

RESULTS OF EVALUATIONS FOR MEASURES TO PREVENT FUTURE LEGACY SITES BY CHANGES IN FINANCIAL ASSURANCE

1. BACKGROUND

A number of sites licensed before financial assurance regulations were issued in 1988 now find that the full cost of decommissioning exceeds their projections. The staff evaluated approaches to obtaining the maximum possible financial assurance for funding from the licensees for decommissioning these legacy sites. In addition, experience in applying the regulations provided the staff with a number of lessons learned that can be applied in the future. The results of the staff's evaluations and its recommendations for improvement are presented.

2. ISSUE DESCRIPTION AND DESIRED OUTCOME

2.1 Financial Assurance/Bankruptcy

2.2.1 Issue: Staff experience identified the following financial risks that may cause shortfalls in decommissioning funding:

- 1) Restricted release assumption causes underestimation of decommissioning costs;
- 2) Operational indicators of increasing costs;
- 3) Unavailability of funds in bankruptcy;
- 4) Inadequate financial disclosure;
- 5) Reaching assets after corporate reorganization;
- 6) Investment losses reducing trust account balance; and
- 7) Accidental release increases decommissioning cost.

2.2.2 Desired outcome: Avoid future legacy sites and increase the probability that existing and future sites will have adequate funding for decommissioning costs.

3. EVALUATION OF FINANCIAL RISKS

3.1 Restricted Release Assumption Causes Underestimation of Decommissioning Costs

Staff experience indicates that complex sites underestimate their decommissioning costs by a factor of 2 to 5. Recent independent cost estimates performed by a U.S. Nuclear Regulatory Commission (NRC) contractor for the Safety Light and Fansteel sites support that experience.

In some cases, such as Fansteel, the licensee originally produced an estimate for a restricted release scenario using on-site disposal of contaminated soils, which resulted in a relatively low estimated cost. However, Fansteel found it was unable to meet the criteria for restricted release with onsite disposal. Fansteel's accounting auditors required it to increase its decommissioning cost estimate from \$4.5 million to \$57 million, to provide for offsite disposal of contaminated soils. The timing of recognizing the increased environmental liability coincided with a large capital write off and a downturn in business activity. The combined adverse financial events resulted in Fansteel entering bankruptcy.

Initial underestimation of decommissioning costs can occur despite compliance with the regulations. Current regulations require a licensee to report its estimated cost of

decommissioning in a Decommissioning Funding Plan (DFP) when it applies for a license. (Licensees existing as of 1988 were required to submit a DFP by 1990, with certain extensions for licensees in timely renewal.) However, the current regulation does not require the licensee to obtain NRC approval of its cost estimate. In addition, the current regulation does not specify the basis the licensee must use for the cost estimate. Consequently, the staff must accept the basis submitted by the licensee if it appears reasonable. In some cases, licensees have assumed the lower-cost restricted release without a demonstration that the licensee can actually meet the required criteria.

The DFP must provide a means to adjust the cost estimate and funding level periodically, pursuant to 10 CFR 30.35(e), 40.36(d), and 70.25(e). The regulations do not specify what adjustment is required, nor what period may elapse between adjustments. However, the regulations governing the Decommissioning Plan (DP) (10 CFR 30.36(g), 40.42(g), and 70.38(g)) require that, at the time of submittal of the DP, the licensee must update its cost estimate and provide financial assurance to cover the cost. In some cases, a requirement to update the decommissioning cost estimate is placed in a license condition.

This situation results in the potential for a licensee to initially provide inadequate financial assurance, primarily because of reliance on a cost estimate for restricted release. Even where a license condition requires frequent updates, the initial assumption of restricted release permits a level of financial assurance that may eventually prove to be inadequate. The situation can remain unchanged for many years, until license termination, when it may be too late for the licensee to meet its financial obligations for cleanup.

