year 10 of DOE's repository operations in 2024. STPEG's final core discharge is expected in 2029 based on the units' 40-year lifetimes. The total estimated industry discharge at this time is estimated to be approximately 91,000 MTU. This is a mid-case projection that assumes no new reactor startups, no early shutdowns and no life extensions of current operating U.S. plants. Therefore, based on the acceptance schedule, the last spent fuel would be picked up in year 33 of DOE's repository operations in 2047.

Given the length of time during which STPEG will need to store spent fuel, it is reasonable to assume that the licensee will develop supplemental storage at the site at an ISFSI such that decommissioning can be completed in the shortest time practical. Table 1 provides the spent fuel management schedule incorporated into the decommissioning estimates. The inventory levels (approximately 2025 and 2001 assemblies for Unites 1 and 2 respectively) represent the total number of fuel assemblies discharged from each unit, based on nominal projections fuel burnup over the units' 40-year lifetimes. ISFSI inventory is based upon fuel pool capacity and the projections for DOE removal of spent fuel noted above. The last core off-loads of spent fuel will be stored in the fuel storage pools for approximately five years after the cessation of plant operations. The five years is based upon the acceptance criterion for standard fuel as defined in the standard contract and the current design of dry storage systems.

Operation and maintenance costs for the ISFSI are included with the estimate. The estimate also addresses the cost for staffing the facility, as well as security, insurance and licensing fees. The estimates include the costs to load and transfer the fuel storage canisters, as well as the cost to construct the ISFSI itself. Costs are also provided for the final disposition of the facility once the transfer is complete. Other spent fuel caretaking costs include the costs for storage pool maintenance, security and associated operating expenses.

With the storage pools emptied, decommissioning operations can be concluded and the operating licenses terminated. Costs are included within the estimates to site, construct, and license an independent spent fuel storage facility, and for continued operation of this facility until the year 2047, when the DOE is expected to complete the transfer and acceptance of STP fuel. Expenditures include licensing, permits, engineering, site alterations, pad construction, cask transfer equipment and the purchase of storage canisters and concrete storage overpacks. Caretaking costs include staffing, insurance, and fees, as well as costs associated with the final disposition of the facility. The decommissioning cost for the ISFSI is identified as a separate line item cost in the cost table.

Canister Design

A multi-purpose storage canister, with a 24-fuel assembly capacity, is used for the storage of fuel at the ISFSI and in the transfer of spent fuel to the DOE. An average cost of $800,000 is used for the cost of a multi-purpose canister and storage overpack. For fuel transferred directly from the pool to the DOE, the DOE is assumed to provide the canisters at no additional cost to the owners.

Canister Loading and Transfer

An average cost of $200,000 is used for the labor and materials to load the spent fuel into the DOE transport cask. For estimating purposes, 50% of this cost is used to estimate the cost to transfer the fuel from the ISFSI to the DOE. Since the costs for managing the ISFSI is assigned to Unit 2, all canister transfer costs incurred after the site restoration period have been allocated to Unit 2.

Operations and Maintenance

An annual cost of approximately $997,000 and $70,000 is used for operation and maintenance (O&M) of the spent fuel pools (operating for 5 years after shutdown) and the ISFSI (operating approximately 20 years), respectively. These O&M costs are exclusive of labor, which is included as a utility staffing or security staffing cost, and exclusive of nuclear liability and property insurance, property taxes, regulatory agency fees, and emergency planning fees, which are separately itemized costs. Spent fuel pool O&M costs are allocated to each unit. Since the cost for managing the ISFSI is assigned to Unit 2 after the site restoration period, all ISFSI O&M costs have been allocated to Unit 2. However, it is beyond the scope of this update to distinguish precisely between costs resulting from the presence of spent fuel on the site from other costs that the licensee must incur to complete decommissioning.

Spent Fuel Pool Isolation

A cost of $8.4 million is used to account for isolation of the spent fuel storage pools and fuel handling systems in Unit 1, such that decommissioning operations can commence on the balance of the plant. This cost is reduced to $5.6 million for Unit 2, since the engineering, planning, and design work was already completed for Unit 1.

ISFSI Design Considerations

A multi-purpose (storage and transport) dry shielded storage canister with a vertical, reinforced concrete storage overpack is used as a basis for the cost analyses. The overpacks are assumed to have some level of neutron-induced activation as a result of the long-term storage of the fuel, i.e., to levels exceeding free-release limits. The cost to dispose of this material, as well as the demolition of the ISFSI facility, is included in the estimate.

Nuclear Property and Liability Insurance

Nuclear Property and Liability Insurance coverage requirements and premiums will be affected by the presence of spent nuclear fuel. This includes higher coverage for the first 18 months after unit shutdown, due to the potential risk of a zircaloy fire, as well as coverage while the ISFSI is in operation, after the physical decommissioning work has been completed. The insurance premiums (or allocated share of the premiums) associated with these periods have been assigned as a spent fuel cost. These costs are assigned to each of the units until site restoration is complete. Thereafter, consistent with the cost study allocations, these costs are assigned to Unit 2.

Security Staffing

Security will be required due to both the presence of spent fuel, as well as the presence of large quantities of radioactive materials. Security staff assigned to the decommissioning project is assumed to be absorbed by the license termination workforce, while there is substantial physical decommissioning work in progress. The security staff after this period is assumed to be principally dedicated to ISFSI security, with the majority of the cost allocated as a spent fuel cost. However, it is beyond the scope of this update to distinguish precisely between costs resulting from the presence of spent fuel on the site from other costs that the licensee must incur to complete decommissioning. Consistent with the cost study allocations, spent fuel security costs are assigned to Unit 2.

Utility Staffing

The utility staff will be required due to both the presence of spent fuel as well as to oversee and support the decommissioning work. While there is substantial physical decommissioning work in progress utility staff assigned to operate the spent fuel pools and ISFSI is assumed to be absorbed by the license termination workforce. A fraction of utility staff after this time period is assumed to be dedicated to ISFSI operations, and is allocated as a spent fuel cost. However, it is beyond the scope of this update to distinguish precisely between costs resulting from the presence of spent fuel on the site from other costs that the licensee must incur to complete decommissioning. Consistent with cost study allocations, spent fuel utility staff costs are assigned to Unit 2.

NRC and NRC ISFSI Fees

The NRC requires an annual fee to be paid by reactor licensees in a decommissioning status. This fee is applicable to a reactor in a decommissioning status with spent fuel on-site. This fee (identified as "NRC Fee" in the cost table) has been allocated as a license termination cost, until the reactor license has been terminated. Thereafter, this cost has been allocated as a spent fuel cost (identified as "NRC ISFSI Fee" in the cost table). These costs are assigned to each of the units until site restoration is complete. Thereafter, consistent with the cost study allocations, these costs are assigned to Unit 2.

Property Taxes

Throughout the decommissioning project, an annual property tax cost has been included. There is an annual property tax associated with the ISFSI, after all decommissioning and site restoration activities have been completed. This annual tax has been allocated as a spent fuel cost in all years in which the ISFSI is in operation. The remaining property taxes are allocated to license termination or site restoration costs. These costs are assigned to each of the units until site restoration is complete. Thereafter, consistent with the cost study allocations, these costs are assigned to Unit 2.

Emergency Planning Fees

Whenever spent fuel is present on site, an annual Emergency Planning fee has been included, and designated as a spent fuel cost. These costs are assigned to each of the units until site restoration is complete. Thereafter, consistent with the cost study allocations, these costs are assigned to Unit 2.

1.2 UTILITY, DOC AND SECURITY STAFF

The staff required to support and manage a decommissioning project represents a significant project cost. In order to reflect changes from 1998 to 2004, both labor costs as well as numbers of individuals assigned to the project were updated. Labor costs based on STPEGS representative salary levels were incorporated into the model. In addition, staffing levels were adjusted to reflect experience from ongoing U.S. power reactor decommissioning projects. Based on information obtained from STPNOC, overhead rates remained constant (average rate is 50% of salary).

The following table reflects the results of the cost estimate update:

CHANGE IN UTILITY, DOC, CONSULTING ENGINEERING, AND SECURITY OFFICER SALARIES AND MAN-HOURS

	1998	2004	Change (%)
Average Annual "Utility" Salary (including all A&G and overheads) (dollars)	87,000	116,000	33.3
Average Annual "DOC" Salary (including all overheads and profit) (dollars)	99,000	130,000	31.3
Average Annual "Consulting Engineering" Salary (including all overheads, per diems and profit) (dollars)	208,000	189,000	<9.1>
Average Annual Security Officer Salary* (including all overheads and profit) (dollars)	31,000	50,000	61.3
Total Utility Staff (Man-Hours)	3,805,000	4,129,000	8.5
Total DOC Staff (Man-Hours)	1,387,000	1,806,000	30.2
Total Consulting Engineering Staff (Man-Hours)	158,546	158,546	0.0
Total Security Staff (Man-Hours)	966,000	1,006,000	4.1

* The average security salary in the 1998 study did not include a 40% overhead, therefore the cost differential is unusually high.

The staffing levels were generally not affected by the project schedule, since the license termination and completion of spent fuel pickup did not change between the 1998 and 2004 cost estimates.

1.3 WASTE PROCESSING AND DISPOSAL COSTS

Decommissioning a nuclear power station generates a substantial amount of radioactive waste, which results in a substantial decommissioning cost. The quantity of waste generated from the decommissioning project was assumed to be unchanged since the 1998 study, however, the cost of waste processing and disposal was updated to incorporate the latest rate schedules. Based on STPNOC provided waste schedules, the following is a summary of the

changes in the waste processing and disposal costs between the 1998 and 2004 study.

CHANGE IN WASTE PROCESSING AND DISPOSAL COSTS

	1998	2004	Change (%)
Direct Disposal of Low-Level Radioactive Waste ($'s/ lb)	4.40	5.10	15.9
Processing of Contaminated Metallic Waste ($'s/ lb)	1.40	2.00	42.9
Disposal of Dry Active Waste (DAW) (paper, cloth and similar consumables)*($'s/ lb)	4.40	3.25	<26.1>
Disposal of Bulk Debris (such as contaminated concrete)* ($'s/ lb)	4.40	0.45	<89.8>
Disposal of Greater-Than-Class-C Waste ** ($'s/ ft3)	17,800	22,100	24.2

* Direct disposal of low-level waste was used for disposal of DAW and bulk debris in the 1998 study.

** The contingency value assigned to GTCC waste was reduced from 50% to 15% in this update. This reflects TLG's current practice of classifying this cost as a "Government Service" rather than as a highly activated component disposal cost. With adjustments for contingency the change is <5.1%>.

1.4 NRC FEES

The NRC recovers a large fraction of its operating budget through a cost recovery program. The fees for cost recovery are published in the Code of Federal Regulations, and are updated on a regular basis. The number of NRC staff man-hours charged to the project was assumed to be unchanged since the 1998 study, however, the hourly cost and annual fees were updated to incorporate the latest rate schedules. Based on schedules extracted from the Code of Federal regulations, the following is a summary of the changes in NRC hourly rates and annual fees.

CHANGE IN NRC FEES

	1998	2004	Change (%)
NRC Annual Fee (Power Reactor with Fuel On-Site in Decommissioning Status) (per unit) ($'s/yr)	150,000	319,000	212.7
NRC Annual ISFSI Fee* (per site) ($'s/yr)	283,000	319,000	12.7
Average Cost Per Professional Staff Hour ($'s/hr)	131	156	19.1

* The current study, consistent with current NRC regulations, only includes the Annual ISFSI Fee after the reactor license has been terminated. In the 1998 study the ISFSI Fee was applied for the entire duration of the project.

1.5 ESCALATION OF OTHER COSTS

In order to account for escalation of costs between 1998 and 2004, costs that were not updated based on specific 2004 cost values, were escalated using Bureau of Labor Statistics (BLS) indices, produced by the U.S. Department of Labor.

The index chosen (for all items not updated based on specific 2004 values, excluding energy), is "Employment Cost Index, Total Compensation, Private Industry, South Region" (ecu13202i). This was selected since it is used in NRC's minimum funding formula for escalating labor, equipment and materials as described in NRC's NUREG/CR-1307, Volume 10 - "Report on Waste Burial Charges". Since the BLS does not forecast inflation, the 2004 index has not been published. Therefore TLG determined the average annual increase between 1997 and 2003, and applied this increase to represent the change between 1998 and 2004. The average annual rate of change was calculated at 3.34%, resulting in an increase of 21.8% over the 6 year period.

The index chosen for energy is "Producer Price Index, Fuels and Related Products and Power, Industrial Electric Power" (wpu0543). This was selected since it is used in NRC's minimum funding formula for escalating energy as described in NUREG/CR-1307, Volume 10. Similar to what was done with the employment cost index, TLG determined the average annual increase between 1997 and 2003 and applied this increase to represent the change between 1998

and 2004. The average annual rate of change was calculated at 1.86%, resulting in an increase of 11.7% over the 6 year period.

It should be noted that property taxes were not escalated in this cost update (at the direction of STPNOC).

1.6 REACTOR VESSEL DISPOSITION COSTS

The reactor vessel and internals disposition calculations were revised to incorporate current TLG methods used for estimating reactor vessel disposition costs and updated Andrews County, Texas waste facility disposal costs. Revisions to TLG methods include the following significant elements:

- Incorporated the current lifetime operations history (megawatt-hours to date), and assumed there is an increased capacity factor over the remainder of plant life (90% v. 80% in the previous study). These changes affect the neutron activation levels, which affects the curie content at time of shutdown, and affects the cost of GTCC disposal (estimated cost of GTCC disposal is tied to the cost of disposal of spent fuel).
- A revised approach to calculating the packaged volume of GTCC material. The updated approach reduces the total packaged volume of GTCC material.
- A revised contingency is applied to the disposal of GTCC material (15% v. 50% in the previous study). This is intended to reflect that the waste will be transferred to the DOE, and therefore the cost is related to a government service.
- The cost for disposal of GTCC material has been assigned to the last year of the spent fuel pickup (2047). This does not affect cost in current year dollars, but will affect present value cost calculations.
- A revised approach to the packaging of lightly-activated material (current approach is to assume that much of the lightly-activated material is now packaged in B-25 boxes, rather than cask liners).
- The segmentation and packaging crew's cost structure was changed to reflect the use of outside contractors to do the reactor vessel segmentation and packaging, rather than the on-site work force (this is the current U.S. industry practice)
- Material costs were updated with new vendor information, or escalated from the last study.

