DSI-9

STRATEGIC ASSESSMENT ISSUE PAPER

DSI 9: DECOMMISSIONING - NON-REACTOR FACILITIES

INTRODUCTION

In August 1995, the Nuclear Regulatory Commission (NRC) staff initiated a Strategic Assessment and Rebaselining Project. This project was intended to take a new look at the NRC by conducting a reassessment of NRC activities in order to redefine the basic nature of the work of the agency and the means by which that work is accomplished, and to apply to these redefined activities a rigorous screening process to produce (or rebaseline) a new set of assumptions, goals, and strategies for the NRC. The results of this project are intended to provide an agency-wide Strategic Plan which can be developed and implemented to allow the NRC to meet the current and future challenges.

A key aspect of this project was the identification and classification of issues that affect the basic nature of NRC activities and the means by which this work is accomplished. These issues fall into three categories. The first category includes broad issues defined as Direction-Setting Issues (DSIs). DSIs are issues that affect NRC management philosophy and principles. The second category includes subsumed issues. Subsumed issues are those that should be considered along with the DSIs. The third category includes related issues. These are issues that should be considered after the Commission makes a decision on the option(s) for a DSI. Also, as part of the project, other issues of an operational nature were identified. These are not strategic issues and are appropriately resolved by the staff, and are not discussed in the issue papers.

Following the reassessment of NRC activities, issue papers were prepared to provide a discussion of DSIs and subsumed issues, and to obtain a review of these broad, high-level issues. These papers are intended to provide a brief discussion of the options as well as summaries of the consequences of the options related to the DSIs. Final decisions related to the DSIs will influence the related issues which are listed, but not discussed, in each issue paper. As part of the Strategic Assessment and Rebaselining Project, the issue papers are being provided to interested parties and to the public. Following distribution of the issue papers, a series of meetings are planned to provide a forum to discuss and receive comment on the issue papers. After receiving public comment on the issue papers, the Commission will make final decisions concerning the DSIs and options. These decisions will then be used to develop a Strategic Plan for the NRC. In summary, the Strategic Assessment and Rebaselining Project will analyze where the NRC is today, including internal and external factors, and outline a path to provide direction to move forward in a changing environment.

I. SUMMARY

A. Direction-Setting Issue

Decommissioning involves removing radioactive contamination in buildings, equipment, groundwater, and soils to such levels that a facility can be released for unrestricted use. Most of these actions are routine cases; however, about 50 current decommissioning cases involve complex issues that require significant Nuclear Regulatory Commission (NRC) staff resources to resolve. In 1990, the NRC staff established the Site Decommissioning Management Plan (SDMP) to help focus staff resources on the resolution of difficult generic and site-specific decommissioning issues. For the non-reactor decommissioning area, the following direction-setting issue (DSI) was identified:

> What should be NRC's strategy to take advantage of new and different approaches to optimize site remediation of the Site Decommissioning Management Plan and other problem sites?

In decommissioning non-reactor facilities, NRC must balance the need to proceed expeditiously to provide assurance of long-term protection of public health and safety against the need to cost-effectively use its resources and, as appropriate, those of the licensees. Issues that pertain to this balance include the extent to which NRC should use strong, staff-intensive enforcement actions when safety significance is limited and when unlicensed as well as licensed entities may be involved. Occasionally, these situations involve entities that cannot or will not provide sufficient funds to meet decommissioning costs. In other cases, decommissioning costs can be reduced through increased flexibility, but the NRC must ensure that such flexibility does not adversely affect health and safety. For all decommissioning situations, NRC must ensure adequate public involvement without incurring unnecessary resource expenditures or delays. These issues must be considered collectively from the perspective of achieving cost-effective and timely decommissioning. This issue paper provides a range of options for addressing critical problems that force NRC to use a high level of resources to compel timely remediation of nonroutine decommissioning cases.

B. Options

Options 2 through 5 change decommissioning standards to allow more licensees flexibility. Options 6 and 7 enable NRC to focus more attention on decommissioning issues. Both of these options offer approaches for resolving critical issues currently delaying remediation at several SDMP sites. Options 8 and 9 address legislative and regulatory changes that would permit stronger litigation and enforcement positions.

Option 1: Continue Existing Program

NRC would maintain the current program for decommissioning materials licensee facilities as described in the SDMP, as updated. This option now involves on the order of 50 full-time equivalent (FTE) positions. Resolution of key issues involving thorium-contaminated wastes and licensees that are incapable of funding site remediation would continue to be addressed on an ad hoc basis. No legislative changes are needed for this option.

Option 2: Change the Decommissioning Review Process

NRC could implement a performance-oriented decommissioning review process that simply provides the residual contamination goals for decommissioning and allows the licensee to proceed with decommissioning without obtaining approval of a decommissioning plan. No legislative changes are needed for this option.

Option 3: Change Residual Contamination Criteria and Review Scenarios

Under this option, NRC would modify its residual contamination criteria bases by allowing hypothetical intruder doses up to 500 mrem/yr. It would also allow more realistic, less conservative dose assessment scenarios, which use probabilities of intrusion, maintenance of cover material, shorter time periods over which doses are evaluated, and so on, to be used for evaluating acceptable decommissioning alternatives. No legislative changes are needed for this option.

Option 4: Adopt the U.S. Environmental Protection Agency Superfund Approach

Under this option, NRC would use the same approach that the Environmental Protection Agency (EPA) uses for addressing hazardous chemical contamination. This approach allows EPA to approve remediation actions that leave contamination in place, require minimal institutional controls, require active maintenance and monitoring programs, and minimize the consideration of long-term hazards. No legislative changes are needed for this option.

Option 5: Regulate Source Material Consistently With Naturally Occurring and Accelerator-Produced Radioactive Materials

In addition to the radioactive materials regulated by NRC, other radioactive materials occur naturally or are produced by accelerators. These naturally occurring and accelerator-produced radioactive materials, referred to as NARM, are found in the environment, in homes, in medical practice, in consumer products, and in a variety of industrial applications. Examples of NARM nuclides include carbon-14, oxygen-15, potassium-40, gallium-67, iodine-123, thallium-201, polonium-210, radon-222, and radium-226. Currently, EPA and the States are responsible for ensuring that public health and safety is protected

in the presence or during the use of these materials. In this option, through a legislative change, Congress would transfer jurisdiction over source material to EPA and the States so that uranium and thorium uses would be treated on the same basis as radium and other NARM.