In the staff's view, a licensee should design and operate its facility to avoid the spread of contamination that would result in a restricted release when the license is terminated. Therefore, the staff believes that the regulations should be amended to require the licensee to submit a cost estimate for unrestricted release and to obtain NRC approval of its DFP. Some exceptions would be made for existing licensees. Existing licensees would be offered the option to demonstrate their ability to meet restricted release criteria by submitting and obtaining approval for DPs proposing restricted release. After receiving DP approval, they could submit DFPs with the approved restricted release cost estimates and provide financial assurance for those amounts. Alternatively, existing licensees could seek NRC's acceptance of their plans for institutional controls and independent third party arrangements, rather than a complete DP. Future license applicants would not be offered the option to submit restricted release cost estimates. Rather, they would be required to submit DFPs and financial assurance for unrestricted release. This recommendation should be implemented by amending the regulations.

3.2 Operational Indicators of Increasing Costs

The list of events that can increase decommissioning costs includes:

- 1) Spills
- 2) Groundwater and soil contamination
- 3) Increased waste inventory
- 4) Increased waste disposal costs
- 5) Facility modifications
- 6) Changes in authorized possession limits
- 7) Actual remediation costs that exceed the initial cost estimate
- 8) On-site disposal
- 9) Use of settling ponds

Regulatory methods that may reduce the occurrence of soil and groundwater contamination are discussed in Attachment 8 of this paper. Potential criteria for NRC approval of on-site disposal are discussed in Attachment 4 of this paper. Because these issues can affect the cost of decommissioning, they are included in the list of triggering events.

These events should trigger the licensee to reevaluate its decommissioning cost estimate and adjust the level of financial assurance to cover any increase in cost. However, in practice, licensees often have not done so. The first specific time defined by the regulations to update the cost estimate is when the decommissioning plan is submitted. As a result, the cost estimate may not be updated until after operations cease and the licensee applies for license termination. In some cases, license conditions require adjustment for inflation, but they do not address trigger events such as those listed above.

The effect of on-site disposal on decommissioning cost depends on the radiological impact of the disposal. Attachment 4 of this paper discusses several radiological criteria that could be used for approving on-site disposal. On-site disposal is mentioned because such action should trigger an evaluation of the effect it may have on the licensee's decommissioning costs.

The Commission took a first step toward the goal of keeping licensee cost estimates up to date with the issuance of a notice of proposed rulemaking on October 7, 2002, which will, among other things, require a licensee to adjust its cost estimate every 3 years. However, the rulemaking was prepared primarily to account for inflation in the minimum cost of decommissioning since the original rule was issued in 1988. The Commission did not significantly alter the proposed rule with regard to DFPs because that would have delayed its issuance. Consequently, the proposed rule did not address the trigger events noted above. The staff believes that the occurrence of a trigger event should result in timely reassessment of the decommissioning costs, taking the event into account, before the passage of 3 years, as contemplated by the proposed rule on updating financial assurance for inflation. Early recognition of increased costs increases the licensee's ability to finance its costs. It also provides an incentive to reduce the number of events that spread contamination or otherwise increase decommissioning costs.

Therefore, the regulations should be revised to require a licensee to reevaluate its decommissioning cost estimate, and, if necessary, provide additional financial assurance to cover higher costs, within a reasonable time after an operational event that indicates a potential for increasing decommissioning costs.

3.3 Unavailability of Funds in Bankruptcy Where Financial Assurance Is Provided by Parent Company or Self-Guarantee

The parent company and self-guarantee methods of financial assurance permit a licensee whose assets are large in comparison to its decommissioning liability to guarantee its own decommissioning cost estimate. The guarantor must have substantial assets in the United States, a tangible net worth of at least \$10 million, and meet certain financial ratios or bond ratings requirements. To qualify to use these methods, the licensee must submit a financial test to demonstrate compliance with the criteria listed, and provide a written guarantee agreement. The essence of the agreement is that the guarantor will either carry out the decommissioning, or set up a fund in favor of NRC in the amount of the current decommissioning cost estimate. However, a parent company or self-guarantee does not require the guarantor to set aside any funds unless the licensee fails to carry out decommissioning. As a result, during operation there is no requirement to set aside funds because the licensee is not in decommissioning.