1.7 PROJECT SCHEDULE

Despite a later estimated start date of DOE spent fuel acceptance, increases in the estimated rate at which spent fuel is accepted by the DOE resulted in the project schedule remaining essentially unchanged from the 1998 study (spent fuel is estimated to be picked up by the end of third quarter in 2047 in this study, versus the middle of 2048 in the 1998 study. A timeline of events is provided in Figure 1. Significant milestone dates in the decommissioning estimate are noted in the following table.

SIGNIFICANT MILESTONES

MILESTONE EVENT	DATE
DOE initiates spent fuel pickup (commercial reactors)	2015
Unit 1 – DOE initiates spent fuel pickup	2024
Unit 2 – DOE initiates spent fuel pickup	2025
Unit 1 – Permanent Cessation of Operations	2027
Unit 2 – Permanent Cessation of Operations	2028
Unit 1 – Initiate Spent Fuel Transfer to ISFSI	2028
Unit 2 – Initiate Spent Fuel Transfer to ISFSI	2029
Unit 1 – Spent Fuel Pool Empty (5 years – 2 months after shutdown)	2032
Unit 2 – Spent Fuel Pool Empty (5 years – 2 months after shutdown)	2034
ISFSI – Initiate Fuel Transfer from ISFSI to DOE	2033
Unit 1 – Reactor License Terminated	2034
Unit 2 – Reactor License Terminated	2036
Unit 1 – Site Restoration Complete	2037
Unit 2 – Site Restoration Complete	2037
ISFSI – Transfer GTCC stored in ISFSI to DOE	2047
ISFSI – Complete Fuel Transfer from ISFSI to DOE	2047

1.8 CO-OWNERS COST

An objective of this update was to estimate the co-owners Schedule of Annual expenditures, considering ownership allocations, contingency values at 10%, and tax exemption considerations. The "average reduction" between the base case estimate, and each owner's cost developed in the 1998 analysis was calculated and applied to the updated cost estimate (2004 dollars). For clarification, these values, and the corresponding reductions, are as shown in Table 2. The new base case schedule of annual expenditures was developed by reducing the base case by these average reduction values.

1.9 OTHER ESTIMATING ASSUMPTIONS

With the exceptions of the items described above, the estimate relied on the assumptions developed for the 1998 decommissioning cost study (TLG document H01-1323-002, Rev. 2, dated December 1998). This includes elements such as, plant equipment and structures inventories, scope of work (what is included as a decommissioning activity), contamination levels, energy consumption, unit cost factors (worker productivity), and project contingencies. A complete definition of assumptions is contained in sections 1 through 5 of the 1998 study.

2. RESULTS

The costs based on this technical and economic update are provided in Appendix A, Tables A-1 and A-2. These tables provide the same types of information that were provided in Tables C-1 and C-2 of the 1998 study. The total cost to decommission the station with the updated assumptions is **$1,419,448,073**; or an increase/decrease of 287,699,387 (25.4%). The estimated annual schedules of expenditure based on this estimate are provided in Tables 3.1 and 4.1. These tables provide the same information that was provided in Table 3.3 and 3.4 of the 1998 study. In addition estimated annual schedules of expenditures related to managing spent fuel are provided in Tables 3.2 and 4.2. The basis for spent fuel management costs are explained in Section 1, and are itemized in Tables A-1 and A-2 (refer to the column labeled "Spent Fuel Mgmt.")

In order to establish owner-specific disbursements, based on ownership allocations, previously specified contingency values, and tax exemption considerations, a schedule of annual expenditures has been developed for each owner, by unit. These schedules are provided in Appendix B, Tables B-1 through B-4. Consistent with the 1998 study these tables represent the following:

- Expenditure schedules for Texas Genco, LP and AEP Texas Central Company include state sales tax and property tax allocations, as applicable, the schedules for CPS and COA, the two municipal owners, do not.
- Expenditure schedules are based on a flat contingency rate of 10%.
- The ownership share remains unchanged from the 1998 study (refer to Table 2).

TABLE 1.0

SPENT FUEL MANAGEMENT SCHEDULE
EX-CORE FUEL ASSEMBLIES*

	Unit 1				Unit 2			
Year	On-Site Inventory	ISFSI Inventory (assemblies)	(canisters)	DOE Acceptance	On-Site Inventory	ISFSI Inventory (assemblies)	(canisters)	DOE Acceptance
2024	1,669	0	0	87	1,660	0	0	0
2025	1,582	0	0	87	1,649	0	0	87
2026	1,571	0	0	87	1,634	0	0	87
2027	1,677	0	0	87	1,547	0	0	87
2028	1,590	240	10	87	1,653	0	0	87
2029	1,503	480	20	87	1,566	240	10	87
2030	1,416	744	31	87	1,479	480	20	87
2031	1,329	984	41	87	1,392	720	30	87
2032	1,242	1,242	52	87	1,305	960	40	87
2033	1,155	1,155	49	87	1,218	1218	51	87
2034	1,068	1,068	45	87	1,131	1131	48	87
2035	981	981	41	87	1,044	1044	44	87
2036	894	894	38	87	957	957	40	87
2037	807	807	34	87	870	870	37	87
2038	720	720	30	87	783	783	33	87
2039	633	633	27	87	696	696	29	87
2040	546	546	23	87	609	609	26	87
2041	459	459	20	87	522	522	22	87
2042	372	372	16	87	435	435	19	87
2043	285	285	12	87	348	348	15	87
2044	198	198	9	87	261	261	11	87
2045	111	111	5	87	174	174	8	87
2046	24	24	1	87	87	87	4	87
2047	0	0	0	24	0	0	0	87
Total				2,025				2,001

* Inventories are approximate and reflect projected/estimated quantities

TABLE 2.0

CO-OWNER DECOMMISSIONING COST ALLOCATIONS

	Base Case Costs (1998 dollars)
Unit 1 (Note 1)	515,465,630
Unit 2 (Note 2)	616,283,056

	Owner			
	Texas Genco, LP (formerly HL&P)	**AEP Texas Central Co. (formerly CP&L)**	**CPS**	**COA**
Percent Ownership (Note 3)	30.8%	25.2%	28.0%	16.0%
Decommissioning Cost (allocated) (1998 dollars) (10% contingency) – Unit 1 (Note 4)	152,863,835	125,070,411	126,204,595	72,116,911
Decommissioning Cost (allocated) (1998 dollars) (10% contingency)– Unit 2 (Note 5)	184,080,980	150,611,711	151,278,943	86,445,110
Average Reduction (Base Case to Allocated Share) – Unit 1 (Note 6)	.2966	.2426	.2448	.1399
Average Reduction (Base Case to Allocated Share) – Unit 2 (Note 6)	.2987	.2444	.2455	.1403

Note 1: Refer to Appendix C-1 of 1998 TLG report
Note 2: Refer to Appendix C-2 of 1998 TLG report
Note 3: Refer to Appendix E of 1998 TLG report
Note 4: Refer to Appendix E, Tables E-1, E-3, E-5 and E-7 of 1998 TLG report
Note 5: Refer to Appendix E, Tables E-2, E-4, E-6 and E-8 of 1998 TLG report
Note 6: Calculated by ratio of Owner's Cost to Base Case Cost

TABLE 3.1

SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative - Unit 1
(2004 Dollars)

Year	Period 1 Planning	Period 2 Decommissioning	Period 3 Site Restoration Offset	Period 3 Site Restoration	Total
2027	40,009,022	0	0	0	40,009,022
2028	113,943,089	0	0	0	113,943,089
2029	14,993,215	91,265,205	0	0	106,258,420
2030	0	95,153,173	0	0	95,153,173
2031	0	79,081,192	0	0	79,081,192
2032	0	76,963,622	0	0	76,963,622
2033	0	63,503,463	0	0	63,503,463
2034	0	7,008,629	835,794	0	7,844,424
2035	0	0	2,674,366	0	2,674,366
2036	0	0	65,430	21,114,597	21,180,027
2037	0	0	0	17,799,013	17,799,013
2038	0	0	0	0	0
2039	0	0	0	0	0
2040	0	0	0	0	0
2041	0	0	0	0	0
2042	0	0	0	0	0
2043	0	0	0	0	0
2044	0	0	0	0	0
2045	0	0	0	0	0
2046	0	0	0	0	0
2047	0	0	0	17,741,317	17,741,317
2048	0	0	0	0	0
	168,945,326	412,975,284	3,575,590	56,654,926	642,151,127

TABLE 3.2

SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative (Certain Spent Fuel-Related Costs[1]) - Unit 1
(2004 Dollars)

Year	Period 1 Planning	Period 2 Decommissioning	Period 3 Site Restoration Offset	Period 3 Site Restoration	Total
2027	13,342,759				13,342,759
2028	33,070,745				33,070,745
2029	4,256,930	16,738,056			20,994,986
2030		13,848,765			13,848,765
2031		5,044,110			5,044,110
2032		4,242,662			4,242,662
2033		862,290			862,290
2034		688,345	367,710		1,056,054
2035			1,176,593		1,176,593
2036			28,786	1,175,644	1,204,430
2037				991,035	991,035
2038					
2039					
2040					
2041					
2042					
2043					
2044					
2045					
2046					
2047					
2048					
	50,670,434	41,424,227	1,573,089	2,166,679	95,834,429

Note 1: Although some spent fuel management costs are reflected here, it is beyond the scope of this study to distinguish precisely between costs resulting from the presence of spent fuel on the site and other costs that the licensee must incur to complete decommissioning.

TABLE 4.1

SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative - Unit 2
(2004 Dollars)

Year	Period 1 Planning	Period 2 D&D	Site Restoration	Post Decommissioning ISFSI Operations: Spent Fuel Transfer	Post Decommissioning ISFSI Operations: ISFSI D&D	Total
2028	4,394,183	0	0	0	0	4,394,183
2029	89,685,306	0	0	0	0	89,685,306
2030	38,994,842	71,392,645	0	0	0	110,387,487
2031	0	104,160,906	0	0	0	104,160,906
2032	0	93,625,142	0	0	0	93,625,142
2033	0	90,772,043	0	0	0	90,772,043
2034	0	79,646,821	0	0	0	79,646,821
2035	0	34,031,434	0	0	0	34,031,434
2036	0	424,836	50,568,116	0	0	50,992,952
2037	0	0	42,627,504	755,284	0	43,382,788
2038	0	0	0	4,307,480	0	4,307,480
2039	0	0	0	4,307,480	0	4,307,480
2040	0	0	0	4,319,281	0	4,319,281
2041	0	0	0	4,307,480	0	4,307,480
2042	0	0	0	4,307,480	0	4,307,480
2043	0	0	0	4,307,480	0	4,307,480
2044	0	0	0	4,319,281	0	4,319,281
2045	0	0	0	4,307,480	0	4,307,480
2046	0	0	0	4,307,480	0	4,307,480
2047	0	0	0	20,951,274	10,689,696	31,640,970
2048	0	0	0	0	5,785,991	5,785,991
2049	0	0	0	0	0	0
	133,074,330	474,053,828	93,195,620	60,497,481	16,475,687	777,296,946

TABLE 4.2

SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative (Certain Spent Fuel-Related Costs[1]) - Unit 2
(2004 Dollars)

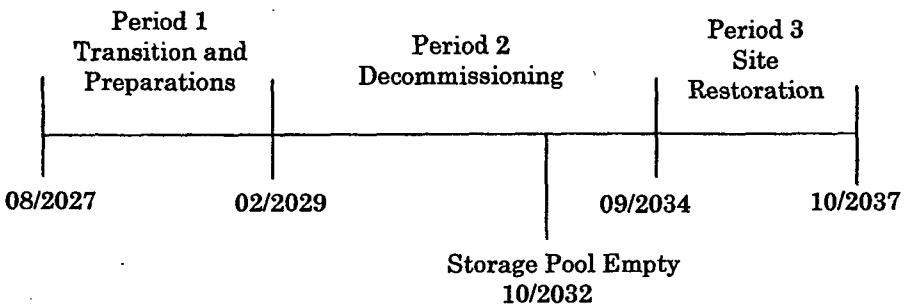
				Post Decommissioning ISFSI Operations		
Year	Period 1 Planning	Period 2 D&D	Site Restoration	Spent Fuel Transfer	ISFSI D&D	Total
2028	1,466,299					1,466,299
2029	23,361,411					23,361,411
2030	7,550,303	23,801,499				31,351,802
2031		16,800,152				16,800,152
2032		7,406,180				7,406,180
2033		5,120,152				5,120,152
2034		2,697,964				2,697,964
2035		2,894,415				2,894,415
2036		75,852	3,207,957			3,283,810
2037			2,704,218	755,284		3,459,502
2038				4,307,480		4,307,480
2039				4,307,480		4,307,480
2040				4,319,281		4,319,281
2041				4,307,480		4,307,480
2042				4,307,480		4,307,480
2043				4,307,480		4,307,480
2044				4,319,281		4,319,281
2045				4,307,480		4,307,480
2046				4,307,480		4,307,480
2047				3,209,958	10,689,696	13,899,653
2048					5,785,991	5,785,991
2049						
	32,378,014	58,796,214	5,912,175	42,756,164	16,475,687	156,318,253

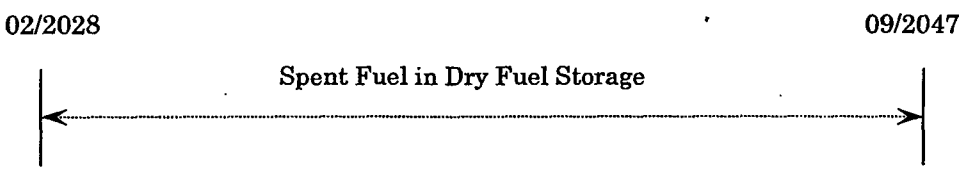
Note 1: Although some spent fuel management costs are reflected here, it is beyond the scope of this study to distinguish precisely between costs resulting from the presence of spent fuel on the site and other costs that the licensee must incur to complete decommissioning.