Option 6: Focus on Decommissioning Cases in Which Progress Can Be Made; Transfer Stalled Sites to the Environmental Protection Agency's Superfund Program

The NRC staff would identify any licensee that cannot decommission within the timeliness requirements or that cannot completely fund decommissioning and would transfer those sites to EPA. Under this option, EPA would be able to use its greater legal authority to compel remediation and obtain funding from unlicensed parties that may have contributed to the contamination. No legislative changes are needed for this option.

Option 7: Take an Aggressive Position to Develop Regulatory Frameworks for Lower Cost Decommissioning Waste Disposal Options

Under this option, NRC would develop a regulatory framework for disposing of uranium- and thorium-contaminated wastes at uranium mill tailings sites, using the institutional control features provided in the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) that make the Department of Energy (DOE) responsible for site custody. NRC would also develop a regulatory framework for using the Nuclear Waste Policy Act (NWPA), Sections 151(b) and (c), to transfer disposal sites to DOE for institutional control. Legislative changes may be needed to implement the UMTRCA alternative. No legislative changes would be required for the NWPA Sections 151(b) and (c) alternatives.

Option 8: Develop a Strong Litigation Strategy

At most sites undergoing decommissioning, no immediate threat exists to public health and safety. Under this option, NRC would review the litigative risks for taking enforcement actions in these cases and, if necessary, strengthen regulations so that decommissioning standards can be aggressively enforced.

Option 9: Seek Superfund Authority

Through legislation, Congress could give NRC the same Superfund authorities as are provided to EPA. These provisions could include making all potentially responsible parties legally "jointly and severally" liable for remediation costs and giving NRC authority for seeking triple damages from responsible parties.

II. DESCRIPTION OF ISSUES

A. Background/Bases

To "decommission" is defined in NRC regulations as to remove (as a facility) safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of the license. Decommissioning is accomplished by "remediating" or removing radioactive contamination that exists in buildings, equipment, groundwater, or soils at facilities where licensed operations involving licensed radioactive materials are no longer performed.

Decommissioning is an element of the larger materials licensing program and is a statutory responsibility implemented under the Atomic Energy Act (AEA), Sections 53, 63, 81, 161(b), 161(c), 161(i), and 161(o).

NRC terminates about 300 licenses each year. Most of these terminations are routine licensing actions that do not involve complex issues such as groundwater contamination, mixed wastes, large waste quantities, or financially nonviable licensees. Decommissioning standards used today are based on guidance documents that have been used for more than 20 years. However, complex decommissioning issues exist at about 50 sites, and NRC has found that these issues can be difficult and time-consuming to fully address. These complex cases involve one or more of the following:

- Bankruptcies
- Licensees with limited financial capability to undertake decommissioning
- Contaminated sites that were never licensed or contaminated sites at which licenses were previously terminated
- Sites with large quantities of contaminated materials
- Sites with disposal areas that are no longer acceptable under NRC regulations
- Sites with contaminated buildings or outside areas that have not been used for licensed activities for long periods

In 1988, NRC promulgated decommissioning regulations applicable to materials and reactor licensees in the areas of decommissioning planning, recordkeeping, license termination procedures, and financial assurance. Regulations on residual contamination criteria are being developed. A proposed rule on radiological criteria for decommissioning was published in the Federal Register on August 22, 1994. A final rule is scheduled to be promulgated in 1996. The NRC staff does not expect that the decommissioning workload will change significantly upon promulgation of the new rule.

In a 1989 staff requirements memorandum (SRM), the Commission directed the staff to develop a comprehensive strategy for NRC activities to deal with complex contaminated sites so that decommissioning issues are closed in a timely manner. On March 29, 1990, the NRC staff issued SECY-90-121, "Site Decommissioning Management Plan (SDMP)," in which it discussed activities to address a wide range of generic and site-specific decommissioning issues. These issues were applicable to not only complex materials licensee decommissioning projects but also to all materials and fuel facility decommissioning activities. The SDMP program document has been updated annually since 1990. On April 16, 1992, the NRC staff published in the Federal Register the "Action Plan To Ensure Timely Cleanup of Site Decommissioning Management Plan Sites."

B. External Factors

In addition to the NRC's strong desire to ensure that sites are properly decommissioned, external organizations and groups have a significant interest and influence in the decommissioning area. These groups include the nuclear industry, the Congress and the General Accounting Office (GAO), the States, the EPA, the DOE, and the public. Legal constraints and limited resources also affect decommissioning.

1. The Nuclear Industry

The nuclear industry includes licensees with a wide range of operations, licensable materials, and capabilities. The decommissioning of most licensee sites is considered to be a routine action. Most licenses that are decommissioned involve sealed sources, which are transferred to the source manufacturer or other licensee when operations cease, or limited contamination that can be remediated easily and without large expense using the same techniques as those used during normal operations. Some licensees and responsible parties, with previously terminated licenses, however, are faced with expensive decommissioning projects that involve large quantities of radioactive wastes, contaminated groundwater, and hazardous chemicals. In these cases, during operations the licensees did not pay sufficient attention to future decommissioning problems because waste disposal costs were generally low and contamination posed no immediate threats to worker or public health and safety. However, as waste disposal costs substantially increased in the last 10 years, corporate pressure is strong to minimize remediation costs, especially when operations have ceased and the facility is no longer a source of corporate income. For some sites, decommissioning costs are projected to be well over $100 million and beyond the financial capability of licensees and responsible parties. In some cases, the costs may or have bankrupted corporations. For some licensees, the pressure to minimize costs is balanced

by the desire to ensure that the site is properly remediated to minimize future liabilities in case the property is sold and later owners of the property find contamination levels above NRC guidelines.

2. Congress and the General Accounting Office

A significant external factor is congressional oversight of NRC and audits undertaken by GAO at congressional request. In 1989, at the request of Congressman Synar, the GAO audited NRC's materials licensee decommissioning program and prepared a highly critical report. During congressional hearings on August 3, 1989, NRC committed to increase its level of attention to existing and future decommissioning requirements, policies, and site-specific actions. These NRC commitments led directly to the development of the SDMP.

In 1995, GAO published a followup report on the progress made on the remediation of SDMP sites. It concluded that progress in identifying and remediating SDMP sites was lacking. It cited a variety of factors that contributed to the delays, including lack of disposal capacity, lengthy timeframes for NRC review of licensee decommissioning documents, large quantities of thorium-contaminated wastes, presence of groundwater contamination, and litigation. The NRC staff addressed those concerns within its control by the streamlining initiatives described in SECY-95-209.