The lack of actual funding makes the parent company and self-guarantee vulnerable in the event of bankruptcy. Bankruptcy law imposes an automatic stay on fund transfers, which would prevent the funding of a decommissioning trust from general funds if the licensee were to enter bankruptcy. (Funding arrangements made before the bankruptcy occurs, such as prepayment into a segregated account, or third-party guarantees, are free from this vulnerability.) Although the financial criteria were selected to provide early warning of a licensee's deteriorating financial position, recent bankruptcies of very large corporations (e.g., Enron, Worldcom) demonstrate that bankruptcy can follow rather quickly after financial problems are revealed. Consequently, one of the events that make financial assurance necessary, bankruptcy, would in itself prevent payment of funds for decommissioning, at least until resolution of the bankruptcy proceeding.

Another consideration arises from the priority of debt payments in bankruptcy. As currently structured, the parent company and self-guarantee can be viewed as unsecured debts. Under that theory, no funds reach NRC (as an unsecured creditor) until after at least three higher-priority debt classes are satisfied: debtor financing provided specifically for the bankruptcy, administrative claims, and secured debt. Environmental obligations, such as decommissioning costs, sometimes receive priority treatment as administrative claims, but that treatment is not assured. Amending the regulation to restructure the parent company and self-guarantee as secured debt, requiring collateral, would raise the obligation to secured debt status. Such action would improve the chance of recovery in bankruptcy as compared with treatment as unsecured debt. On the other hand, a secured debt structure may preempt treatment as higher priority debt under an administrative claim theory. The ability to recover funds for decommissioning depends on the priority of the claim as well as the amount of competing debt. Where the decommissioning obligation receives low-priority treatment, even if sufficient funds exist to pay for decommissioning, the licensee may not be required to make payment to the decommissioning trust fund, because higher priority debt may deplete the available funds.

Balanced against the concern over vulnerability is NRC's experience that no licensee providing a parent company or self-guarantee has entered bankruptcy or has failed to proceed with decommissioning projects in an adequate manner. Approximately 34 companies use these methods to provide financial assurance for 48 licenses, as of December 2002. Using these methods, the licensees reduce their financing costs for providing financial assurance. To provide the same amount of assurance using letters of credit would cost about \$8 million per year in aggregate.

Therefore, because of the competing interests involved, the staff proposes to seek additional comment through a rulemaking on the need to change the parent company and self-guarantee methods of financial assurance.

3.4 Inadequate Financial Disclosure for the Parent Company and Self-guarantee Methods of Financial Assurance

The bankruptcies of very large corporations in 2000 and 2001 indicate that inadequate financial disclosures can potentially result in a licensee being unable to fund its decommissioning obligations. Although, the staff has not observed an example of an NRC licensee whose decommissioning funding fell short because of inadequate disclosure of the licensee's financial position, the potential vulnerability of the parent company and self-guarantee methods raises concerns.

Importantly, NRC relies on the licensee's financial statements and auditor's opinion as part of the financial test that the licensee qualifies to use the parent company and self-guarantee methods. It is legal and accepted that some liabilities can be kept off the corporation's balance

sheet. Where off-balance sheet liabilities are large, financial tests based on the financial statements may not be a reliable indicator of the guarantor's ability to pay decommissioning costs for the licensee.

Therefore, the staff believes that rulemaking is needed to require additional assurance of the availability of funds for decommissioning. A licensee with a parent company or self-guarantee should be required to provide a certification that its financial statements do not omit any off-balance sheet liabilities that could prevent it from meeting the financial test.

Adding the proposed certification to the regulations would allow the Commission to impose criminal and civil penalties on a licensee that fails to make an adequate disclosure of its financial position. The certification would include language alerting the licensee that criminal penalties could be imposed if it willfully violated its duty to provide adequate disclosure. The certification would further alert the licensee that failure to provide adequate disclosure could result in the assessment of civil penalties. The penalties would be imposed under the provisions of existing law.

3.5 Reaching Assets after Corporate Reorganization If Financial Assurance Proves Inadequate

Safety Light and Sequoyah Fuels exemplify the risk that corporate reorganization can insulate a parent company from the obligations of its subsidiary licensee. In both cases, the parent company successfully sequestered the decommissioning liability of its NRC-licensed subsidiary to the subsidiary itself.