FIGURE 1

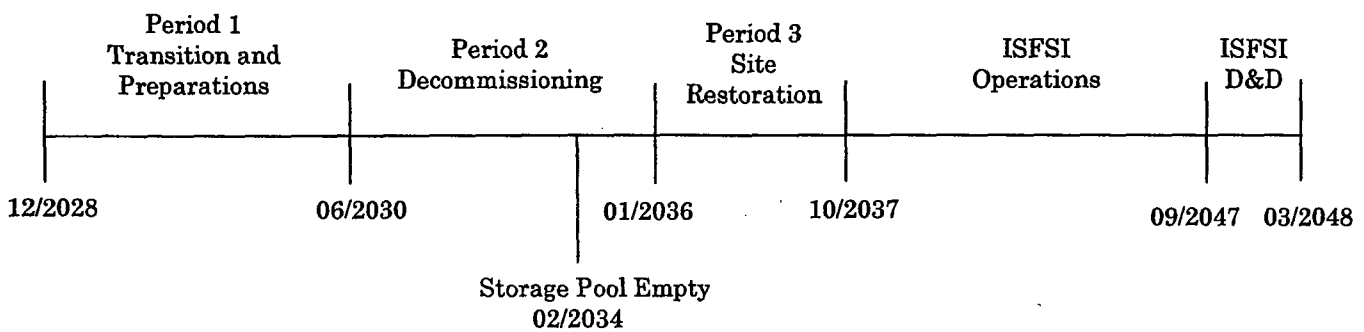
TIMELINE OF EVENTS

Unit 1
(Shutdown August 20, 2027)





Unit 2
(Shutdown December 15, 2028)



APPENDIX A

DECOMMISSIONING COST ESTIMATES

DECON Alternative

Page

South Texas Project, Unit 1 ..... A-2

South Texas Project, Unit 2 ..... A-11

TABLE A-1
SOUTH TEXAS PROJECT - UNIT 1
DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt.	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
PERIOD 1																	
1	Prepare preliminary decommissioning cost	-	-	-	-	-	118	17.7	135	135	-	-	-	-	-	-	-
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	-	-	-	-	-	181	27.2	208	208	-	-	-	-	-	-	-
7	Review plant dwgs & specs.	-	-	-	-	-	417	62.5	479	479	-	-	-	-	-	-	-
8	Perform detailed rad survey						-		Note 1								
9	Estimate by-product inventory	-	-	-	-	-	91	13.6	104	104	-	-	-	-	-	-	-
10	End product description	-	-	-	-	-	91	13.6	104	104	-	-	-	-	-	-	-
11	Detailed by-product inventory	-	-	-	-	-	118	17.7	135	135	-	-	-	-	-	-	-
12	Define major work sequence	-	-	-	-	-	680	102.0	782	782	-	-	-	-	-	-	-
13	Perform SER and EA	-	-	-	-	-	281	42.1	323	323	-	-	-	-	-	-	-
14	Perform Site-Specific Cost Study	-	-	-	-	-	453	68.0	521	521	-	-	-	-	-	-	-
15	Prepare/submit License Termination Plan	-	-	-	-	-	371	55.7	427	427	-	-	-	-	-	-	-
16	Receive NRC approval of termination plan								Note 1								
Activity Specifications																	
17.1	Plant & temporary facilities	-	-	-	-	-	446	66.9	513	462	-	51	-	-	-	-	-
17.2	Plant systems	-	-	-	-	-	378	56.6	434	391	-	43	-	-	-	-	-
17.3	NSSS Decontamination Flush	-	-	-	-	-	45	6.8	52	52	-	-	-	-	-	-	-
17.4	Reactor Internals	-	-	-	-	-	643	96.5	740	740	-	-	-	-	-	-	-
17.5	Reactor vessel	-	-	-	-	-	589	88.4	677	677	-	-	-	-	-	-	-
17.6	Biological shield	-	-	-	-	-	45	6.8	52	52	-	-	-	-	-	-	-
17.7	Steam generators	-	-	-	-	-	283	42.4	325	325	-	-	-	-	-	-	-
17.8	Reinforced concrete	-	-	-	-	-	145	21.8	167	83	-	83	-	-	-	-	-
17.9	Turbine & condenser	-	-	-	-	-	73	10.9	83	-	-	83	-	-	-	-	-
17.10	Plant structures & buildings	-	-	-	-	-	283	42.4	325	163	-	163	-	-	-	-	-
17.11	Waste management	-	-	-	-	-	417	62.5	479	479	-	-	-	-	-	-	-
17.12	Facility & site closeout	-	-	-	-	-	82	12.2	94	47	-	47	-	-	-	-	-
17	Total	-	-	-	-	-	3,428	514.3	3,943	3,472	-	471	-	-	-	-	-
Planning & Site Preparations																	
18	Prepare dismantling sequence	-	-	-	-	-	218	32.6	250	250	-	-	-	-	-	-	-
19	Plant prep. & temp. svces	-	-	-	-	-	2,308	346.2	2,654	2,654	-	-	-	-	-	-	-
20	Design water clean-up system	-	-	-	-	-	127	19.0	146	146	-	-	-	-	-	-	-
21	Rigging/CCEs/tooling/etc.	-	-	-	-	-	1,954	293.1	2,247	2,247	-	-	-	-	-	-	-
22	Procure casks/liners & containers	-	-	-	-	-	111	16.7	128	128	-	-	-	-	-	-	-

TABLE A-1
SOUTH TEXAS PROJECT - UNIT 1
DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt.	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Detailed Work Procedures																	
23.1	Plant systems	-	-	-	-	-	429	64.3	493	444	-	49	-	-	-	-	-
23.2	NSSS Decontamination Flush	-	-	-	-	-	91	13.6	104	104	-	-	-	-	-	-	-
23.3	Vessel head	-	-	-	-	-	227	34.0	261	261	-	-	-	-	-	-	-
23.4	Reactor internals	-	-	-	-	-	227	34.0	261	261	-	-	-	-	-	-	-
23.5	Remaining buildings	-	-	-	-	-	122	18.4	141	35	-	106	-	-	-	-	-
23.6	CRD cooling assembly	-	-	-	-	-	91	13.6	104	104	-	-	-	-	-	-	-
23.7	CRD housings & ICI tubes	-	-	-	-	-	91	13.6	104	104	-	-	-	-	-	-	-
23.8	Incore instrumentation	-	-	-	-	-	91	13.6	104	104	-	-	-	-	-	-	-
23.9	Reactor vessel	-	-	-	-	-	329	49.3	378	378	-	-	-	-	-	-	-
23.10	Facility closeout	-	-	-	-	-	109	16.3	125	63	-	63	-	-	-	-	-
23.11	Missile shields	-	-	-	-	-	41	6.1	47	47	-	-	-	-	-	-	-
23.12	Biological shield	-	-	-	-	-	109	16.3	125	125	-	-	-	-	-	-	-
23.13	Steam generators	-	-	-	-	-	417	62.5	479	479	-	-	-	-	-	-	-
23.14	Reinforced concrete	-	-	-	-	-	91	13.6	104	52	-	52	-	-	-	-	-
23.15	Turbine & condensers	-	-	-	-	-	283	42.4	325	-	-	325	-	-	-	-	-
23.16	Auxiliary building	-	-	-	-	-	247	37.1	285	256	-	28	-	-	-	-	-
23.17	Reactor building	-	-	-	-	-	247	37.1	285	256	-	28	-	-	-	-	-
23	Total	-	-	-	-	-	3,239	486	3,725	3,074	-	652	-	-	-	-	-
24	Decon primary loop	987	-	-	-	-	-	493.6	1480.8	1480.8	-	-	-	-	-	-	800
Period 1 Additional Costs																	
25	Site Characterization Survey	-	-	-	-	-	1,692	508	2,200	2,200	-	-	-	-	-	-	-
26	Severance Plan	-	-	-	-	-	21,404	3,211	24,615	24,615	-	-	-	-	-	-	-
Subtotal Period 1 Activity Costs		987	-	-	-	-	37,282	6,340	44,609	43,486	-	1,123	-	-	-	-	800
Period 1 Undistributed Costs																	
1	Decon equipment	656	-	-	-	-	-	98	754	754	-	-	-	-	-	-	-
2	Decon supplies	40	-	-	-	-	-	10	49	49	-	-	-	-	-	-	-
3	DOC staff relocation expenses	-	1,192	-	-	-	-	179	1,371	1,371	-	-	-	-	-	-	-
4	Process liquid waste	149	-	543	545	3,030	-	968	5,235	5,235	-	-	-	6,990	-	-	313
5	Insurance	-	-	-	-	-	1,715	171	1,886	581	1,305	-	-	-	-	-	-
6	Property taxes	-	-	-	-	-	6,206	-	6,206	5,628	578	-	-	-	-	-	-
7	Health physics supplies	-	249	-	-	-	-	62	311	311	-	-	-	-	-	-	-
8	Heavy equipment rental	-	274	-	-	-	-	41	316	316	-	-	-	-	-	-	-
9	Small tool allowance	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-	-
10	Disposal of DAW generated	-	-	330	12	1,114	-	313	1,769	1,769	-	-	4,031	-	-	-	10,965
11	Plant energy budget	-	-	-	-	-	3,395	509	3,904	3,904	-	-	-	-	-	-	-
12	ISFSI Cask Purchase	-	-	-	-	-	23,200	3,480	26,680	-	26,680	-	-	-	-	-	-

TABLE A-1
SOUTH TEXAS PROJECT - UNIT 1
DECON, DECOMMISSIONING COST ESTIMATE
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Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt.	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Period 1 Undistributed Costs (continued)																	
13	ISFSI Site alterations	-	-	-	-	-	4,124	619	4,742	-	4,742	-	-	-	-	-	-
14	ISFSI transfer equipment	-	-	-	-	-	609	91	700	-	700	-	-	-	-	-	-
15	ISFSI licensing and permits	-	-	-	-	-	1,218	122	1,339	-	1,339	-	-	-	-	-	-
16	NRC Fees	-	-	-	-	-	572	57	629	629		-	-	-	-	-	-
17	Emergency Planning Fees	-	-	-	-	-	92	9	101	-	101	-	-	-	-	-	-
18	Site Security Cost	-	-	-	-	-	2,119	318	2,437	2,437	-	-	-	-	-	-	-
19	Spent Fuel Pool O&M	-	-	-	-	-	1,496	224	1,720	-	1,720	-	-	-	-	-	-
20	Spent Fuel Pool Isolation	-	-	-	-	-	8,358	1,254	9,612	-	9,612	-	-	-	-	-	-
21	Spent Fuel Transfer Costs	-	-	-	-	-	3,384	508	3,892	-	3,892	-	-	-	-	-	-
Subtotal Undistributed Costs Period 1		844	1,716	874	557	4,144	56,487	9,034	73,655	22,985	50,670	-	4,031	6,990	-	-	11,278
Staff Costs																	
	DOC Staff Cost	-	-	-	-	-	8,163	1,224	9,387	9,387	-	-	-	-	-	-	-
	Utility Staff Cost	-	-	-	-	-	35,908	5,386	41,294	41,294	-	-	-	-	-	-	-
TOTAL PERIOD 1 COST		1,831	1,716	874	557	4,144	137,840	21,984	168,945	117,152	50,670	1,123	4,031	6,990	-	-	12,078
PERIOD 2																	
Nuclear Steam Supply System Removal																	
27.1	Reactor Coolant Piping	115	221	14	18	683	-	287	1,338	1,338	-	-	1,575	-	-	-	12,733
27.2	Pressurizer Relief Tank	16	90	6	6	298	-	107	522	522	-	-	688	-	-	-	4,129
27.3	Reactor Coolant Pumps & Motors	53	44	35	29	2,426	-	652	3,237	3,237	-	-	5,596	-	-	-	4,114
27.4	Pressurizer	17	24	4	8	889	-	238	1,179	1,179	-	-	2,050	-	-	-	1,685
27.5	Steam Generators	223	3,157	2,058	947	9,115	3,422	4,041	22,964	22,964	-	-	21,027	-	-	-	24,566
27.6	Old Steam Generator Lower Shell Units	-	30	1,709	824	8,892	3,137	2,996	17,587	17,587	-	-	20,512	-	-	-	14,878
27.7	CRDMs/ICIs/Service Structure Removal	76	53	74	16	1,605	-	462	2,287	2,287	-	-	3,703	-	-	-	4,717
27.8	Reactor Vessel Internals	66	2,047	5,503	494	4,785	-	5,460	18,356	18,356	-	-	2,003	788	459		16,207
27.9	Reactor Vessel	51	3,706	1,475	372	8,830	-	7,681	22,115	22,115	-	-	7,178	2,629	-	-	31,297
27	Totals	617	9,372	10,877	2,712	37,524	6,559	21,924	89,585	89,585	-	-	64,333	3,417	459	-	114,326
28	Remove spent fuel racks	335	30	14	3	1,654	3,816	1,163	7,016	7,016	-	-	3,816	-	-	-	14,170
Removal of Major Equipment																	
29	Main Turbine/Generator	-	73	-	-	-	-	11	84	-	-	84	-	-	-	-	3,298
30	Main Condensers	-	384	-	-	-	-	58	441	-	-	441	-	-	-	-	16,323