Congress and the public are expected to continue to press for resolution of decommissioning issues and the safe and timely remediation of individual sites.

3. The States

NRC coordinates decommissioning actions with State radiological agencies. When hazardous chemical waste or solid waste is involved, the NRC staff also coordinates with the appropriate State agencies having jurisdiction over those materials. Coordination with State radiological agencies contributes to public confidence and finality in decommissioning actions.

When nonradioactive hazardous or solid wastes are involved, remediation timetables and options are sometimes dictated by State or EPA requirements. Because nonradioactive hazardous and solid waste requirements are based on somewhat different objectives and requirements, differences have resulted in project delays because of the use of schedules and administrative processes mandated by EPA requirements and technical provisions that place additional conditions on licensees.

Agreement States are responsible for terminating licenses under their jurisdiction and are facing the same issues as NRC. In 1993, 17 Agreement States indicated that they have about 95 sites that would qualify as SDMP sites. At the urging of NRC, some Agreement States have developed programs similar to the NRC SDMP for sites that have complex decommissioning issues. However, other States that have complex decommissioning cases do not consider these programs necessary. In a memorandum to the Commission dated August 24, 1995, the Office of State Programs recommended that Agreement States not be required to have SDMP programs. In general, Agreement States use similar decommissioning criteria as NRC, but several have terminated licenses using deed or other zoning restrictions. This type of action is not available to NRC without an exemption to the regulations. Administrative and institutional controls are being considered in NRC's radiological criteria for decommissioning rulemaking.

In the future, States will continue to have important roles in the decommissioning of NRC-regulated sites. There will, therefore, be a continuing need to coordinate NRC regulatory actions with both Agreement and non-Agreement States and to address Agreement State compatibility issues in the decommissioning area.

4. The Environmental Protection Agency

On May 18, 1994, the EPA made a working draft of its radiation site cleanup regulation available to the public. The overall dose criterion proposed was very similar to that proposed by NRC. NRC and EPA agreed that NRC and Agreement State licensees would be excluded from EPA's standards if EPA determines that NRC's criteria provide sufficient protection. If EPA does not exclude these licensees and the standards are promulgated under the AEA, NRC is obligated to implement and enforce EPA's standards. Agreement States would also be required to implement the EPA standards under NRC's Agreement State compatibility requirements.

An important issue that remains open with EPA is groundwater protection. The EPA's generally applicable draft standard limits groundwater activities to levels such that doses from consuming groundwater will not exceed 4 mrem/year. NRC believes that groundwater levels should not be limited to 4 mrem/year but should be allowed to be higher if the proposed overall dose standard of 15 mrem/year for all dose pathways is met. NRC believes that by protecting the public with an overall dose limit of 15 mrem/year, sufficient protection exists even if doses from groundwater pathways exceed 4-mrem/year. The EPA position, however, is to apply the 4-mrem/year groundwater protection requirement consistently over a wide range of generally applicable standards, including its decommissioning standards.

The EPA regulations that address hazardous chemical waste and solid waste can also affect the progress and remediation processes and designs for radioactively contaminated sites that have EPA-regulated materials.

5. The Department of Energy

Under the NWPA, Sections 151(b) and (c), DOE has the authority, under certain circumstances, to assume title and custody of low-level waste sites meeting NRC standards at the request of the site owner. These provisions offer an alternative to remediating sites to levels acceptable for unrestricted use. For example, under this authority, the AMAX site in Wood County, West Virginia, was transferred to DOE for long-term custody. Under Sections 151(b) and (c) of the NWPA, the licensee would remediate and stabilize the low-level waste disposal site in accordance with NRC standards and would transfer title to the property to DOE for institutional control. The licensee would provide sufficient funding to DOE so that the costs of institutional control are not borne by the Federal Government. This authority could be used for transferring sites that use onsite disposal for large quantities of radioactive wastes from decommissioning that would otherwise be too costly to dispose of at licensed commercial low-level waste disposal sites. It is uncertain whether DOE would accept title to these sites. However, institutional control by DOE over these sites could result in lower decommissioning costs.

Under the UMTRCA, DOE or the State is responsible for taking custody of remediated uranium mill tailings sites. These sites could be suitable for the disposal of uranium- and thorium-contaminated decommissioning waste (source material) that has radiological characteristics similar to those of uranium mill tailings. It is uncertain whether DOE would accept source material for disposal at existing uranium mill tailings sites. DOE institutional control over sites that accept source material waste could result in lower licensee costs and resolution of current issues that are stalling remediation progress.

6. The Public

Sites undergoing decommissioning have varying levels of external public interest, depending on site-specific factors. At several sites, local participation is strong, while no public interest is expressed at other sites. The NRC staff has arranged public meetings and conducts ongoing dialogues with elected officials and interested parties as necessary to provide members of the public with the level of information desired; to coordinate decommissioning actions with Federal, State, and local authorities; and to identify and resolve decommissioning issues in a constructive forum. The public will continue to be an important external factor influencing NRC decommissioning actions. Public participation programs will continue to be

important for generating public trust in NRC decisions and enabling the NRC staff to complete necessary decommissioning activities, but will also represent, in many cases, additional staff resource costs.

C. Legal Constraints

NRC has the legal authority to enforce decommissioning requirements. However, under this authority, the NRC staff must demonstrate that a significant impact on public health and safety exists before an enforcement action can go forward on an immediately effective basis. For most decommissioning cases in which residual contamination is at relatively low levels and remains under the control of an NRC licensee, it is difficult to conclude that a significant threat exists to public health and safety. With this legal constraint, it is difficult to balance intense pressure to move quickly through enforcement action to decommission problem sites with the need to provide a justification sufficient to convince a hearing board that the public health and safety is threatened and to justify commencement of actions before any hearing requested is concluded. In such cases, there is also the question of whether an adjudicatory hearing or an adversary hearing is the most effective vehicle for obtaining results. When decommissioning cases involve unlicensed parties, NRC enforcement authority is limited to obtaining information or to situations in which a public health and safety threat can be demonstrated. Since the decommissioning financial assurance and timeliness rule requirements apply only to NRC licensees, these provisions cannot be imposed on unlicensed responsible parties.