In the Safety Light case, the parent company reorganized in violation of NRC regulations by transferring ownership of the facility to a subsidiary without NRC approval. The effect of the structural change was to leave Safety Light with few assets and low levels of profits after transfer payments were made between subsidiaries. The licensee subsidiary has no means to fund more than a small portion of its decommissioning costs. The cost of litigation to obtain assets from the parent company appears to exceed the value of additional payments that may be obtainable from the parent company.

Sequoyah Fuels presented a different scenario. Sequoyah was purchased by General Atomic about the time the financial assurance regulations were issued. Sequoyah contended, persuasively, that because its license had not been renewed, it was not required to provide financial assurance beyond the minimum amount of \$750,000. The staff estimated that the decommissioning could cost up to \$87 million. Consequently, NRC ordered the corporate parent, General Atomic, to provide financial assurance. However, General Atomic successfully resisted the Order on the basis that NRC could not enforce an Order against a third-tier parent company without a showing of wrongdoing. NRC accepted financial assurance of \$9 million, less taxes, to resolve the matter. The funds are held in escrow. Although NRC accepted less than full coverage for financial assurance, the licensee must still pay the full cost of decommissioning. Sequoyah continues to remediate the site using other funds.

A hypothetical case will illustrate the potential vulnerability of financial assurance to corporate reorganization. A parent company desiring to limit its environmental liability could set up its NRC-licensed activity as a subsidiary, holding no assets other than the licensed facility. A license transfer may be required, but there likely would be no regulatory prohibition to the reorganization because the facility is already licensed. Financial assurance for the subsidiary could be provided by a letter of credit. However, under the assumptions of this hypothetical case, the subsidiary would have few assets and would not have the ability to obtain the credit

on its own merits. The parent company would then provide the letter of credit on behalf of its subsidiary. At this point, the parent company will have successfully limited its liability for decommissioning to the amount of the letter of credit. If the amount later proves to be inadequate, perhaps due to unanticipated groundwater contamination, the NRC will be unable to obtain an increase in funding from the limited assets of the licensee subsidiary. The parent company may allow the letter of credit to expire. That action would require the subsidiary to provide alternative financial assurance, but, as hypothesized, the subsidiary would be unable to do so. The parent company might not be held responsible, because the reorganization might block the NRC from enforcing an order against the parent to provide more funds.

To counter a licensee's efforts to insulate its decommissioning liabilities from the rest of its corporate structure, the staff is considering regulatory amendments. For example, the regulations could be amended to require the licensee to provide NRC with agreements that allow NRC to hold parent companies and subsidiaries liable for decommissioning costs, where this approach is sought. A similar result might be obtained by requiring the parent company to become a co-licensee, and adding a condition to the license addressing the parent company's obligation to pay for decommissioning if the subsidiary failed to do so.

3.6 Investment Losses Reduce Trust Account Balance below the Decommissioning Cost

The regulations require a licensee to cover the amount of its decommissioning cost estimate at the time it submits its DFP. A licensee must adjust its cost estimate and funding level periodically, but the current regulation does not specify what adjustment is required, nor what period may elapse between adjustments. Proposed regulations issued in October 2002 would define the time period between adjustments of the cost estimate, but did not address monitoring trust fund balances during the interim.

Consequently, a trust account is vulnerable to decline during the period between adjustments. In one case, the licensee estimated its decommissioning cost at \$12.5 million. Its decommissioning trust fund consisted of a single common stock. On June 30, 2000, the fund value was \$27 million. Two years later, on June 30, 2002, the value was \$10 million.

Therefore, the staff believes additional regulation is necessary to require the licensee to monitor, and, if necessary, adjust the levels of funds held in a decommissioning trust frequently enough to prevent the balance from falling below the amount needed to cover the cost estimate. The frequency of monitoring and adjustment will be addressed in the recommended rulemaking.