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Disposal of Plant Systems			-														
31.1	Auxiliary Feedwater (AF)	-	46	-	-	-	-	7	53	-	-	53	-	-	-	-	2,145
31.2	Auxiliary Feedwater (AF) RCA	2	5	-	-	-		2	9	9	-	-	-	-	-	-	310
31.3	Auxiliary Steam & Boilers (AS)	-	37	-	-	-	-	5	42	-	-	42	-	-	-	-	1,754
31.4	Auxiliary Steam & Boilers (AS) RCA	7	14	-	-	-	-	5	26	26	-	-	-	-	-	-	899
31.5	BOP Chemical Feed (CF)	-	15	-	-	-	-	2	17	-	-	17	-	-	-	-	687
31.6	BOP Diesel Generator (DB)	-	16	-	-	-	-	2	18	-	-	18	-	-	-	-	734
31.7	Boron Recycle (BR)	-	306	13	7	619	124	252	1,320	1,320	-	-	1,428	-	-	-	11,635
31.8	Breathing Air (BA) RCA	28	58	-	-	-	-	23	108	108	-	-	-	-	-	-	3,291
31.9	Chemical & Volume Control (CV)	742	716	21	12	1,078	129	843	3,541	3,541	-	-	2,486	-	-	-	54,061
31.10	Chilled Water HVAC (CH)	-	77	-	-	-	-	12	88	-	-	88	-	-	-	-	3,589
31.11	Chilled Water HVAC (CH) RCA	109	258	-	-	-	-	93	460	460	-	-	-	-	-	-	15,455
31.12	Circulating Water (CW)	-	198	-	-	-	-	30	227	-	-	227	-	-	-	-	9,450
31.13	Circulating Water Screen Wash (SC)	-	29	-	-	-	-	4	34	-	-	34	-	-	-	-	1,361
31.14	Closed Loop Auxiliary Cooling Water (AC)	-	52	-	-	-	-	8	59	-	-	59	-	-	-	-	2,456
31.15	Component Cooling Water (CC) RCA	422	884	-	-	-	-	344	1,650	1,650	-	-	-	-	-	-	51,670
31.16	Condensate (CD)	-	336	-	-	-	-	50	386	-	-	386	-	-	-	-	15,922
31.17	Condensate Polisher (CP)	-	135	-	-	-	-	20	155	-	-	155	-	-	-	-	6,304
31.18	Condensate Storage (CT)	-	29	-	-	-	-	4	33	-	-	33	-	-	-	-	1,316
31.19	Condenser Air Removal (CR)	-	28	-	-	-	-	4	32	-	-	32	-	-	-	-	1,321
31.20	Containment Building (XC)	-	85	0	0	2	15	24	126	126	-	-	5	-	-	-	3,236
31.21	Containment Building HVAC (HC)	-	2,036	11	6	520	1,914	928	5,415	5,415	-	-	1,200	-	-	-	68,174
31.22	Containment Combustible Gas Control (CG	-	24	0	0	2	13	8	47	47	-	-	5	-	-	-	915
31.23	Containment Hydrogen Monitoring (CM)	-	124	1	1	50	39	50	264	264	-	-	116	-	-	-	4,737
31.24	Containment Spray (CS)	49	38	-	-	-	-	30	118	74	-	44	-	-	-	-	3,676
31.25	Control Room HVAC (HB) Clean	-	87	-	-	-	-	13	100	-	-	100	-	-	-	-	3,945
31.26	Demineralizer Water (DW)	-	24	-	-	-	-	4	28	-	-	28	-	-	-	-	1,156
31.27	Demineralizer Water (DW) RCA	30	63	-	-	-	-	25	117	117	-	-	-	-	-	-	3,705
31.28	Diesel Generator Building (XG)	-	5	-	-	-	-	1	6	-	-	6	-	-	-	-	235
31.29	ECW & ECW Screen Wash (EW)	-	305	-	-	-	-	46	351	-	-	351	-	-	-	-	14,693
31.30	ECW & ECW Screen Wash (EW) RCA	99	167	-	-	-	-	75	341	341	-	-	-	-	-	-	10,664
31.31	Electrical Auxiliary Building (XE)	-	47	-	-	-	-	7	55	-	-	55	-	-	-	-	2,038
31.32	Electrical Auxiliary Building HVAC (HE)	-	179	-	-	-	-	27	206	-	-	206	-	-	-	-	8,079
31.33	Electrical Clean Non RCA	-	479	-	-	-	-	72	551	-	-	551	-	-	-	-	22,327
31.34	Electrical Clean RCA	248	901	-	-	-	-	259	1,409	1,409	-	-	-	-	-	-	44,307
31.35	Electrical Contaminated	-	391	6	3	254	144	184	981	981	-	-	586	-	-	-	15,215
31.36	Electro-Hydraulic Controls (EH)	-	20	-	-	-	-	3	23	-	-	23	-	-	-	-	918
31.37	Extraction Steam (ES)	-	84	-	-	-	-	13	97	-	-	97	-	-	-	-	4,067
31.38	Feedwater (FW)	-	178	-	-	-	-	27	205	-	-	205	-	-	-	-	8,503
31.39	Feedwater (FW) RCA	7	13	-	-	-	-	5	25	25	-	-	-	-	-	-	782
31.40	Fire Protection (FP)	-	56	-	-	-	-	8	64	-	-	64	-	-	-	-	2,696
31.41	Fire Protection (FP) RCA	36	73	-	-	-	-	29	139	139	-	0	-	-	-	-	4,372

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ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt.	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Disposal of Plant Systems (continued)																	
31.42	Fuel Handling Building (XF)	-	51	0	0	13	6	17	87	87	-	-	30	-	-	-	1,951
31.43	Fuel Handling Building HVAC (HF)	-	940	3	1	119	773	381	2,216	2,216	-	-	275	-	-	-	32,316
31.44	Gas Storage CO2 & H2 (CO/HY)	-	1	-	-	-	-	0	1	-	-	1	-	-	-	-	36
31.45	Gaseous Waste Processing (WG)	-	116	1	1	65	56	54	292	292	-	-	149	-	-	-	4,332
31.46	Generator CO2 & H2 (GG)	-	7	-	-	-	-	1	8	-	-	8	-	-	-	-	336
31.47	Generator Hydrogen Seal Oil (SO)	-	7	-	-	-	-	1	8	-	-	8	-	-	-	-	321
31.48	Heater Drip & Vent (HD/HV)	-	143	-	-	-	-	21	164	-	-	164	-	-	-	-	6,841
31.49	Hot Shop & Decontamination Facility (XN)	-	32	0	0	4	13	11	61	61	-	-	10	-	-	-	1,237
31.50	Instrument Air (IA)	-	119	-	-	-	-	18	137	-	-	137	-	-	-	-	5,593
31.51	Integrated Leak Rate Test (IL)	-	149	0	0	16	40	47	252	252	-	-	36	-	-	-	5,774
31.52	Isolation Valve Cubicle Building (XV)	-	2	-	-	-	-	0	3	-	-	3	-	-	-	-	99
31.53	Liquid Waste Processing (WL)	1,131	1,058	18	10	896	875	1,189	5,177	5,177	-	-	2,067	-	-	-	79,318
31.54	Low Pressure Nitrogen (NL)	-	16	-	-	-	-	2	18	-	-	18	-	-	-	-	739
31.55	Lube Oil Purification Strg & Trnsfr (LO)	-	24	-	-	-	-	4	28	-	-	28	-	-	-	-	1,114
31.56	MAB Plant Vent Header (VE)	-	8	0	0	6	24	7	46	46	-	-	14	-	-	-	320
31.57	Main Generator (GE/GM/NN)	-	12	-	-	-	-	2	14	-	-	14	-	-	-	-	547
31.58	Main Steam (MS)	-	249	-	-	-	-	37	287	-	-	287	-	-	-	-	11,924
31.59	Main Steam (MS) RCA	11	20	-	-	-	-	9	40	40	-	-	-	-	-	-	1,251
31.60	Main Turbine & Lube Oil (LT/TM)	-	45	-	-	-	-	7	52	-	-	52	-	-	-	-	2,119
31.61	Mechanical Auxiliary Bldg HVAC (HM) RCA	4,472	1,075	-	-	-	-	2,397	7,944	7,944	-	-	-	-	-	-	212,684
31.62	Mechanical Auxiliary Building (XM)	-	200	0	0	4	36	56	297	297	-	-	10	-	-	-	7,612
31.63	Miscellaneous Drains (MD)	-	2	-	-	-	-	0	2	-	-	2	-	-	-	-	72
31.64	Miscellaneous HVAC (HZ)	-	92	-	-	-	-	14	106	-	-	106	-	-	-	-	4,224
31.65	Miscellaneous HVAC (HZ) RCA	230	50	-	-	-	-	122	402	402	-	-	-	-	-	-	10,730
31.66	Miscellaneous Reactor Coolant (RC)	-	730	31	16	1,414	167	567	2,924	2,924	-	-	3,262	-	-	-	28,443
31.67	Miscellaneous Yard Areas & Bldgs (XY)	-	75	-	-	-	-	11	86	-	-	86	-	-	-	-	3,635
31.68	Nonradioactive Chemical Waste (NC)	-	2	-	-	-	-	0	2	-	-	2	-	-	-	-	85
31.69	Nonradioactive Drns & Smps (DR)	-	61	-	-	-	-	9	70	-	-	70	-	-	-	-	2,954
31.70	Nonradioactive Drns & Smps (DR) RCA	56	126	-	-	-	-	47	229	229	-	-	-	-	-	-	7,713
31.71	Oily Waste (OW)	-	99	-	-	-	-	15	114	-	-	114	-	-	-	-	4,782
31.72	Open Loop Auxiliary Cooling (OC)	-	236	-	-	-	-	35	271	-	-	271	-	-	-	-	11,422
31.73	Plant Fuel Oil Storage & Transfer (FO)	-	0	-	-	-	-	0	0	-	-	0	-	-	-	-	14
31.74	Post Accident Monitor/Sample (AM/AP)	-	265	0	0	13	85	82	446	446	-	-	31	-	-	-	10,282
31.75	Potable Water (PW)	-	6	-	-	-	-	1	7	-	-	7	-	-	-	-	316
31.76	Potable Water (PW) RCA	13	30	-	-	-	-	11	54	54	-	-	-	-	-	-	1,787
31.77	Primary Process Sampling (PS)	-	41	0	0	12	12	15	80	80	-	-	27	-	-	-	1,564
31.78	Radiation Monitoring (RA)	7	43	-	-	-	-	10	60	10	-	50	-	-	-	-	2,234
31.79	Radioactive Vents & Drains (ED)	760	716	14	7	651	116	741	3,005	3,005	-	-	1,501	-	-	-	53,749
31.80	Reactor Coolant Pump Oil Change-Out (PO	-	13	0	0	5	26	8	53	53	-	-	12	-	-	-	500
31.81	Reactor Head Degassing (RD)	-	54	1	1	64	30	34	184	184	-	-	147	-	-	-	2,066
31.82	Reactor Makeup Water (RM)	-	266	2	1	90	234	124	717	717	-	-	208	-	-	-	10,263

TABLE A-1
SOUTH TEXAS PROJECT - UNIT 1
DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt.	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Disposal of Plant Systems (continued)			-			-											
31.83	Residual Heat Removal (RH)	-	357	32	18	1,586	167	517	2,678	2,678	-	-	3,659	-	-	-	13,936
31.84	SG Sludge Lancing & Chem Cleaning (SL)	-	1	-	-	-	-	0	1	1	-	-	-	-	-	-	36
31.85	Safety Injection (SI)	-	931	62	35	3,068	1,044	1,168	6,309	6,309	-	-	7,078	-	-	-	36,194
31.86	Secondary Process Sampling (SS)	-	29	-	-	-	-	4	34	-	-	34	-	-	-	-	1,365
31.87	Service Air (SA)	-	61	-	-	-	-	9	71	-	-	71	-	-	-	-	2,890
31.88	Service Water (TW)	-	11	-	-	-	-	2	12	-	-	12	-	-	-	-	509
31.89	Sewage Treatment (ST)	-	23	-	-	-	-	3	26	-	-	26	-	-	-	-	1,101
31.90	Sodium Hypochlorite (SH)	-	10	-	-	-	-	1	11	-	-	11	-	-	-	-	438
31.91	Solid Waste Processing (WS)	41	39	1	1	60	25	49	216	216	-	-	140	-	-	-	2,994
31.92	Spent Fuel Pool Cooling & Cleanup (FC)	-	328	21	12	1,028	258	381	2,028	2,028	-	-	2,371	-	-	-	12,786
31.93	Standby DG Fuel Oil Strg & Trnsfr (DO)	-	26	-	-	-	-	4	30	-	-	30	-	-	-	-	1,193
31.94	Standby Diesel Gen Starting Air (SD)	-	12	-	-	-	-	2	14	-	-	14	-	-	-	-	553
31.95	Standby Diesel Generator (DG)	-	89	-	-	-	-	13	103	-	-	103	-	-	-	-	4,186
31.96	Standby Diesel Generator Bldg HVAC (HG)	-	56	-	-	-	-	8	65	-	-	65	-	-	-	-	2,545
31.97	Standby Diesel Generator Lube Oil (LU)	-	5	-	-	-	-	1	6	-	-	6	-	-	-	-	236
31.98	Standby Diesel Jacket Water (JW)	-	4	-	-	-	-	1	4	-	-	4	-	-	-	-	172
31.99	Stator Cooling Water (GC)	-	8	-	-	-	-	1	9	-	-	9	-	-	-	-	370
31.100	Steam Generator Blowdown (SB)	-	68	-	-	-	-	10	78	-	-	78	-	-	-	-	3,137
31.101	Steam Generator Blowdown (SB) RCA	22	41	-	-	-	-	17	80	80	-	-	-	-	-	-	2,434
31.102	Turbine Generator Building (XT)	-	18	-	-	-	-	3	21	-	-	21	-	-	-	-	785
31.103	Turbine Generator Building HVAC (HT)	-	208	-	-	-	-	31	239	-	-	239	-	-	-	-	9,382
31.104	Turbine Gland Seal (GS)	-	16	-	-	-	-	2	19	-	-	19	-	-	-	-	749
31	Totals	8,522	18,141	238	133	11,639	6,364	11,888	56,926	51,882	-	5,044	26,850	-	-	-	1,044,086
Decontamination of Site Buildings																	
32.1	Reactor	795	466	111	64	3,314	632	1,458	6,840	6,840	-	-	11,820	-	-	-	46,051
32.2	Fuel Handling	463	411	42	22	1,104	364	673	3,079	3,079	-	-	3,778	-	-	-	32,978
32.3	Mechanical & Electrical Auxiliary	847	103	67	39	1,048	291	767	3,163	3,163	-	-	7,345	-	-	-	33,545
32	Totals	2,105	981	220	125	5,466	1,287	2,898	13,082	13,082	-	-	22,943	-	-	-	112,574
33	Terminate license								Note 1								
Period 2 Additional Costs																	
34	License Termination Survey	-	-	-	-	-	7,807	1,923	9,730	9,730	-	-	-	-	-	-	120,798
Subtotal Period 2 Activity Costs		11,579	28,980	11,350	2,973	56,284	25,833	39,865	176,864	171,295	-	5,569	117,942	3,417	459	-	1,425,575