D. Resources

Resource levels are one of the most important internal factors for completing NRC decommissioning actions. Without adequate resources, NRC staff reviews of decommissioning documents cannot be performed on schedules desired by licensees and the public. Currently, the fiscal year (FY) 96 budget for the SDMP is on the order of 50 FTEs. These resource levels are insufficient to address all generic and site-specific decommissioning issues within the timeframes that Congress, licensees, and unlicensed responsible parties desire. In the last 5 years, resource levels within the decommissioning program have grown to reflect higher workloads.

E. Internal Factors

In 1989, the GAO issued a report that cited several cases in which Atomic Energy Commission and NRC licenses had been terminated but contamination that exceeded NRC unrestricted use limits still existed. To identify those cases in which contamination exceeding the decommissioning limits could still exist at previously terminated license sites, the Oak Ridge National Laboratory staff reviewed approximately 30,000 files on licenses terminated and retired

before 1985. These reviews were to identify sites that may not have been properly decommissioned or for which documentation of the decommissioning was incomplete. From these reviews, about 600 files were identified that require more detailed followup by the Office of Nuclear Material Safety and Safeguards and the regional staff. As of January 1996, 285 of the licenses have been eliminated from further consideration; 23 were found to have contamination exceeding NRC limits, 6 of which have beer added to the SDMP; 7 have been remediated; and the remaining 10 are being addressed by the regional staff. The remaining 325 files need followup review. This effort is likely to identify about 10 to 20 more sites requiring followup remediation, some of which are expected to be added to the SDMP if remediation efforts are extensive or litigious. In addition, the NRC staff will also review license files for licenses that have been terminated or retired since 1985. Contaminated sites identified through this program will increase the staff decommissioning resource burden.

III. DISCUSSIONS

A. Discussion of Direction-Setting Issue

What should be NRC's strategy to take advantage of new and different approaches to optimize site remediation of Site Decommissioning Management Plan and other problem sites?

The DSI involves the development of approaches that balance available resources with the need to improve the timeliness of decommissioning reviews, that maintain remediation actions that meet public health and safety objectives, and that are responsive to concerns raised by the public and their elected officials so that problem sites can be released for unrestricted or restricted use. Potential options for optimizing the NRC decommissioning program include alternatives that require legislation to modify NRC's authority and alternatives that can be implemented with only rulemaking changes or internal procedural changes. These options also address the subsumed issues identified below.

B. Discussion of Subsumed Issues

1. What is the optimum rate of removal of sites from the Site Decommissioning Management Plan?

This issue would establish a policy for balancing decommissioning rates against applied resources. It is at the center of this issue paper. All of the options presented in this paper apply to this subsumed issue.

2. What is the best strategy to use to implement NRC's non-reactor decommissioning regulations?

This issue addresses how aggressively the NRC will use its legal tools to obtain prompt decommissioning or any decommissioning, including what constitutes appropriate litigative risks in this area. Options 1, 6, 8, and 9 apply to this subsumed issue.

3. What is the best strategy for dealing with unlicensed possessors of licensable material?

This issue involves the best approaches for compelling unlicensed possessors of source, byproduct, and special nuclear material to promptly remediate contaminated sites. Unlicensed possessors of nuclear materials can be former licensees whose licenses were previously terminated or entities that never had licenses but whose property has been contaminated by legal releases of radioactive materials or authorized or illegal disposals of licensable materials. Options 1, 6, 8, and 9 apply to this subsumed issue.

4. How can NRC ensure that bankrupt or non-viable corporations appropriately use their assets to complete site remediation?

This issue concerns how the agency will deal with licensees and nonlicensed responsible entities that financially unable to meet NRC decommissioning regulations. It involves policy decisions about how aggressively the NRC might pursue such cases. Options 1, 6, 8, and 9 apply to this subsumed issue.

5. How much flexibility should be given to licensees who want to propose alternative approaches for complying with decommissioning regulations?

This issue involves policy guidance on applying risk-informed, performance-based regulatory concepts to decommissioning while considering the possibility that additional NRC resources may be necessary to develop and implement such concepts. Options 1, 2, 3, 4, 5, and 7 apply to this subsumed issue.

IV. OPTIONS

In this section, the options are discussed in detail. Legal, regulatory, policy, programmatic, and human resource consequences are described. With the exception of Option 1, none of the options are mutually exclusive and any can be used in combination with any other option. Options 2 through 5 change decommissioning standards to allow licensees more flexibility. Options 6 and 7 enable NRC to focus more attention on decommissioning issues. Options 8 and 9 permit stronger litigation and enforcement positions.

Option 1: Continue Existing Program

1. Option

Under this option, NRC would maintain the same approach for decommissioning materials licensees' facilities as described in the SDMP and the SDMP Action Plan.

2. Background

In 1990, NRC issued the SDMP, which addressed generic and site-specific decommissioning issues that needed to be resolved to affect timely decommissioning in about 50 nonroutine decommissioning cases. In April 1992, NRC issued an "Action Plan for Site Decommissioning Management Plan Sites," which provided Commission guidance on acceptable residual contamination criteria, finality, site characterization, and enforcement strategy. These efforts have been successful in addressing key decommissioning issues and focusing NRC staff resources on nonroutine decommissioning casework.

3. Impacts

No new impacts would be generated with this option. The current program is reasonably conservative and provides thorough reviews of licensee submittals. However, 16 SDMP cases involve thorium-contaminated materials for which clear criteria for remediation are not available. It is expected that the current rulemaking addressing radiological criteria for decommissioning will not directly address these thorium-contaminated sites. Several SDMP cases may have insufficient funding available to remediate the sites to the current criteria.

No regulatory or legislative changes would be needed for this option.

Currently, approximately 50 FTEs are budgeted in FY 96. Under this option, the future budgeted resources would remain at the same level.

Under this option, there would be minimal change in the stakeholders' reactions. Licensees have indicated that they would prefer more timely review of submitted documents and more guidance for implementing regulatory requirements. Congress and GAO would also like more progress to be made on remediating sites as documented in the 1995 GAO report "Slow Progress in Identifying and Cleaning Up NRC's Licensees Contaminated Sites."

Under this option, no gain or loss would be experienced in current program efficiency.

Option 2: Change the Decommissioning Review Process

1. Option

NRC would implement, by regulation, a performance-oriented decommissioning review process that provides only residual contamination goals for decommissioning and allows the licensee to proceed with decommissioning without obtaining approval of a decommissioning plan. The NRC staff would focus on the health and safety aspects of the remediation activities through inspections and would review the licensee's final survey data and conduct confirmatory surveys to ensure compliance with residual contamination requirements.