3.7 Accidental Release Increases Decommissioning Cost

Financial assurance provides funds to decommission a facility after normal operations. It was not intended to provide funds sufficient to pay for decommissioning after a large accidental release or contamination event. The business disruption of cleaning up a large accidental release may cause a licensee to decide to cease operations. In that case, the cost of decontaminating the facility may overwhelm the decommissioning fund. However, materials licensees are not required to carry onsite property damage insurance to cover the cost of an accidental release.

In contrast to materials licensees, reactor operators are required to obtain onsite property damage insurance to provide assurance that funds for cleaning up an accidental release will be available if needed. (10 CFR 50.54(w)). (This insurance is separate from the offsite liability insurance provided under the Price-Anderson arrangement.) The licensee may not use the

decommissioning fund to pay for the cleanup of an accidental release. Instead, it must use other funds, such as insurance proceeds, to first clean up its site to a point within the normal range of contamination consistent with normal operation. It may then elect to either resume operations or apply for license termination. This arrangement provides additional assurance that decommissioning funds will be adequate, even after a large contamination event.

The staff believes a similar onsite property damage requirement for materials licensees is appropriate. The amount of insurance coverage would be scaled to the risk and consequences of an accidental release. The risk and consequence concerns discussed in section 4.2 of Attachment 8 would be considered in determining the need for and amount of insurance to clean up after an accidental release. Therefore, the staff recommends amending the regulations to require licensees to obtain onsite property damage insurance to cover the cost of cleaning up an accidental release.

4. EVALUATION OF OPTIONS

4.1 Restricted Release Assumption Causes Underestimation of Decommissioning Costs

Option 4.1.1: Revise guidance to encourage realistic assessment of decommissioning options, prescribe conditions that should be assumed for calculating costs.

- Pro:
1. Improved consistency and realism
 2. Lower cost to NRC than regulatory change

- Con:
1. Not enforceable

Option 4.1.2: Issue guidance for calculating the spread of contamination for purposes of determining decommissioning cost.

- Pro:
1. Consistent, objective standard for waste volumes
 2. Waste volume is major cost driver, single most effective change to increase accuracy.

- Con:
1. Not enforceable
 2. Without reliable subsurface and groundwater data, the calculation has large uncertainty.

Option 4.1.3: Revise regulation to provide for NRC approval of the decommissioning funding plan (DFP) and to require licensees to provide a DFP and financial assurance based on unrestricted release. Provide existing licensees with the option to provide financial assurance for restricted release if the licensee submits and receives NRC approval of a decommissioning plan (DP) demonstrating its ability to meet restricted use criteria, or, alternatively, if the licensee implements institutional controls and obtains third party oversight for a restricted release.

- Pro:
1. Greatest consistency
 2. NRC approval
 3. Enforceable
 4. Avoids shortfall if restricted release cannot be achieved
 5. Defines end state during operating period

- Con: 1. Higher development and implementation cost
2. Some licensees may be unable to provide full coverage financial assurance if they relied on restricted release assumptions in the past.

4.2 Operational Indicators of Increasing Costs

Option 4.2.1: Increase scope of inspections to determine whether licensee site conditions indicate potential for increased decommissioning costs.

- Pro: 1. Most direct method of determining changes in site conditions

- Con: 1. Relatively high resource consumption

Option 4.2.2: Provide guidance to licensees to perform annual determination of whether site conditions indicate potential for increased decommissioning costs.

- Pro: 1. Licensee has most immediate knowledge of changing site conditions.
2. Would provide additional focus for onsite inspections by NRC.

- Con: 1. Not enforceable

Option 4.2.3: Revise regulation to require a licensee to re-evaluate its decommissioning cost estimate, and, if necessary, provide additional financial assurance to cover higher costs, within a reasonable time after an operational event that indicates a potential for increasing decommissioning costs. Operational indicators would include: spills and spread of contamination, groundwater contamination, and other events.

- Pro: 1. Highest level of consistency between licensees
2. Enforceable
3. Promotes earlier characterization of the spread of contamination.
4. Reduces period of inadequate financial assurance coverage.
5. Provides additional incentive to avoid spread of contamination.