TABLE A-1
SOUTH TEXAS PROJECT - UNIT 1
DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt.	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Period 2 Undistributed Costs																	
1	Decon equipment	656	-	-	-	-	-	98	754	754	-	-	-	-	-	-	-
2	Decon supplies	1,197	-	-	-	-	-	299	1,497	1,497	-	-	-	-	-	-	-
3	DOC staff relocation expenses	-	1,192	-	-	-	-	179	1,371	1,371	-	-	-	-	-	-	-
4	Process liquid waste	867	-	465	718	2,818	-	1,292	6,159	6,159	-	-	-	6,500	-	-	992
5	Insurance	-	-	-	-	-	1,678	168	1,845	1,734	111	-	-	-	-	-	-
6	Property taxes	-	-	-	-	-	15,199	-	15,199	11,537	2,142	1,520	-	-	-	-	-
7	Health physics supplies	-	5,352	-	-	-	-	1,338	6,690	6,690	-	-	-	-	-	-	-
8	Heavy equipment rental	-	11,211	-	-	-	-	1,682	12,892	11,603	-	1,289	-	-	-	-	-
9	Small tool allowance	-	488	-	-	-	-	73	561	505	-	56	-	-	-	-	-
10	Pipe cutting equipment	-	913	-	-	-	-	137	1,050	1,050	-	-	-	-	-	-	-
11	Decon rig	1,186	-	-	-	-	-	178	1,364	1,364	-	-	-	-	-	-	-
12	Disposal of DAW generated	-	-	1,224	50	4,765	-	1,321	7,360	7,360	-	-	17,249	-	-	-	40,613
13	Decommissioning Equipment Disposition	-	-	5	3	248	346	116	717	717	-	-	572	-	-	-	778
14	Plant energy budget	-	-	-	-	-	13,747	2,062	15,809	14,229	-	1,581	-	-	-	-	-
15	NRC Fees	-	-	-	-	-	2,466	247	2,712	2,712	-	-	-	-	-	-	-
16	Emergency Planning Fees	-	-	-	-	-	342	34	376	-	376	-	-	-	-	-	-
17	Site Security Cost	-	-	-	-	-	5,074	761	5,835	5,835	-	-	-	-	-	-	-
18	LLRW Processing Equipment	-	-	-	-	-	975	146	1,121	1,121	-	-	-	-	-	-	-
19	ISFSI Cask Purchases	-	-	-	-	-	18,400	2,760	21,160	-	21,160	-	-	-	-	-	-
20	Spent Fuel Pool O&M	-	-	-	-	-	3,665	550	4,214	-	4,214	-	-	-	-	-	-
21	Spent Fuel Transfer	-	-	-	-	-	11,670	1,751	13,421	-	13,421	-	-	-	-	-	-
Subtotal Undistributed Costs Period 2		3,906	19,156	1,694	772	7,831	73,560	15,190	122,108	76,238	41,424	4,446	17,821	6,500	-	-	42,383
Staff Costs																	
	DOC Staff Cost	-	-	-	-	-	36,610	5,491	42,101	42,101	-	-	-	-	-	-	-
	Utility Staff Cost	-	-	-	-	-	62,523	9,378	71,902	71,902	-	-	-	-	-	-	-
TOTAL PERIOD 2		**15,485**	**48,136**	**13,044**	**3,744**	**64,114**	**198,527**	**69,925**	**412,975**	**361,536**	**41,424**	**10,015**	**135,763**	**9,917**	**459**	**-**	**1,467,957**
PERIOD 3																	
Demolition of Remaining Site Buildings																	
35.1	Reactor	-	4,652	-	-	-	-	698	5,350	803	-	4,548	-	-	-	-	99,608
35.2	Diesel Generator	-	634	-	-	-	-	95	730	-	-	730	-	-	-	-	10,947
35.3	Fuel Handling	-	2,062	-	-	-	-	309	2,372	237	-	2,134	-	-	-	-	38,456
35.4	Isol Valve Cubicle & Aux Fdwtr Strg Tnk	-	535	-	-	-	-	80	616	-	-	616	-	-	-	-	11,338
35.5	Mechanical & Electrical Auxiliary	-	4,943	-	-	-	-	741	5,685	568	-	5,116	-	-	-	-	92,031
35.6	Tank Pads & Foundations	-	234	-	-	-	-	35	269	-	-	269	-	-	-	-	6,163
35.7	Transformer Pads	-	251	-	-	-	-	38	288	-	-	288	-	-	-	-	6,370

TABLE A-1
SOUTH TEXAS PROJECT - UNIT 1
DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt.	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Demolition of Remaining Site Buildings (continued)																	
35.8	Turbine Generator	-	2,302	-	-	-	-	345	2,647	-	-	2,647	-	-	-	-	67,161
35.9	Turbine Generator Pedestal	-	611	-	-	-	-	92	703	-	-	703	-	-	-	-	10,798
35	Totals	-	16,226	-	-	-	-	2,434	18,659	1,608	-	17,051	-	-	-	-	342,872
Site Closeout Activities																	
36	Grade & landscape site	-	1,720	-	-	-	-	258	1,978	-	-	1,978	-	-	-	-	8,697
37	Final report to NRC	-	-	-	-	-	141	21	163	163	-	-	-	-	-	-	-
38	GTCC Disposal						15,427	2,314	17,741	17,741	-					679	
Subtotal Period 3 Activity Costs		-	17,945	-	-	-	15,569	5,027	38,541	19,512	-	19,029	-	-	-	679	351,569
Period 3 Undistributed Costs																	
1	Insurance	-	-	-	-	-	465	46	511	-	511	-	-	-	-	-	-
2	Property taxes	-	-	-	-	-	3,168	-	3,168	-	1,210	1,958	-	-	-	-	-
3	Heavy equipment rental	-	3,331	-	-	-	-	500	3,831	-	-	3,831	-	-	-	-	-
4	Small tool allowance	-	121	-	-	-	-	18	140	-	-	140	-	-	-	-	-
5	Plant energy budget	-	-	-	-	-	402	60	462	-	-	462	-	-	-	-	-
6	NRC ISFSI Fees	-	-	-	-	-	500	50	551	-	551	-	-	-	-	-	-
7	Emergency Planning Fees	-	-	-	-	-	193	19	212		212	-	-	-	-	-	-
8	Site Security Cost	-	-	-	-	-	1,412	212	1,624	-	-	1,624	-	-	-	-	-
9	Spent Fuel Transfer						1,092	164	1,256	-	1,256						
Subtotal Undistributed Costs Period 3		-	3,452	-	-	-	7,230	1,070	11,752	-	3,740	8,012	-	-	-	-	-
Staff Costs																	
	DOC Staff Cost	-	-	-	-	-	5,881	882	6,763	-	-	6,763	-	-	-	-	-
	Utility Staff Cost	-	-	-	-	-	2,760	414	3,174	2,857	-	317	-	-	-	-	-
TOTAL PERIOD 3		**-**	**21,398**	**-**	**-**	**-**	**31,440**	**7,393**	**60,231**	**22,369**	**3,740**	**34,122**	**-**	**-**	**-**	**679**	**351,569**

TABLE A-1
SOUTH TEXAS PROJECT - UNIT 1
DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt.	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
TOTAL COST TO DECOMMISSION		**17,316**	**71,249**	**13,918**	**4,301**	**68,258**	**367,806**	**99,302**	**642,151**	**501,057**	**95,834**	**45,260**	**139,794**	**16,907**	**459**	**679**	**1,831,604**

Total cost to decommission with **18.29%** contingency: **$ 642,151,127**

Total NRC license termination cost is	**78.03%**	or	**$ 501,057,150**
Non-nuclear demolition cost is	**7.05%**	or	**$ 45,259,548**
Spent Fuel Management	**14.92%**	or	**$ 95,834,429**

Total LLW site radwaste volume buried	**157,160**	cubic feet
Total 10CFR61 greater than class C waste buried	**679**	cubic feet
Total scrap metal released from South Texas Project Unit 1	**33,033**	tons
Total craft labor requirements	**1,831,604**	person hours

Note: "0" indicates costs less than $500
Note 1: This activity is performed by the decommissioning staff following plant shutdown; the costs for this are included in this period's staff cost.
Note 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 A-2
SOUTH TEXAS PROJECT - UNIT 2
DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
PERIOD 1																	
1	Prepare preliminary decommissioning cost	-	-	-	-	-	50	8	58	58	-	-	-	-	-	-	-
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	-	-	-	-	-	78	12	89	89	-	-	-	-	-	-	-
7	Review plant dwgs & specs.	-	-	-	-	-	178	27	205	205	-	-	-	-	-	-	-
8	Perform detailed rad survey								Note 1								
9	Estimate by-product inventory	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-
10	End product description	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-
11	Detailed by-product inventory	-	-	-	-	-	50	8	58	58	-	-	-	-	-	-	-
12	Define major work sequence	-	-	-	-	-	291	44	334	334	-	-	-	-	-	-	-
13	Perform SER and EA	-	-	-	-	-	120	18	138	138	-	-	-	-	-	-	-
14	Perform Site-Specific Cost Study	-	-	-	-	-	194	29	223	223	-	-	-	-	-	-	-
15	Prepare/submit License Termination Plan	-	-	-	-	-	159	24	183	183	-	-	-	-	-	-	-
16	Receive NRC approval of termination plan								Note 1								
Activity Specifications																	
17.1	Plant & temporary facilities	-	-	-	-	-	191	29	219	197	-	22	-	-	-	-	-
17.2	Plant systems	-	-	-	-	-	161	24	186	167	-	19	-	-	-	-	-
17.3	NSSS Decontamination Flush	-	-	-	-	-	19	3	22	22	-	-	-	-	-	-	-
17.4	Reactor internals	-	-	-	-	-	275	41	316	316	-	-	-	-	-	-	-
17.5	Reactor vessel	-	-	-	-	-	252	38	290	290	-	-	-	-	-	-	-
17.6	Biological shield	-	-	-	-	-	19	3	22	22	-	-	-	-	-	-	-
17.7	Steam generators	-	-	-	-	-	121	18	139	139	-	-	-	-	-	-	-
17.8	Reinforced concrete	-	-	-	-	-	62	9	71	36	-	36	-	-	-	-	-
17.9	Turbine & condenser	-	-	-	-	-	31	5	36	-	-	36	-	-	-	-	-
17.10	Plant structures & buildings	-	-	-	-	-	121	18	139	70	-	70	-	-	-	-	-
17.11	Waste management	-	-	-	-	-	178	27	205	205	-	-	-	-	-	-	-
17.12	Facility & site closeout	-	-	-	-	-	35	5	40	20	-	20	-	-	-	-	-
17	Total	-	-	-	-	-	1,466	220	1,686	1,484	-	201	-	-	-	-	-
Planning & Site Preparations																	
18	Prepare dismantling sequence	-	-	-	-	-	93	14	107	107	-	-	-	-	-	-	-
19	Plant prep. & temp. svces	-	-	-	-	-	2,308	346	2,654	2,654	-	-	-	-	-	-	-
20	Design water clean-up system	-	-	-	-	-	54	8	62	62	-	-	-	-	-	-	-
21	Rigging/CCEs/tooling/etc.	-	-	-	-	-	1,954	293	2,247	2,247	-	-	-	-	-	-	-
22	Procure casks/liners & containers	-	-	-	-	-	48	7	55	55	-	-	-	-	-	-	-

TABLE A-2
SOUTH TEXAS PROJECT - UNIT 2
DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Detailed Work Procedures																	
23.1	Plant systems	-	-	-	-	-	183	28	211	190	-	21	-	-	-	-	-
23.2	NSSS Decontamination Flush	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-
23.3	Vessel head	-	-	-	-	-	97	15	111	111	-	-	-	-	-	-	-
23.4	Reactor internals	-	-	-	-	-	97	15	111	111	-	-	-	-	-	-	-
23.5	Remaining buildings	-	-	-	-	-	52	8	60	15	-	45	-	-	-	-	-
23.6	CRD cooling assembly	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-
23.7	CRD housings & ICI tubes	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-
23.8	Incore instrumentation	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-
23.9	Reactor vessel	-	-	-	-	-	141	21	162	162	-	-	-	-	-	-	-
23.10	Facility closeout	-	-	-	-	-	47	7	53	27	-	27	-	-	-	-	-
23.11	Missile shields	-	-	-	-	-	17	3	20	20	-	-	-	-	-	-	-
23.12	Biological shield	-	-	-	-	-	47	7	53	53	-	-	-	-	-	-	-
23.13	Steam generators	-	-	-	-	-	178	27	205	205	-	-	-	-	-	-	-
23.14	Reinforced concrete	-	-	-	-	-	39	6	45	22	-	22	-	-	-	-	-
23.15	Turbine & condensers	-	-	-	-	-	121	18	139	-	-	139	-	-	-	-	-
23.16	Auxiliary building	-	-	-	-	-	106	16	122	110	-	12	-	-	-	-	-
23.17	Reactor building	-	-	-	-	-	106	16	122	110	-	12	-	-	-	-	-
23	Total	-	-	-	-	-	1,385	208	1,593	1,314	-	279	-	-	-	-	-
24	Decon primary loop	987	-	-	-	-	-	494	1,481	1,481	-	-	-	-	-	-	800
Period 1 Additional Costs																	
25	Site Characterization Survey	-	-	-	-	-	1,692	508	2,200	2,200	-	-	-	-	-	-	-
26	Severance Plan	-	-	-	-	-	21,404	3,211	24,615	24,615	-	-	-	-	-	-	-
Subtotal Period 1 Activity Costs		987	-	-	-	-	31,602	5,488	38,076	37,596	-	480	-	-	-	-	800
Period 1 Undistributed Costs																	
1	Decon equipment	656	-	-	-	-	-	98	754	754	-	-	-	-	-	-	-
2	Decon supplies	40	-	-	-	-	-	10	49	49	-	-	-	-	-	-	-
3	DOC staff relocation expenses	-	1,192	-	-	-	-	179	1,371	1,371	-	-	-	-	-	-	-
4	Process liquid waste	149	-	543	545	3,183	-	1,006	5,426	5,426	-	-	-	6,990	-	-	313
5	Insurance	-	-	-	-	-	1,715	171	1,886	581	1,305	-	-	-	-	-	-
6	Property taxes	-	-	-	-	-	6,139	-	6,139	5,561	578	-	-	-	-	-	-
7	Health physics supplies	-	249	-	-	-	-	62	311	311	-	-	-	-	-	-	-
8	Heavy equipment rental	-	274	-	-	-	-	41	316	316	-	-	-	-	-	-	-
9	Small tool allowance	-	0	-	-	-	-	0	0	0	-	-	-	-	-	-	-
10	Disposal of DAW generated	-	-	330	12	1,114	-	313	1,769	1,769	-	-	4,031	-	-	-	10,965
11	Plant energy budget	-	-	-	-	-	4,944	742	5,686	5,686	-	-	-	-	-	-	-
12	ISFSI Cask Purchase	-	-	-	-	-	10,400	1,560	11,960	-	11,960	-	-	-	-	-	-
13	ISFSI site alterations	-	-	-	-	-	4,124	619	4,742	-	4,742	-	-	-	-	-	-