2. Background

The current decommissioning process consists of preparation of a site characterization plan, conducting the site characterization, preparation of a decommissioning plan, performance of the remediation, and performance of a final survey. If the remediation uses techniques that differ from those used during normal operations or produces conditions that were not assessed in the license application review, the licensee would submit the decommissioning plan to NRC for review and approval. The NRC staff also reviews the final survey data and conducts a confirmatory survey to verify that contamination has been remediated to meet NRC limits. In some cases, for complex sites or when the NRC staff has little confidence in the licensee or the responsible party, the NRC may review the site characterization plan or site characterization report before the licensee or the responsible party prepares the decommissioning plan. Although this process results in a thorough review of the licensee's site characterization data, decommissioning plan, and final survey data, it is a time-consuming process and is subject to the priorities assigned by NRC management. Currently, insufficient resources are assigned to review all licensee submittals as they are submitted. This problem has resulted in delays of up to 3 years in the overall decommissioning schedules.

3. Impacts

This option would place a greater burden on the licensee to properly perform decommissioning, but would reduce NRC review and licensee resource requirements. The decommissioning program could be accelerated by about 1 year if the decommissioning plan is not subject to NRC review. However, if decommissioning is not properly performed and the site has to be re-remediated, this option could also result in an increased number of licensee violations of regulatory requirements, delays in decommissioning, and increased licensee expenses and NRC resources to correct remediation deficiencies.

Regulations in Parts 30, 40, and 70 of Title 10 of the Code of Federal Regulations, (10 CFR Parts 30, 40, and 70) require that a decommissioning plan be submitted to NRC for approval when required by license condition or if the procedures and activities necessary to carry out decommissioning have not been previously approved and these procedures could increase potential health and safety impacts on workers or on the public. This option would require amending the regulations to delete the above-mentioned requirement for submittal of a decommissioning plan. Licensee proposals to use onsite disposal alternatives would still require NRC review. No legislative changes would be required.

Elimination of the requirement to review decommissioning plans could reduce the materials license decommissioning budget approximately 10 FTEs/year. A slightly increased inspection effort during the remediation phase of the decommissioning would be expected. The NRC staff effort to review the licensee's final survey data and to conduct the final survey would not be expected to change. If problems are identified in the licensee's program during inspection of the remediation phase, in the review of the licensee's final survey data, or during the confirmatory survey, additional NRC resources would be needed to ensure that appropriate corrective actions are made. These additional resources would be substantially greater than those required if the decommissioning plan was reviewed before the licensee undertook the remediation.

The elimination of decommissioning plan reviews could reduce NRC decommissioning resource needs by about 10 FTEs/year. However, since most licensees have little direct expertise in decommissioning facilities, there is a high probability that sites might not be properly characterized, that radiological control programs might be inadequate, and that sites might not be properly remediated. In the past, improperly characterized and improperly remediated sites have resulted in substantial licensee expenses and the increased use of NRC staff resources to ensure that mistakes are corrected. For many licensees, there is a significant likelihood that this option would result in a loss of efficiency compared with the current program. There could be measures taken to redisplay some of the 10 FTE identified above to provide more informed, consultative assistance to licensees in the remediation process which could minimize the likelihood of inadequate remediation.

Option 3: Change Residual Contamination Criteria and Review Scenarios

1. Option

NRC's proposed radiological criteria for decommissioning contain a 15-mrem/year dose basis for releasing sites for unrestricted use and a 100-mrem/year dose basis for releasing sites for restricted use. Under this

option, NRC would propose residual contamination criteria that would allow doses up to 500 mrem/yr for restricted use and less stringent scenarios for assessing compliance with NRC decommissioning standards.

2. Background

Currently, residual contamination criteria for decommissioning are established in guidance documents and not by regulation. Ideally, EPA would have generally applicable radiological standards for decommissioning, and NRC would have regulations that implement the EPA standards. In the absence of EPA standards, NRC proposed regulations in 1994 to establish radiological criteria for decommissioning. However, until these criteria are promulgated as a final rule, the Commission has instructed the NRC staff to use existing guidance as a basis for terminating licenses. Under the existing criteria, radioactive contamination is removed to levels that would produce doses to hypothetical intruders of a few tens of mrem/yr. Currently, the NRC staff policy is to evaluate the dose impacts of decommissioning using a hypothetical resident-farmer intruder scenario in which a family builds a home, lives there, grows and consumes food, and drinks groundwater from the site. Increases in the dose criteria for hypothetical intruders to 500 mrem/yr, for example, would provide a wider margin for addressing decommissioning cases. The low-level waste regulation, 10 CFR Part 61, uses a similar intruder dose objective of 500 mrem/yr for establishing the concentrations of wastes suitable for disposal in a near-surface disposal facility. Also, more realistic scenarios that incorporate probabilities of intrusion, maintenance of cover material, time periods less than the 1,000 years over which decommissioning doses are currently evaluated, and so on, may be appropriate.

3. Impacts

This option could either include changes to the decommissioning rules now being developed or changes to the implementing guidance that would modify the dose basis for releasing sites for restricted or unrestricted use. If substantive changes are proposed to the current rulemaking on radiological criteria for decommissioning, the NRC would need to request a new round of public comments on a new proposed rule. No legislative changes are needed for this option.

Rulemaking activities would probably require several staff-years; development of implementing guidance would also require several staff-years. These resource levels assume that NRC could obtain agreement from EPA on the proposed positions without a substantial staff effort. If new criteria are promulgated, about the same level of resources for NRC review would be needed because the NRC staff decommissioning evaluation and review process would not be changed, only the overall dose objectives. Licensees, however, would have a greater range of lower cost, potentially acceptable decommissioning options.

Because EPA has the responsibility for developing generally applicable radiation criteria, raising the overall acceptable doses substantially above the dose levels currently being discussed with EPA may not be feasible if EPA establishes regulations with dose objectives well below the NRC criteria. Development of scenarios that are substantially different from the EPA approach may not be worth the effort if EPA concludes that NRC's program is incompatible with EPA's generally applicable standards.

If new decommissioning standards are promulgated, NRC resources for staff review would remain about the same. The principal beneficiary of the new criteria would be licensees because licensees would have a wider range of potentially acceptable, lower cost, decommissioning alternatives.

Option 4: Adopt the Environmental Protection Agency Superfund Approach

1. Option

EPA uses an approach for remediating hazardous chemical contamination that places less emphasis on long-term hazards than does the NRC approach for remediating radiologic contamination. This option would enable NRC to use EPA hazardous chemical remediation approaches that leave contamination in place, require minimal institutional controls, and minimize the consideration of long-term hazards.