- Con: 1. Rulemaking resources required
2. Increased costs of financial assurance
3. Some licensees may be unable to obtain increased financial assurance

Option 4.2.4: Revise regulation, for sites with large radioactive material throughput or liquid processes, to require licensee to periodically obtain subsurface soil and groundwater contamination data, to update its decommissioning cost estimate.

- Pro: 1. Removes uncertainty of the dominant cost driver
2. Reduces likelihood of funding shortfalls.
3. Provides evidence of need to increase decommissioning fund if contamination spreads.
4. Enforceable

- Con: 1. Cost to licensee
2. Requires rulemaking resources.

4.3 Unavailability of Funds in Bankruptcy Where Financial Assurance Is Provided by Parent Company or Self-guarantee.

Option 4.3.1: Revise regulation to revise financial test to require greater safety margin in case of bankruptcy

- Pro:
1. Relatively simple change
 2. Retains current regulatory structure.
 3. Retains benefit of lower financial assurance costs for most licensees.

- Con:
1. Rulemaking resources required
 2. Some licensees now using the method may be unable to meet revised test.
 3. Provides little increase in financial assurance where fraud-induced bankruptcy renders the licensee incapable of funding decommissioning.

Option 4.3.2: Revise regulation to eliminate the parent company and self-guarantee methods of financial assurance.

- Pro:
1. Straightforward change
 2. Significantly reduces effects of bankruptcy from interfering with decommissioning funding.

- Con:
1. Increases cost of financial assurance for licensees.
 2. May lead to shutdown of marginally profitable licensees.
 3. No examples where a licensee failed to meet its guarantee agreement
 4. Rulemaking resources required

Option 4.3.3: Revise regulation to require licensees to increase their frequency of performing and reporting the financial test.

- Pro:
1. Provides earlier warning of deteriorating financial position.
 2. Does not make method unavailable to any existing user.
 3. Retains benefit of lower financial assurance costs for licensee.

- Con:
1. Rulemaking resources required
 2. Provides little increase in financial assurance where fraud-induced bankruptcy renders the licensee incapable of funding decommissioning.

Option 4.3.4: Request comments on options under consideration for changing the parent company and self-guarantee mechanisms in notice of proposed rulemaking.

- Pro:
1. Provides information potentially useful to assess the risk of failure of the parent company and self-guarantee methods.
 2. If changes are considered necessary, focuses staff resources on options most likely to improve financial assurance.

- Con:
1. Resources required to assess information provided

4.4 Inadequate Financial Disclosure for the Parent Company and Self-guarantee Methods of Financial Assurance

Option 4.4.1: Revise regulation to require licensee with a parent or self-guarantee to provide additional certification that its financial statements do not omit off-balance sheet liabilities that would prevent it from meeting the financial test.

- Pro:
1. Provides additional assurance that off-balance sheet liabilities permitted by accounting rules do not significantly reduce the level of financial assurance provided by the licensee.
 2. Provides means to impose civil or criminal penalties on a licensee that fails to adequately disclose its financial position.

Con: 1. Rulemaking resources required

Option 4.4.2: Retain a financial consultant to perform in-depth review of the licensee's financial statements for those licensees that use a parent company or self-guarantee.

- Pro:
1. Does not require rulemaking.
 2. May be more likely to uncover hidden liabilities.

Con: 1. Relatively expensive, especially for large licensees

4.5 Reaching Assets after Corporate Reorganization If Financial Assurance Proves Inadequate

Option 4.5.1: Revise regulation to require licensees to provide NRC with agreements that allow NRC to hold parent companies and subsidiaries liable for decommissioning costs. As part of the rulemaking, consider requiring the parent company of licensee subsidiaries to be a co-licensee.

- Pro:
1. Increases assets available for decommissioning.
 2. Limits the potential that payment for decommissioning will fall short if financial assurance coverage proves inadequate.
 3. Reduces litigation costs to NRC to reach assets.

Con: 1. Rulemaking resources required

4.6 Investment Losses Reduce Trust Account Balance below the Decommissioning Cost

Option 4.6.1: Where decommissioning funds are held in investments that may suffer market losses, revise regulation to require licensee to perform periodic comparison of actual amount of funds in trust to its decommissioning funding requirement, make up any shortfall, and report the funding addition to the NRC.