TABLE A-2
SOUTH TEXAS PROJECT - UNIT 2
DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Period 1 Undistributed Costs (continued)																	
14	ISFSI transfer equipment	-	-	-	-	-	609	91	700	-	700	-	-	-	-	-	-
15	ISFSI licensing and permits	-	-	-	-	-	1,218	122	1,339	-	1,339	-	-	-	-	-	-
16	ISFSI O&M	-	-	-	-	-	70	7	77	-	77	-	-	-	-	-	-
17	NRC Fees	-	-	-	-	-	572	57	629	629	-	-	-	-	-	-	-
18	Emergency Planning Fees	-	-	-	-	-	92	9	101	-	101	-	-	-	-	-	-
19	Site Security Cost	-	-	-	-	-	975	146	1,121	1,121	-	-	-	-	-	-	-
20	Spent Fuel Pool O&M	-	-	-	-	-	1,496	224	1,720	-	1,720	-	-	-	-	-	-
21	Spent Fuel Pool Isolation	-	-	-	-	-	5,572	836	6,408		6,408	-	-	-	-	-	-
22	Spent Fuel Transfer	-	-	-	-	-	2,997	449	3,446	-	3,446	-	-	-	-	-	-
Subtotal Undistributed Costs Period 1		844	1,716	874	557	4,297	40,923	6,744	55,954	23,576	32,378	-	4,031	6,990	-	-	11,278
Staff Costs																	
	DOC Staff Cost	-	-	-	-	-	5,807	871	6,678	6,678	-	-	-	-	-	-	-
	Utility Staff Cost	-	-	-	-	-	28,144	4,222	32,365	32,365	-	-	-	-	-	-	-
TOTAL PERIOD 1 COST		1,831	1,716	874	557	4,297	106,475	17,324	133,074	100,216	32,378	480	4,031	6,990	-	-	12,078
PERIOD 2																	
Nuclear Steam Supply System Removal																	
27.1	Reactor Coolant Piping	98	190	12	16	590	-	248	1,153	1,153	-	-	1,361	-	-	-	10,880
27.2	Pressurizer Relief Tank	16	90	6	6	298	-	107	522	522	-	-	688	-	-	-	4,129
27.3	Reactor Coolant Pumps & Motors	53	44	35	29	2,426	-	652	3,237	3,237	-	-	5,596	-	-	-	4,115
27.4	Pressurizer	17	24	4	8	889	-	238	1,179	1,179	-	-	2,050	-	-	-	1,684
27.5	Steam Generators	223	3,157	2,058	947	9,115	3,422	4,041	22,964	22,964	-	-	21,027	-	-	-	24,566
27.6	Old Steam Generator Lower Shell Units	-	30	1,709	824	8,892	3,137	2,996	17,587	17,587	-	-	20,512	-	-	-	14,878
27.7	CRDMs/ICIs/Service Structure Removal	76	53	74	16	1,605	-	462	2,287	2,287	-	-	3,703	-	-	-	4,717
27.8	Reactor Vessel Internals	66	2,047	5,503	494	4,771	-	5,453	18,335	18,335	-	-	2,003	788	459		29,692
27.9	Reactor Vessel	51	3,706	1,475	372	8,736	-	7,634	21,973	21,973	-	-	7,178	2,629	-	-	29,692
27	Totals	601	9,341	10,875	2,709	37,323	6,559	21,830	89,238	89,238	-	-	64,119	3,417	459	-	124,353
28	Remove spent fuel racks	335	30	14	3	1,654	3,816	1,163	7,016	7,016	-	-	3,816	-	-	-	14,170
Removal of Major Equipment																	
29	Main Turbine/Generator	-	73	-	-	-	-	11	84	-	-	84	-	-	-	-	3,298
30	Main Condensers	-	384	-	-	-	-	58	441	-	-	441	-	-	-	-	16,323

TABLE A-2
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DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Disposal of Plant Systems																	
31.1	Auxiliary Feedwater (AF)	-	61	-	-	-	-	9	70	-	-	70	-	-	-	-	2,852
31.2	Auxiliary Feedwater (AF) RCA	5	9	-	-	-	-	4	17	17	-	-	-	-	-	-	523
31.3	Auxiliary Steam & Boilers (AS)	-	84	-	-	-	-	13	97	-	-	97	-	-	-	-	3,985
31.4	Auxiliary Steam & Boilers (AS) RCA	3	5	-	-	-	-	2	9	9	-	-	-	-	-	-	286
31.5	BOP Chemical Feed (CF/AD/CA)	-	27	-	-	-	-	4	31	-	-	31	-	-	-	-	1,285
31.6	BOP Diesel Generator (DB)	-	18	-	-	-	-	3	21	-	-	21	-	-	-	-	852
31.7	Boron Recycle (BR)	-	312	12	7	575	125	243	1,273	1,273	-	-	1,326	-	-	-	11,843
31.8	Breathing Air (BA)	-	18	-	-	-	-	3	21	-	-	21	-	-	-	-	840
31.9	Breathing Air (BA) RCA	3	6	-	-	-	-	2	11	11	-	-	-	-	-	-	356
31.10	Chemical & Volume Control (CV)	614	638	19	11	988	128	736	3,134	3,134	-	-	2,278	-	-	-	46,284
31.11	Chilled Water HVAC (CH)	-	82	-	-	-	-	12	94	-	-	94	-	-	-	-	3,815
31.12	Chilled Water HVAC (CH) RCA	132	258	-	-	-	-	105	495	495	-	-	-	-	-	-	15,433
31.13	Circulating Water (CW)	-	385	-	-	-	-	58	443	-	-	443	-	-	-	-	18,541
31.14	Circulating Water Screen Wash (SC)	-	59	-	-	-	-	9	68	-	-	68	-	-	-	-	2,754
31.15	Closed Loop Auxiliary Cooling Water (AC)	-	53	-	-	-	-	8	61	-	-	61	-	-	-	-	2,541
31.16	Component Cooling Water (CC) RCA	279	293	-	-	-	-	184	756	756	-	-	-	-	-	-	24,485
31.17	Condensate (CD)	-	290	-	-	-	-	44	334	17	-	317	-	-	-	-	13,742
31.18	Condensate Polisher (CP)	-	131	-	-	-	-	20	150	-	-	150	-	-	-	-	6,112
31.19	Condensate Storage (CT)	-	31	-	-	-	-	5	36	-	-	36	-	-	-	-	1,429
31.20	Condenser Air Removal (CR)	-	31	-	-	-	-	5	35	-	-	35	-	-	-	-	1,456
31.21	Containment Building (XC)	-	725	2	1	75	441	266	1,510	1,510	-	-	174	-	-	-	25,371
31.22	Containment Building HVAC (HC)	-	1,732	12	6	556	1,689	827	4,822	4,822	-	-	1,281	-	-	-	58,382
31.23	Containment Combustible Gas Control (CG)	-	24	0	0	2	13	8	47	47	-	-	4	-	-	-	933
31.24	Containment Hydrogen Monitoring (CM)	-	124	1	1	50	37	49	262	262	-	-	115	-	-	-	4,727
31.25	Containment Spray (CS)	50	39	-	-	-	-	31	119	74	-	45	-	-	-	-	3,712
31.26	Control Room HVAC (HB) Clean	-	81	-	-	-	-	12	93	-	-	93	-	-	-	-	3,671
31.27	Demineralizer Building HVAC (HW)	-	9	-	-	-	-	1	10	-	-	10	-	-	-	-	406
31.28	Demineralizer Water (DW)	-	208	-	-	-	-	31	239	-	-	239	-	-	-	-	9,631
31.29	Demineralizer Water (DW) RCA	4	9	-	-	-	-	3	17	17	-	-	-	-	-	-	525
31.30	Diesel Generator Building (XG)	-	8	-	-	-	-	1	10	-	-	10	-	-	-	-	375
31.31	ECW & ECW Screen Wash (EW)	-	298	-	-	-	-	45	342	-	-	342	-	-	-	-	14,248
31.32	ECW & ECW Screen Wash (EW) RCA	84	143	-	-	-	-	63	290	290	-	-	-	-	-	-	9,058
31.33	Electrical Auxiliary Building (XE)	-	85	-	-	-	-	13	98	-	-	98	-	-	-	-	3,789
31.34	Electrical Auxiliary Building HVAC (HE)	-	189	-	-	-	-	28	217	-	-	217	-	-	-	-	8,538
31.35	Electrical Clean Non RCA	-	715	-	-	-	-	107	822	-	-	822	-	-	-	-	33,307
31.36	Electrical Clean RCA	320	1,331	-	-	-	-	360	2,012	2,012	-	-	-	-	-	-	63,735
31.37	Electrical Contaminated	-	668	8	4	357	193	287	1,517	1,517	-	-	824	-	-	-	25,967
31.38	Electro-Hydraulic Controls (EH)	-	15	-	-	-	-	2	17	-	-	17	-	-	-	-	697
31.39	Essential Cooling Pond Makeup (EP)	-	23	-	-	-	-	3	26	-	-	26	-	-	-	-	1,075
31.40	Essential Cooling Pond Makeup (EP) RCA	23	41	-	-	-	-	17	81	81	-	-	-	-	-	-	2,479
31.41	Extraction Steam (ES)	-	84	-	-	-	-	13	96	-	-	96	-	-	-	-	4,027

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ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Disposal of Plant Systems (continued)																	
31.42	Feedwater (FW)	-	195	-	-	-	-	29	225	-	-	225	-	-	-	-	9,288
31.43	Feedwater (FW) RCA	7	12	-	-	-	-	5	24	24	-	-	-	-	-	-	756
31.44	Fire Protection (FP)	-	173	-	-	-	-	26	198	-	-	198	-	-	-	-	8,155
31.45	Fire Protection (FP) RCA	21	40	-	-	-	-	16	77	77	-	-	-	-	-	-	2,416
31.46	Fresh Water Supply (SW)	-	37	-	-	-	-	6	43	-	-	43	-	-	-	-	1,751
31.47	Fuel Handling Building (XF)	-	21	0	0	3	3	7	34	34	-	-	7	-	-	-	800
31.48	Fuel Handling Building HVAC (HF)	-	1,027	3	1	129	836	415	2,411	2,411	-	-	297	-	-	-	35,438
31.49	Gas H2 Storage (HY)	-	1	-	-	-	-	0	1	-	-	1	-	-	-	-	34
31.50	Gas N2 High Pressure Supply (NH)	-	0	-	-	-	-	0	0	-	-	0	-	-	-	-	17
31.51	Gaseous Waste Processing (WG)	-	122	1	1	66	57	55	300	300	-	-	149	-	-	-	4,537
31.52	Generator CO2 & H2 (GG)	-	10	-	-	-	-	2	12	-	-	12	-	-	-	-	469
31.53	Generator Hydrogen Seal Oil (SO)	-	18	-	-	-	-	3	20	-	-	20	-	-	-	-	819
31.54	Heater Drip & Vent (HD/HV)	-	177	-	-	-	-	27	203	-	-	203	-	-	-	-	8,456
31.55	Hot Shop & Decontamination Facility (XN)	-	37	0	0	10	19	14	80	80	-	-	22	-	-	-	1,405
31.56	Instrument Air (IA)	-	134	-	-	-	-	20	155	-	-	155	-	-	-	-	6,353
31.57	Integrated Leak Rate Test (IL)	-	151	0	0	24	47	51	274	274	-	-	56	-	-	-	5,843
31.58	Isolation Valve Cubicle Building (XV)	-	4	-	-	-	-	1	5	-	-	5	-	-	-	-	183
31.59	Lighting Diesel Generator (DL)	-	5	-	-	-	-	1	6	-	-	6	-	-	-	-	233
31.60	Liquid Waste Processing (WL)	1,110	1,019	17	10	830	852	1,148	4,985	4,985	-	-	1,916	-	-	-	77,196
31.61	Low Pressure Nitrogen (NL)	-	41	-	-	-	-	6	47	-	-	47	-	-	-	-	1,967
31.62	Lube Oil Purification Strg & Trnsfr (LO)	-	36	-	-	-	-	5	41	-	-	41	-	-	-	-	1,674
31.63	MAB Plant Vent Header (VE)	-	322	2	1	86	281	144	836	836	-	-	198	-	-	-	10,791
31.64	Main Generator (GE/GM/NN)	-	13	-	-	-	-	2	15	-	-	15	-	-	-	-	583
31.65	Main Steam (MS)	-	191	-	-	-	-	29	220	-	-	220	-	-	-	-	9,155
31.66	Main Steam (MS) RCA	9	15	-	-	-	-	7	30	30	-	-	-	-	-	-	949
31.67	Main Turbine & Lube Oil (LT/TM)	-	63	-	-	-	-	9	72	-	-	72	-	-	-	-	2,908
31.68	Mechanical Auxiliary Bldg HVAC (HM) RCA	4,134	986	-	-	-	-	2,215	7,335	7,335	-	-	-	-	-	-	196,311
31.69	Mechanical Auxiliary Building (XM)	-	235	0	0	9	60	70	375	375	-	-	22	-	-	-	8,852
31.70	Miscellaneous Drains (MD)	-	30	-	-	-	-	5	35	-	-	35	-	-	-	-	1,428
31.71	Miscellaneous HVAC (HZ)	-	113	-	-	-	-	17	131	-	-	131	-	-	-	-	5,175
31.72	Miscellaneous HVAC (HZ) RCA	78	17	-	-	-	-	41	136	136	-	-	-	-	-	-	3,633
31.73	Miscellaneous Reactor Coolant (RC)	-	699	31	16	1,430	168	563	2,907	2,907	-	-	3,298	-	-	-	27,237
31.74	Miscellaneous Yard Areas & Bldgs (XY)	-	1,518	-	-	-	-	228	1,746	-	-	1,746	-	-	-	-	70,842
31.75	Nonradioactive Chemical Waste (NC)	-	79	-	-	-	-	12	91	-	-	91	-	-	-	-	3,734
31.76	Nonradioactive Drns & Smps (DR) RCA	75	138	-	-	-	-	58	272	272	-	-	-	-	-	-	8,460
31.77	Nonradioactive Plumbing Drns & Smps (DR)	-	66	-	-	-	-	10	76	-	-	76	-	-	-	-	3,175
31.78	Oily Waste (OW)	-	148	-	-	-	-	22	170	-	-	170	-	-	-	-	7,114
31.79	Open Loop Auxiliary Cooling (OC)	-	125	-	-	-	-	19	143	-	-	143	-	-	-	-	5,980
31.80	Plant Fuel Oil Storage & Transfer (FO)	-	41	-	-	-	-	6	47	-	-	47	-	-	-	-	1,921
31.81	Post Accident Monitor/Sample (AM/AP)	-	374	0	0	17	112	115	619	619	-	-	40	-	-	-	14,480
31.82	Potable Water (PW)	-	51	-	-	-	-	8	59	-	-	59	-	-	-	-	2,452