2. Background

Under the Resource Conservation and Recovery Act (RCRA), EPA has responsibility for regulating the management of hazardous wastes and nonhazardous solid wastes. Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or Superfund, EPA has also been given the responsibility for addressing problems at inactive and abandoned hazardous waste sites. Radioactive materials licensable by NRC are also included under the scope of CERCLA. However, by policy, EPA will not usually regulate these materials as long as NRC retains licensing control.

EPA's concepts for solid and hazardous waste disposal differ substantially from NRC's radioactive waste disposal requirements. Because of the long-term hazard in low-level radioactive wastes, NRC requires a disposal concept to limit releases without depending on the use of active maintenance or controls. EPA's regulation of RCRA hazardous wastes, which generally also pose a long-term hazard, relies on an active liner and leachate collection and treatment systems for 30 years. At the end of 30 years, EPA will evaluate the overall safety of the disposal area to determine whether controls need to be

continued. Also, EPA does not evaluate RCRA disposal sites using the intruder exposure scenarios, as NRC does for evaluating the disposal of radioactive wastes.

For long-term institutional control over the disposal site, NRC requires that low-level waste disposal site land be owned by the State or by the Federal Government. EPA's solid and hazardous chemical disposal sites can be placed on private lands with only deed restrictions to establish institutional control.

In EPA's December 1995 draft of the radiation site cleanup regulation, EPA would require limiting decommissioning wastes left onsite with passive controls (e.g., land use covenants, etc.) to concentrations that would expose the reasonably maximally exposed member of the public to less than 75 mrem/yr over a 1,000-year period using a rural residential land use scenario. This approach differs from the hazardous chemical waste approach in that concentrations of hazardous wastes are not limited based on 1000-year exposure evaluations using rural residential exposure scenarios.

Under EPA guidelines, offsite disposal of wastes at a permitted solid or hazardous waste disposal site is not required. The site owner, the operator, or the EPA can select an onsite disposal alternative that meets the RCRA minimum technology requirements or where it can be demonstrated that no migration of hazardous constituents will occur. If EPA RCRA type standards could be applied to LLW disposal, such disposal might be simpler and more cost-effective than meeting current NRC standards for radioactive wastes, especially if meeting such standards did not require transport of large quantities of wastes to a licensed low-level waste disposal site.

3. Impacts

Using an EPA hazardous chemical waste approach for approving remedial actions would result in lower licensee remediation costs, more sites using onsite disposal options, and fewer sites being released for unrestricted use. The hazardous chemical approach, however, substantially differs from the approach proposed by EPA in its draft proposed radiation site cleanup regulation. In the draft proposed rule, EPA would limit the concentrations of radioactive materials based on analysis of health effects for 1,000 years. Because of these differences, NRC would need to obtain EPA buy-in to ensure that the NRC approach meets EPA environmental protection objectives for radioactive hazards.

This option could be implemented with no legislative changes. Amendments to current NRC regulations would be required to document onsite waste disposal standards similar to those in EPA's RCRA regulations (40 CFR Part 264). It is expected that an environmental impact statement (EIS) would be required

because current NRC decommissioning standards only address remediation to radioactivity levels suitable for unrestricted use. NRC's proposed radiological criteria for decommissioning provide for onsite disposal with land use restrictions if intruders would receive less than 100 mrem/yr over a 1000-year timeframe. Under this option, NRC would allow onsite waste disposal with land use restrictions for cases in which intruder doses could be up to 500 mrem/yr over a 1,000-year timeframe. This option assumes that EPA would agree that this approach is consistent with EPA environmental protection objectives.

It is estimated that several staff-years would be required to complete a final rulemaking for implementing this option. Approximately $1 million would be needed to develop a draft and final EIS to support the rulemaking. It is expected that NRC resources for reviewing decommissioning plans that propose EPA hazardous waste remediation approaches would be about the same as those required for current decommissioning reviews. In these cases, the NRC staff would still need to ensure compliance with equivalent EPA technology and siting requirements.

Using an approach similar to the one used by EPA for evaluating RCRA hazardous waste disposal sites could result in solutions for the most difficult decommissioning cases before the NRC. This option would enable NRC to resolve issues applicable to those sites having large quantities of uranium- and thorium-contaminated wastes that otherwise must be sent off site to a licensed low-level waste disposal site. For several of these decommissioning cases, licensees are not financially capable of disposing wastes at a low-level waste site.

Option 5: Regulate Source Material Consistently With Naturally Occurring and Accelerator-Produced Radioactive Materials

1. Option

In addition to the radioactive materials regulated by NRC, other radioactive materials occur naturally or are produced by accelerators. These naturally occurring and accelerator-produced radioactive materials, referred to as NARM, are found in the environment, in homes, in medical practice, in consumer products, and in a variety of industrial applications. Under this option, NRC would request legislation to amend the AEA to transfer NRC jurisdiction over source material to EPA and the States. This change would place all jurisdiction for radioactive materials that occur naturally in the environment within the same agencies. This change could also stimulate the development of a cohesive Federal policy on Federal versus State roles in regulating NARM, and a consistent regulatory approach for addressing the radiological hazards for possession, use, and disposal of these materials.

2. Background

The definition of source material found in NRC regulations is based on the early safeguards concerns for material that could be used to ultimately make reactor fuel or nuclear weapons. In the 1950s, when the definition was written, Congress considered that source materials needed to be placed under regulatory control on the basis of promoting common defense and national security. The health and safety impacts from other naturally occurring sources of radiation (e.g., carbon-14, potassium-40, polonium-210, radon-222, and radium-226) were considered to be manageable, to be relatively insignificant, and to have no basis for regulation from the standpoint of the common defense and national security.

EPA and other Federal and State agencies are responsible for regulating public exposures to naturally occurring radioactive materials that are not licensed by NRC. A detailed discussion of the history of NARM regulation and NARM hazards is found in NUREG-1310, "Naturally Occurring and Accelerator-Produced Radioactive Materials - 1987 Review." State authority in this area derives from the Constitution, by which States have primary responsibility for the health and safety of the public. EPA and other Federal agencies derive their jurisdiction from several acts addressing control of hazardous substances, protection of the environment, and control of products entering commerce. In the past, States have requested that jurisdiction over NARM be assigned to the NRC so that a consistent regulatory scheme could be developed. Because of the relatively low hazard of naturally occurring radioactive materials, Congress has not attempted to consolidate the responsibilities of Federal agencies (see Section 7.6 of NUREG-1310).