- Pro:
1. Reduces the impact of making up funding shortfalls by limiting the time a market decline will go unnoticed by the licensee.
 2. Reduces likelihood that shortfall will exceed licensee's ability to pay.
 3. Minimizes the time a licensee may have inadequate funding.
 4. Encourages licensee to change investment strategy if losses continue.

- Con:
1. Additional administrative burden on licensee.
 2. Rulemaking resources required.
 3. A changing market may make this difficult to implement.
 4. Licensees in a declining market may not have the resources to make up the losses.
 5. May need a process to remove excess funds when the market rebounds.

Option 4.6.2: Revise regulation to require decommissioning trust fund investments in U.S. Federal Government guaranteed securities.

- Pro:
1. Eliminates market risk if held to maturity
 2. Minimizes need to monitor performance of trustee

- Con:
1. Minimizes potential return on investment
 2. Increases costs to licensee

4.7 Accidental Release Increases Decommissioning Cost

Option 4.7.1: Revise regulation to require licensee to obtain onsite property damage insurance to cover the cost of cleaning up accidental releases.

- Pro:
1. Assure that accidental release does not increase decommissioning cost above the amount of financial assurance
 2. Inspections by insurance provider will encourage licensee efforts to minimize likelihood of an accidental release.

- Con:
1. Rulemaking resources required
 2. Cost to licensees

5. RECOMMENDATIONS

The recommendations for regulatory changes discussed below are preliminary; further evaluation of cost/benefit during the rulemaking process will be needed to determine the most appropriate specific revisions that should be made.

5.1 Initial Underestimation of Decommissioning Cost:

Recommend Option 4.1.3: Revise regulation to provide for NRC approval of the decommissioning funding plan (DFP) and to require licensees to provide a DFP and financial assurance based on unrestricted release. Provide existing licensees with the option to provide financial assurance for restricted release if the licensee submits and receives NRC approval of a decommissioning plan (DP) demonstrating its ability to meet restricted use criteria, or, alternatively, if the licensee implements institutional controls and obtains third party oversight for a restricted release.

5.2 Operational Indicators of Increasing Costs

Recommend Option 4.2.3: Revise regulation to require a licensee to re-evaluate its decommissioning cost estimate, and, if necessary, provide additional financial assurance to cover higher costs, within a reasonable time after an operational event that indicates a potential for increasing decommissioning costs. Operational indicators would include: spills and spread of contamination, groundwater contamination, and other events.

Recommend Option 4.2.4: Revise regulation, for sites with large radioactive material throughput or liquid processes, to require licensee to periodically obtain subsurface soil and groundwater contamination data to update its decommissioning cost estimate.

5.3 Unavailability of Funds in Bankruptcy Where Financial Assurance Is Provided by Parent Company or Self-guarantee

Recommend Option 4.3.4: Request comments on options under consideration for changing the parent company and self-guarantee mechanisms in a notice of proposed rulemaking beyond the recommendation in 5.5.

5.4 Inadequate Financial Disclosure

Recommend Option 4.4.1: Revise regulation to require licensee with a parent or self-guarantee to provide additional certification that its financial statements do not omit off-balance sheet liabilities that would prevent it from meeting the financial test.

5.5 Reaching Assets after Corporate Reorganization If Financial Assurance Proves Inadequate

Recommend Option 4.5.1: Revise regulation to require licensees to provide NRC with agreements that allow NRC to hold parent companies and subsidiaries liable for decommissioning costs. As part of the rulemaking, consider requiring the parent company of licensee subsidiaries to be a co-licensee.

5.6 Investment Losses Reduce Trust Account Balance

Recommend Option 4.6.1: Where decommissioning funds are held in investments that may suffer market losses, revise regulation to require licensee to perform periodic comparison of actual amount of funds in trust to its decommissioning funding requirement, make up any shortfall, and report the funding addition to NRC.

5.7 Accidental Release Increases Decommissioning Cost

Recommend Option 4.7.1: Revise regulation to require certain licensees to obtain onsite property damage insurance to cover the cost of cleaning up accidental releases.