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ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Disposal of Plant Systems (continued)																	
31.83	Potable Water (PW) RCA	12	25	-	-	-	-	10	46	46	-	-	-	-	-	-	1,496
31.84	Primary Process Sampling (PS)	-	40	0	0	10	12	14	77	77	-	-	23	-	-	-	1,531
31.85	Radiation Monitoring (RA)	8	56	-	-	-	-	12	77	12	-	65	-	-	-	-	2,885
31.86	Radioactive Vents & Drains (ED)	772	718	14	7	648	111	747	3,019	3,019	-	-	1,496	-	-	-	54,381
31.87	Reactor Coolant Pump Oil Change-Out (PO)	-	13	0	0	5	26	8	53	53	-	-	12	-	-	-	500
31.88	Reactor Head Degassing (RD)	-	63	1	1	67	31	37	201	201	-	-	156	-	-	-	2,395
31.89	Reactor Makeup Water (RM)	-	290	2	1	88	252	132	765	765	-	-	202	-	-	-	11,207
31.90	Residual Heat Removal (RH)	-	345	31	17	1,527	166	499	2,585	2,585	-	-	3,523	-	-	-	13,478
31.91	SG Sludge Lancing & Chem Cleaning (SL)	-	0	-	-	-	-	0	0	-	-	0	-	-	-	-	8
31.92	Safety Injection (SI)	-	1,196	65	36	3,153	1,086	1,262	6,798	6,798	-	-	7,274	-	-	-	46,584
31.93	Secondary Process Sampling (SS)	-	26	-	-	-	-	4	30	-	-	30	-	-	-	-	1,212
31.94	Service Air (SA)	-	82	-	-	-	-	12	94	-	-	94	-	-	-	-	3,902
31.95	Service Water (TW)	-	45	-	-	-	-	7	52	-	-	52	-	-	-	-	2,145
31.96	Sewage Treatment (ST)	-	50	-	-	-	-	7	57	-	-	57	-	-	-	-	2,412
31.97	Sodium Hypochlorite (SH)	-	81	-	-	-	-	12	93	-	-	93	-	-	-	-	3,787
31.98	Solid Waste Processing (WS)	41	38	1	1	60	25	49	215	215	-	-	139	-	-	-	2,978
31.99	Spent Fuel Pool Cooling & Cleanup (FC)	-	311	20	11	952	235	355	1,883	1,883	-	-	2,197	-	-	-	12,108
31.100	Standby DG Fuel Oil Strg & Trnsfr (DO)	-	26	-	-	-	-	4	30	-	-	30	-	-	-	-	1,166
31.101	Standby Diesel Gen Starting Air (SD)	-	12	-	-	-	-	2	13	-	-	13	-	-	-	-	534
31.102	Standby Diesel Generator (DG)	-	82	-	-	-	-	12	94	-	-	94	-	-	-	-	3,831
31.103	Standby Diesel Generator Bldg HVAC (HG)	-	57	-	-	-	-	9	66	-	-	66	-	-	-	-	2,595
31.104	Standby Diesel Generator Lube Oil (LU)	-	3	-	-	-	-	0	3	-	-	3	-	-	-	-	124
31.105	Standby Diesel Jacket Water (JW)	-	3	-	-	-	-	0	4	-	-	4	-	-	-	-	146
31.106	Stator Cooling Water (GC)	-	4	-	-	-	-	1	4	-	-	4	-	-	-	-	175
31.107	Steam Generator Blowdown (SB)	-	40	-	-	-	-	6	46	-	-	46	-	-	-	-	1,907
31.108	Steam Generator Blowdown (SB) RCA	23	43	-	-	-	-	18	84	84	-	-	-	-	-	-	2,618
31.109	Turbine Generator Building (XT)	-	77	-	-	-	-	12	89	-	-	89	-	-	-	-	3,516
31.110	Turbine Generator Building HVAC (HT)	-	217	-	-	-	-	33	249	-	-	249	-	-	-	-	9,786
31.111	Turbine Gland Seal (GS)	-	20	-	-	-	-	3	22	-	-	22	-	-	-	-	903
31.112	Well Water Supply (WW)	-	188	-	-	-	-	28	216	-	-	216	-	-	-	-	8,883
31	Totals	7,805	21,974	241	134	11,718	7,005	12,347	61,225	52,776	-	8,449	27,031	-	-	-	1,186,227
Decontamination of Site Buildings																	
32.1	Reactor	795	466	111	64	3,314	632	1,458	6,840	6,840	-	-	11,820	-	-	-	46,051
32.2	Fuel Handling	463	411	42	22	1,104	364	673	3,079	3,079	-	-	3,778	-	-	-	32,978
32.3	Mechanical & Electrical Auxiliary	847	103	67	39	1,048	291	767	3,163	3,163	-	-	7,345	-	-	-	33,545
32	Totals	1,729	805	181	103	8,581	901	2,898	13,082	13,082	-	-	22,943	-	-	-	112,574
33	Terminate license								Note 1								

TABLE A-2
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DECON, DECOMMISSIONING COST ESTIMATE
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ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Period 2 Additional Costs																	
34	License Termination Survey	-	-	-	-	-	7,875	2,362	10,237	10,237	-	-	-	-	-	-	121,892
Subtotal Period 2 Activity Costs		10,470	32,607	11,312	2,949	59,276	26,155	40,670	181,323	172,349	-	8,974	117,909	3,417	459	-	1,578,837
Period 2 Undistributed Costs																	
1	Decon equipment	656	-	-	-	-	-	98	754	754	-	-	-	-	-	-	-
2	Decon supplies	1,198	-	-	-	-	-	299	1,497	1,497	-	-	-	-	-	-	-
3	DOC staff relocation expenses	-	1,192	-	-	-	-	179	1,371	1,371	-	-	-	-	-	-	-
4	Process liquid waste	861	-	458	710	2,776	-	1,277	6,082	6,082	-	-	-	6,405	-	-	984
5	Insurance	-	-	-	-	-	1,681	168	1,849	1,738	111	-	-	-	-	-	-
6	Property taxes	-	-	-	-	-	13,808	-	13,808	10,280	2,147	1,381	-	-	-	-	-
7	Health physics supplies	-	5,801	-	-	-	-	1,450	7,251	7,251	-	-	-	-	-	-	-
8	Heavy equipment rental	-	11,238	-	-	-	-	1,686	12,923	11,631	-	1,292	-	-	-	-	-
9	Small tool allowance	-	533	-	-	-	-	80	613	552	-	61	-	-	-	-	-
10	Pipe cutting equipment	-	913	-	-	-	-	137	1,050	1,050	-	-	-	-	-	-	-
11	Decon rig	1,186	-	-	-	-	-	178	1,364	1,364	-	-	-	-	-	-	-
12	Disposal of DAW generated	-	-	1,227	51	4,836	-	1,339	7,452	7,452	-	-	17,505	-	-	-	40,711
13	Decommissioning Equipment Disposition	-	-	5	3	248	405	124	786	786	-	-	572	-	-	-	778
14	Plant energy budget	-	-	-	-	-	19,206	2,881	22,087	19,878	-	2,209	-	-	-	-	-
15	ISFSI O&M	-	-	-	-	-	392	39	431	-	431	-	-	-	-	-	-
16	NRC Fees	-	-	-	-	-	2,472	247	2,719	2,719	-	-	-	-	-	-	-
17	Emergency Planning Fees	-	-	-	-	-	342	34	377	-	377	-	-	-	-	-	-
18	Site Security Cost	-	-	-	-	-	7,878	1,182	9,059	8,606	453	-	-	-	-	-	-
19	LLRW Processing Equipment	-	-	-	-	-	927	139	1,066	1,066	-	-	-	-	-	-	-
20	ISFSI Cask Purchase	-	-	-	-	-	30,400	4,560	34,960	-	34,960	-	-	-	-	-	-
21	Spent Fuel Pool O&M	-	-	-	-	-	3,662	549	4,211	-	4,211	-	-	-	-	-	-
22	Spent Fuel Transfer	-	-	-	-	-	11,714	1,757	13,471	-	13,471	-	-	-	-	-	-
Subtotal Undistributed Costs Period 2		3,901	19,676	1,690	764	7,860	92,886	18,404	145,180	84,076	56,161	4,943	18,077	6,405	-	-	42,473
Staff Costs																	
	DOC Staff Cost	-	-	-	-	-	46,653	6,998	53,651	53,651	-	-	-	-	-	-	-
	Utility Staff Cost	-	-	-	-	-	81,652	12,248	93,900	91,265	2,635	-	-	-	-	-	-
TOTAL PERIOD 2		**14,371**	**52,284**	**13,002**	**3,712**	**67,136**	**247,346**	**78,319**	**474,054**	**401,340**	**58,796**	**13,917**	**135,986**	**9,822**	**459**	**-**	**1,621,310**

TABLE A-2
SOUTH TEXAS PROJECT - UNIT 2
DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
PERIOD 3																	
Demolition of Remaining Site Buildings																	
35.1	Reactor	-	4,652	-	-	-	-	698	5,350	803	-	4,548	-	-	-	-	99,608
35.2	Basins	-	85	-	-	-	-	13	98	-	-	98	-	-	-	-	1,021
35.3	Circulating Water Intake & Discharge	-	3,985	-	-	-	-	598	4,583	-	-	4,583	-	-	-	-	53,943
35.4	Diesel Generator	-	634	-	-	-	-	95	730	-	-	730	-	-	-	-	10,947
35.5	Essential Cooling Pond/Intake/Discharge	-	639	-	-	-	-	96	735	-	-	735	-	-	-	-	10,712
35.6	Fuel Handling	-	2,062	-	-	-	-	309	2,372	237	-	2,134	-	-	-	-	38,456
35.7	Isol Valve Cubicle & Aux Fdwtr Strg Tnk	-	535	-	-	-	-	80	616	-	-	616	-	-	-	-	11,338
35.8	Maintenance Operations Facility	-	376	-	-	-	-	56	432	-	-	432	-	-	-	-	8,479
35.9	Mechanical & Electrical Auxiliary	-	4,943	-	-	-	-	741	5,685	568	-	5,116	-	-	-	-	92,031
35.10	Miscellaneous Slabs, Foundations & Pads	-	913	-	-	-	-	137	1,050	-	-	1,050	-	-	-	-	19,844
35.11	Miscellaneous Yard Buildings	-	1,995	-	-	-	-	299	2,295	-	-	2,295	-	-	-	-	44,016
35.12	Nuclear Support Center	-	486	-	-	-	-	73	558	-	-	558	-	-	-	-	11,701
35.13	Nuclear Training Facility & Annex	-	282	-	-	-	-	42	324	-	-	324	-	-	-	-	7,203
35.14	Sewage Treatment Plant	-	56	-	-	-	-	8	65	-	-	65	-	-	-	-	671
35.15	Steam Generator Mausoleum	-	266	-	-	-	-	40	305	-	-	305	-	-	-	-	4,131
35.16	Tank Pads & Foundations	-	235	-	-	-	-	35	270	-	-	270	-	-	-	-	6,183
35.17	Transformer Pads	-	263	-	-	-	-	40	303	-	-	303	-	-	-	-	6,678
35.18	Trenches & Culverts	-	1,122	-	-	-	-	168	1,290	-	-	1,290	-	-	-	-	25,578
35.19	Turbine Generator	-	2,302	-	-	-	-	345	2,647	-	-	2,647	-	-	-	-	67,161
35.20	Turbine Generator Pedestal	-	611	-	-	-	-	92	703	-	-	703	-	-	-	-	10,798
35.21	Warehouses	-	2,316	-	-	-	-	347	2,664	-	-	2,664	-	-	-	-	45,588
35.22	Yard Piping	-	91	-	-	-	-	14	105	-	-	105	-	-	-	-	1,279
35	Totals	-	28,852	-	-	-	-	4,328	33,180	1,608	-	31,572	-	-	-	-	577,366
Site Closeout Activities																	
36	Remove Rubble	-	1,184	-	-	-	-	178	1,361	-	-	1,361	-	-	-	-	2,326
37	Grade & landscape site	-	2,497	-	-	-	-	375	2,872	-	-	2,872	-	-	-	-	12,627
38	Final report to NRC	-	-	-	-	-	60	9	70	70	-	-	-	-	-	-	-
Period 3 Additional Costs																	
39	ISFSI License Termination	-	2,449	161	70	5,385	2,607	2,376	13,049		13,049	-	12,422	-	-	-	63,467
40	ISFSI Demolition and Site Restoration	-	1,503	-	-	-	270	416	2,190	-	2,190		-	-	-	-	6,701
41	Firing Range Restoration	-	8	-	17	49	-	16	90	-	-	90	-	-	-	-	-
42	Reservoir Restoration	-	-	-	-	-	22,162	3,324	25,486	-	-	25,486	-	-	-	-	-
43	GTCC Disposal	-	-	-	-	15,427		2,314	17,741	17,741	-	-	-	-	-	679	-
Subtotal Period 3 Activity Costs		-	36,493	161	87	20,861	25,100	13,336	96,039	19,419	15,239	61,381	12,422	-	-	679	662,488

TABLE A-2
SOUTH TEXAS PROJECT - UNIT 2
DECON, DECOMMISSIONING COST ESTIMATE
(Thousands of 2004 Dollars)