EPA, State, and NRC programs do not treat the radiological risks from these natural materials consistently. Possessors of uranium or thorium in concentrations exceeding 0.05 weight percent must have NRC licenses and a health and safety program as defined in 10 CFR Parts 20 and 40. These licensees generally are required to meet more restrictive conditions than are possessors and users of other naturally occurring radioactive materials. There are, however, no significant differences in the radiological risks of these materials, although radon and some discrete radium sources have a higher radiological hazard than uranium and thorium.

3. Impacts

If jurisdiction over source materials is transferred to EPA and the States, NRC would eliminate more than 100 source material licenses and the regulations now in 10 CFR Part 40. It would also eliminate about two-thirds of the cases being addressed in the SDMP and about half of the cases of previously terminated licenses being reviewed by the NRC staff. This option would

stimulate development of a single, consistent regulatory scheme for source material and all other naturally occurring radioactive materials in the environment and in commerce.

This option would require amendment of the AEA. To eliminate NRC's jurisdiction over source material, modifications would have to be made to at least Sections 2, 11, 61 through 69, and 161 of the AEA. NRC regulations would also have to be amended to conform to the new legislative requirements. The principal change would be to eliminate 10 CFR Part 40. Conforming changes in other sections of the regulations would also be required.

Elimination of the responsibility for source material licensing would be expected to reduce resource requirements by several tens of FTEs, based upon past source materials licensing and inspection expenditures. Note that most source materials licensees are in an inspection priority category requiring inspections on a frequency of at least 3 years. Approximately 20 FTEs will be saved for the SDMP and for reviews of previously terminated source material licenses.

Agreement States currently regulate NARM consistently with their own source material licensing program. Therefore, no substantial impacts would be anticipated on Agreement State Programs. Most non-Agreement States currently have a full or a partial licensing or registration program for NARM.

Option 6: Focus on Decommissioning Cases in Which Progress Can Be Made; Transfer Stalled Sites to Environmental Protection Agency's Superfund Program

1. Option

Under this option, the NRC staff would focus its attention on sites at which licensees and unlicensed responsible parties are making progress in their decommissioning programs. For sites showing a lack of progress, the NRC staff would reconsider the threshold for referring sites to EPA's Superfund Program. Currently, NRC's policy is to exhaust all remedies available to the NRC for getting the licensee to properly decommission its site before referring a site to EPA. However, by exhausting all remedies, NRC may exhaust all of the licensee's funds before a referral to the Superfund is made. There may be a more appropriate set of criteria for making such referrals. For example, referrals could be made earlier, when licensee funds are still available and EPA's different remedies may have a greater chance of success in achieving the EPA's ultimate goals. This option would enable EPA to utilize its greater legal authority to compel remediation and obtain funding from unlicensed parties that may have contributed to the contamination. Under this option, EPA would set priorities for remediation consistent with other remediation actions under its jurisdiction. Currently, the NRC staff is spending significant resources in dealing with licensees that are incapable of funding

decommissioning or that have limited incentives to complete decommissioning in a timely manner. Under this option, these resources would be saved. This option is a new approach to implement a currently available process.

2. Background

Financial assurance requirements for decommissioning were promulgated in the 1988 decommissioning rulemaking. These requirements are intended to ensure that the licensees that receive the benefits from the use of nuclear materials establish financial arrangements so that decommissioning can take place even if the licensee becomes unable to perform it. Financial assurance will make it less likely that the taxpayer will be burdened by future remediation obligations.

In August 1994, NRC promulgated a timeliness rule that requires licensees to submit decommissioning plans, if required, and to decommission unused contaminated facilities, buildings, and outdoor areas within 2 years unless an alternative schedule is justified. Licensees that are unwilling or unable to perform decommissioning within the prescribed times would be subject to enforcement action.

Several NRC licensees are financially unable to fund decommissioning. Others may be unwilling to meet the timeliness rule requirements if they decide it is less expensive to delay decommissioning through litigation. In these cases, after NRC pursues all avenues to achieve decommissioning, in accordance with current Commission policy, these sites could be transferred to EPA for remediation under the Superfund program.

The Commission had previously considered staff recommendations to establish procedures for transferring sites from NRC to EPA for remediation under the Superfund program. In 1989, the Commission directed the staff to provide for each site the staff proposes to defer to EPA or to a State agency under Superfund an analysis of the cleanup standards to be used, the State's rights and authorities, and the citizen suit provisions of the Superfund.

In SECY-93-235, the staff proposed to communicate with EPA about transferring the Safety Light Corporation site in Bloomsburg, Pennsylvania, to EPA so that EPA could supervise site remediation under the Superfund. Action under this request was set aside when the NRC staff reached an agreement with the licensee that governs the characterization and remediation planning for the site.

In 1995, the Commission agreed to defer regulatory oversight of the West Lake Landfill in Bridgeton, Missouri, and the E.I. Dupont site in Newport, Delaware, to EPA (see SECY-95-056 and the related SRM). In these cases, neither site had an NRC license, although both sites possessed licensable

quantities of source material, and EPA had already established remediation programs for hazardous chemical and radioactive wastes at the sites. The NRC staff considered the remediation programs sufficient to protect the public and the environment from the risks associated with the radioactive materials.

3. Impacts

Under this option, NRC would transfer about 10 of the SDMP sites to EPA for consideration under the Superfund. Examples of new generic criteria that could be used for EPA referral include those sites for which there is no definitive source of decommissioning funding to complete the project, sites for which the licensee has been unable to obtain a financial assurance instrument for the full cost of facility decommissioning, or sites for which litigation involving financial assurance or the timeliness rule is pending or underway. Without the necessary funding, it is unlikely that timeliness rule provisions can be met or that agreement could be reached on alternative decommissioning schedules. Because of the complex financial and litigative issues being addressed, these sites represent about one-third of the SDMP's budget. The potential for transferring sites to EPA could also act as an incentive for a licensee or an unlicensed responsible party to resolve financial funding issues and continue to make progress towards decommissioning. For sites that are transferred to EPA, low priorities may be assigned to many through EPA's Hazard Ranking System. Some sites may also not meet the threshold for listing on the National Priorities List. Close coordination between NRC and EPA would be needed under this option.