Columns may not add due to rounding

ID Number	Activity Description	Decon	Remove	Pack	Ship	Burial	Other	Contingency	Total	NRC LicTerm	Spent Fuel Mgt	Site Restore	LLW site A CF	LLW site B CF	LLW site C CF	GTCC CF	Craft Labor Hours
Period 3 Undistributed Costs																	
1	Insurance	-	-	-	-	-	1,671	167	1,838	-	1,838	-	-	-	-	-	-
2	Property taxes	-	-	-	-	-	9,341	-	9,341	-	8,600	741	-	-	-	-	-
3	Heavy equipment rental	-	3,331	-	-	-	-	500	3,831	-	-	3,831	-	-	-	-	-
4	Small tool allowance	-	202	-	-	-	-	30	232	-	-	232	-	-	-	-	-
5	Plant energy budget	-	-	-	-	-	1,025	154	1,179	-	-	1,179	-	-	-	-	-
6	ISFSI O&M	-	-	-	-	-	825	124	948	-	948	-					
7	NRC ISFSI Fees	-	-	-	-	-	3,558	356	3,914	-	3,914	-	-	-	-	-	-
8	Emergency Planning Fees	-	-	-	-	-	1,331	133	1,464	-	1,464	-	-	-	-	-	-
9	Site Security Cost	-	-	-	-	-	6,735	1,010	7,746	-	7,228	518	-	-	-	-	-
10	Spent Fuel Transfer	-	-	-	-	-	7,843	1,176	9,019	-	9,019	-					
Subtotal Undistributed Costs Period 3		-	3,533	-	-	-	32,329	3,650	39,512	-	33,011	6,501	-	-	-	-	-
Staff Costs																	
	DOC Staff Cost	-	-	-	-	-	9,985	1,498	11,482	-		11,482	-	-	-	-	-
	Utility Staff Cost	-	-	-	-	-	20,118	3,018	23,135	3,928	16,894	2,314	-	-	-	-	-
TOTAL PERIOD 3		-	40,026	161	87	20,861	87,531	21,501	170,169	23,347	65,144	81,678	12,422	-	-	679	662,488
TOTAL COST TO DECOMMISSION		16,202	94,026	14,037	4,356	92,294	441,352	117,145	777,297	524,904	156,318	96,075	152,439	16,812	459	679	2,295,875

Total cost to decommission with	17.75%	contingency	$	777,296,946
Total NRC license termination cost is	67.53%	or	$	524,903,585
Non-nuclear demolition cost is	12.36%	or	$	96,075,107
Spent Fuel Management	20.11%		$	156,318,253

Total LLW site radwaste volume buried	169,710	cubic feet
Total 10CFR61 greater than class C waste buried	679	cubic feet
Total scrap metal released from South Texas Project Unit 2	40,869	tons
Total craft labor requirements	2,295,875	person hours

Note: "0" indicates costs less than $500
Note 1: This activity is performed by the decommissioning staff following plant shutdown; the costs for this are included in this period's staff cost.
Note 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 B

CO-OWNER SCHEDULE OF ANNUAL EXPENDITURES

DECON Alternative

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CPS - Unit 2 ..... B-7

COA - Unit 1 ..... B-8

COA - Unit 2 ..... B-9

TABLE B-1.a

TEXAS GENCO, LP - SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative - Unit 1
(2004 Dollars, 10% Contingency)

Year	Period 1 Planning	Period 2 Decommissioning	Period 3 Site Restoration Offset	Period 3 Site Restoration	Total
2027	11,866,676	0	0	0	11,866,676
2028	33,795,520	0	0	0	33,795,520
2029	4,446,988	27,069,260	0	0	31,516,247
2030	0	28,222,431	0	0	28,222,431
2031	0	23,455,482	0	0	23,455,482
2032	0	22,827,410	0	0	22,827,410
2033	0	18,835,127	0	0	18,835,127
2034	0	2,078,759	247,897	0	2,326,656
2035	0	0	793,217	0	793,217
2036	0	0	19,407	6,262,589	6,281,996
2037	0	0	0	5,279,187	5,279,187
2038	0	0	0	0	0
2039	0	0	0	0	0
2040	0	0	0	0	0
2041	0	0	0	0	0
2042	0	0	0	0	0
2043	0	0	0	0	0
2044	0	0	0	0	0
2045	0	0	0	0	0
2046	0	0	0	0	0
2047	0	0	0	5,262,074	5,262,074
2048	0	0	0	0	0
	50,109,184	122,488,469	1,060,520	16,803,851	190,462,024

TABLE B-1.b

TEXAS GENCO, LP - SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative - Unit 2
(2004 Dollars, 10% Contingency)

Year	Period 1 Planning	Period 2 D&D	Site Restoration	Post Decommissioning ISFSI Operations: Spent Fuel Transfer	Post Decommissioning ISFSI Operations: ISFSI D&D	Total
2028	1,303,315	0	0	0	0	1,303,315
2029	26,600,662	0	0	0	0	26,600,662
2030	11,565,870	21,175,059	0	0	0	32,740,929
2031	0	30,894,125	0	0	0	30,894,125
2032	0	27,769,217	0	0	0	27,769,217
2033	0	26,922,988	0	0	0	26,922,988
2034	0	23,623,247	0	0	0	23,623,247
2035	0	10,093,723	0	0	0	10,093,723
2036	0	126,006	14,998,503	0	0	15,124,510
2037	0	0	12,643,318	224,017	0	12,867,335
2038	0	0	0	1,277,599	0	1,277,599
2039	0	0	0	1,277,599	0	1,277,599
2040	0	0	0	1,281,099	0	1,281,099
2041	0	0	0	1,277,599	0	1,277,599
2042	0	0	0	1,277,599	0	1,277,599
2043	0	0	0	1,277,599	0	1,277,599
2044	0	0	0	1,281,099	0	1,281,099
2045	0	0	0	1,277,599	0	1,277,599
2046	0	0	0	1,277,599	0	1,277,599
2047	0	0	0	6,214,148	3,170,564	9,384,712
2048	0	0	0	0	1,716,125	1,716,125
2049	0	0	0	0	0	0
	39,469,846	140,604,365	27,641,821	17,943,553	4,886,689	230,546,274

TABLE B-2.a

AEP TEXAS CENTRAL CO. - SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative - Unit 1
(2004 Dollars, 10% Contingency)

Year	Period 1 Planning	Period 2 Decommissioning	Period 3 Site Restoration Offset	Period 3 Site Restoration	Total
2027	9,706,189	0	0	0	9,706,189
2028	27,642,593	0	0	0	27,642,593
2029	3,637,354	22,140,939	0	0	25,778,293
2030	0	23,084,160	0	0	23,084,160
2031	0	19,185,097	0	0	19,185,097
2032	0	18,671,375	0	0	18,671,375
2033	0	15,405,940	0	0	15,405,940
2034	0	1,700,293	202,764	0	1,903,057
2035	0	0	648,801	0	648,801
2036	0	0	15,873	5,122,401	5,138,275
2037	0	0	0	4,318,041	4,318,041
2038	0	0	0	0	0
2039	0	0	0	0	0
2040	0	0	0	0	0
2041	0	0	0	0	0
2042	0	0	0	0	0
2043	0	0	0	0	0
2044	0	0	0	0	0
2045	0	0	0	0	0
2046	0	0	0	0	0
2047	0	0	0	4,304,043	4,304,043
2048	0	0	0	0	0
	40,986,136	100,187,804	867,438	13,744,485	155,785,863

TABLE B-2.b

AEP TEXAS CENTRAL CO. - SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative - Unit 2
(2004 Dollars, 10% Contingency)

Year	Period 1 Planning	Period 2 D&D	Site Restoration	Post Decommissioning ISFSI Operations: Spent Fuel Transfer	Post Decommissioning ISFSI Operations: ISFSI D&D	Total
2028	1,066,029	0	0	0	0	1,066,029
2029	21,757,655	0	0	0	0	21,757,655
2030	9,460,149	17,319,856	0	0	0	26,780,004
2031	0	25,269,436	0	0	0	25,269,436
2032	0	22,713,460	0	0	0	22,713,460
2033	0	22,021,298	0	0	0	22,021,298
2034	0	19,322,319	0	0	0	19,322,319
2035	0	8,256,026	0	0	0	8,256,026
2036	0	103,065	12,267,825	0	0	12,370,890
2037	0	0	10,341,433	183,232	0	10,524,664
2038	0	0	0	1,044,995	0	1,044,995
2039	0	0	0	1,044,995	0	1,044,995
2040	0	0	0	1,047,858	0	1,047,858
2041	0	0	0	1,044,995	0	1,044,995
2042	0	0	0	1,044,995	0	1,044,995
2043	0	0	0	1,044,995	0	1,044,995
2044	0	0	0	1,047,858	0	1,047,858
2045	0	0	0	1,044,995	0	1,044,995
2046	0	0	0	1,044,995	0	1,044,995
2047	0	0	0	5,082,779	2,593,320	7,676,099
2048	0	0	0	0	1,403,681	1,403,681
2049	0	0	0	0	0	0
	32,283,833	115,005,459	22,609,257	14,676,689	3,997,002	188,572,239

TABLE B-3.a

CPS - SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative - Unit 1
(2004 Dollars, 10% Contingency)

Year	Period 1 Planning	Period 2 Decommissioning	Period 3 Site Restoration Offset	Period 3 Site Restoration	Total
2027	9,794,209	0	0	0	9,794,209
2028	27,893,268	0	0	0	27,893,268
2029	3,670,339	22,341,722	0	0	26,012,061
2030	0	23,293,497	0	0	23,293,497
2031	0	19,359,076	0	0	19,359,076
2032	0	18,840,695	0	0	18,840,695
2033	0	15,545,648	0	0	15,545,648
2034	0	1,715,712	204,602	0	1,920,315
2035	0	0	654,685	0	654,685
2036	0	0	16,017	5,168,853	5,184,871
2037	0	0	0	4,357,198	4,357,198
2038	0	0	0	0	0
2039	0	0	0	0	0
2040	0	0	0	0	0
2041	0	0	0	0	0
2042	0	0	0	0	0
2043	0	0	0	0	0
2044	0	0	0	0	0
2045	0	0	0	0	0
2046	0	0	0	0	0
2047	0	0	0	4,343,074	4,343,074
2048	0	0	0	0	0
	41,357,816	101,096,350	875,305	13,869,126	157,198,596

TABLE B-3.b

CPS - SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative - Unit 2
(2004 Dollars, 10% Contingency)

Year	Period 1 Planning	Period 2 D&D	Site Restoration	Post Decommissioning ISFSI Operations: Spent Fuel Transfer	Post Decommissioning ISFSI Operations: ISFSI D&D	Total
2028	1,075,696	0	0	0	0	1,075,696
2029	21,954,963	0	0	0	0	21,954,963
2030	9,545,937	17,476,920	0	0	0	27,022,857
2031	0	25,498,590	0	0	0	25,498,590
2032	0	22,919,435	0	0	0	22,919,435
2033	0	22,220,996	0	0	0	22,220,996
2034	0	19,497,542	0	0	0	19,497,542
2035	0	8,330,895	0	0	0	8,330,895
2036	0	104,000	12,379,075	0	0	12,483,075
2037	0	0	10,435,213	184,894	0	10,620,107
2038	0	0		1,054,471	0	1,054,471
2039	0	0		1,054,471	0	1,054,471
2040	0	0	0	1,057,360	0	1,057,360
2041	0	0	0	1,054,471	0	1,054,471
2042	0	0	0	1,054,471	0	1,054,471
2043	0	0	0	1,054,471	0	1,054,471
2044	0	0	0	1,057,360	0	1,057,360
2045	0	0	0	1,054,471	0	1,054,471
2046	0	0	0	1,054,471	0	1,054,471
2047	0	0	0	5,128,872	2,616,837	7,745,709
2048	0	0	0	0	1,416,411	1,416,411
2049	0	0	0	0	0	0
	32,576,596	116,048,377	22,814,288	14,809,783	4,033,248	190,282,292

TABLE B-4.a

COA - SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative - Unit 1
(2004 Dollars, 10% Contingency)

Year	Period 1 Planning	Period 2 Decommissioning	Period 3 Site Restoration Offset	Period 3 Site Restoration	Total
2027	5,597,262	0	0	0	5,597,262
2028	15,940,638	0	0	0	15,940,638
2029	2,097,551	12,768,002	0	0	14,865,553
2030	0	13,311,929	0	0	13,311,929
2031	0	11,063,459	0	0	11,063,459
2032	0	10,767,211	0	0	10,767,211
2033	0	8,884,135	0	0	8,884,135
2034	0	980,507	116,928	0	1,097,435
2035	0	0	374,144	0	374,144
2036	0	0	9,154	2,953,932	2,963,086
2037	0	0	0	2,490,082	2,490,082
2038	0	0	0	0	0
2039	0	0	0	0	0
2040	0	0	0	0	0
2041	0	0	0	0	0
2042	0	0	0	0	0
2043	0	0	0	0	0
2044	0	0	0	0	0
2045	0	0	0	0	0
2046	0	0	0	0	0
2047	0	0	0	2,482,010	2,482,010
2048	0	0	0	0	0
	23,635,451	57,775,242	500,225	7,926,024	89,836,943

TABLE B-4.b

COA - SCHEDULE OF ANNUAL EXPENDITURES
DECON Alternative - Unit 2
(2004 Dollars, 10% Contingency)

Year	Period 1 Planning	Period 2 D&D	Site Restoration	Post Decommissioning ISFSI Operations: Spent Fuel Transfer	Post Decommissioning ISFSI Operations: ISFSI D&D	Total
2028	614,746	0	0	0	0	614,746
2029	12,546,974	0	0	0	0	12,546,974
2030	5,455,378	9,987,831	0	0	0	15,443,209
2031	0	14,572,111	0	0	0	14,572,111
2032	0	13,098,157	0	0	0	13,098,157
2033	0	12,699,009	0	0	0	12,699,009
2034	0	11,142,590	0	0	0	11,142,590
2035	0	4,760,998	0	0	0	4,760,998
2036	0	59,435	7,074,479	0	0	7,133,914
2037	0	0	5,963,588	105,664	0	6,069,252
2038	0	0	0	602,616	0	602,616
2039	0	0	0	602,616	0	602,616
2040	0	0	0	604,267	0	604,267
2041	0	0	0	602,616	0	602,616
2042	0	0	0	602,616	0	602,616
2043	0	0	0	602,616	0	602,616
2044	0	0	0	604,267	0	604,267
2045	0	0	0	602,616	0	602,616
2046	0	0	0	602,616	0	602,616
2047	0	0	0	2,931,083	1,495,488	4,426,572
2048	0	0	0	0	809,460	809,460
2049	0	0	0	0	0	0
	18,617,099	66,320,131	13,038,067	8,463,598	2,304,949	108,743,843