No legislative or regulatory changes would be needed to implement this policy. A memorandum of understanding (MOU) would be the recommended mechanism to establish the procedures for site transfer. The NRC staff would have to reach agreement with EPA on this concept. If sites have licenses, the licenses would be held in abeyance until the remediation is completed.

Several staff-years would be required to negotiate an MOU with EPA, to document the need for the transfer of sites to EPA, and to coordinate the administrative transfers. Transfer of these complex sites would be expected to save more than 10 FTEs in the SDMP program.

Option 7: Take an Aggressive Position To Develop Regulatory Frameworks for Lower Cost Decommissioning Waste Disposal Options

1. Option

Under this option, NRC would take a more aggressive role in developing regulatory frameworks for lower cost decommissioning waste disposal alternatives and would assign high priorities to license application reviews for these alternatives.

2. Background

The NRC usually takes a neutral position on many issues that affect license decommissioning alternatives. NRC has not recommended or given preference to specific decommissioning or disposal options as long as they can be performed safely. However, NRC could more aggressively suggest solutions and develop regulatory frameworks for lower cost decommissioning waste disposal options because cost is the primary factor used in licensee decisions on remediation methods. Under this option, NRC would seek solutions for obtaining lower cost disposal methods (e.g., providing a regulatory framework for using uranium mill tailings sites for the disposal of uranium and thorium decommissioning wastes and developing a regulatory framework for using the provisions of the NWPA, Sections 151(b) and (c)).

Several of the SDMP sites have very large quantities of wastes, with concentrations that exceed NRC limits for unrestricted use. In some cases, the waste volumes exceed 10 million cubic feet. The cost to dispose of these large quantities of waste at offsite licensed low-level waste disposal sites can exceed hundreds of millions of dollars, costs that licensees cannot afford. In several cases, licensees have proposed to use onsite disposal, applying restrictive covenants on property deeds to control future uses of the site. These proposals are resource-intensive to review and include the development of EISs.

One common feature of the disposal of high-level, low-level, and uranium mill tailings waste is that institutional controls are embodied in the requirements. These institutional controls are maintained by Federal or State entities to restrict future uses of the site so that intruder health and safety impacts can be minimized. For decommissioning wastes with activity levels that exceed NRC limits for unrestricted use, institutional control becomes a factor in reviewing onsite disposal requests. Several institutional control alternatives are possible for decommissioning wastes. These options include transfer of the disposal site to DOE under either Section 151(b) or Section 151(c) of the NWPA, or use of a uranium mill tailings site that will be transferred to DOE under the UMTRCA.

In the first alternative, NWPA, Section 151(b), authorizes DOE to take custody of a low-level waste disposal site, provided NRC requirements have been met. This provision was intended to allow DOE to take custody of commercial low-level waste disposal sites, but it could be applied to onsite disposal of decommissioning waste.

In the second alternative, NWPA, Section 151(c), requires DOE to take custody upon the request of the owner of the site of low-level waste generated as a result of processes used to extract zirconium, hafnium, and rare earths from source material. This provision was recently used when the AMAX site in Wood

County, West Virginia, was transferred to DOE after it was stabilized and a funding account was established to cover future surveillance and monitoring costs.

In the third alternative, disposal of uranium mill tailings is regulated under 10 CFR Part 40, Appendix A, which requires groundwater protection, provisions to minimize release of airborne radon, and stabilization of the tailings piles for a 200-to-1,000-year period. Under the UMTRCA, the DOE or a State, at its option, would accept custody of the site to provide long-term protection of the public health and safety. Because several SDMP sites have large quantities of uranium- and thorium-contaminated waste with characteristics similar to those of mill tailings, it may be cost-effective to dispose of decommissioning waste containing source material at existing mill tailings sites or onsite under provisions similar to those in 10 CFR Part 40, Appendix A. Reclamation costs at uranium mill tailings sites average about $0.97 per ton (about $0.05 per ft^3). This cost is substantially less than disposal costs at licensed low-level waste disposal sites, which charge, as a minimum, about $20 to $30 per ft^3 for decommissioning-type wastes at the Envirocare disposal site in Utah. If other low-level waste sites are used, the costs would be substantially higher. Legislation would not be required to effect the appropriate DOE or State institutional control provisions needed to ensure restrictions on long-term site use but may be needed to clarify these provisions. Without legislation, DOE or the States, on a case-by-case basis, would need to commit to accept title to source material wastes. The use of this alternative is discussed in detail in SECY-95-211. General guidance on approving license applications for disposal of source material at uranium mill tailings sites was published in the Federal Register on September 22, 1995.

3. Impacts

By taking a more aggressive posture for developing regulatory frameworks for lower cost decommissioning waste disposal options, NRC could improve the timeliness of decommissioning in several of the more complex decommissioning cases.

No legislation would be needed to implement NWPA, Sections 151(b) and (c). Development of regulatory guidance documents and possibly changes to NRC regulations may be needed to provide a clear set of procedures for implementing this option.

Revising regulatory and legal frameworks for using uranium mill tailings disposal sites for uranium and thorium decommissioning wastes could result in requests for legislation and amendments to NRC regulations. Currently, the UMTRCA applies explicitly to uranium mill tailings, but disposal of other AEA materials, such as source material, is not precluded. However, legislation

may be needed to clearly assign DOE as the Government entity with responsibility for establishing institutional control for other radioactive material that may also be disposed of at a uranium mill tailings disposal facility. Amendments to 10 CFR Part 40 would not be needed to broaden the scope of 10 CFR Part 40, Appendix A, to also apply to the disposal of wastes other than those from uranium milling. However, more detailed guidance for the review of license applications would be needed.

Approximately 5 staff-years would be required to make the changes needed to implement these alternatives. If the availability of lower cost disposal options results in a decommissioning project involving large quantities of thorium contamination, choosing offsite disposal rather than on-site disposal, could save up to 1 staff-year and from $500,000 to $1 million could be saved in the review of each decommissioning plan and in preparing an environmental assessment rather than an EIS for the onsite disposal option. For onsite disposal options under NWPA, Sections 151(b) and (c), or 10 CFR Part 40, Appendix A, NRC resource requirements for decommissioning plan reviews would be similar to the current review needs.

If NRC takes a more aggressive role in developing frameworks for more cost-effective decommissioning waste disposal alternatives, it will be able to act more quickly on decommissioning plan reviews. If uranium mill tailings sites can be used for decommissioning waste disposal, more licensees and responsible parties may choose offsite disposal rather than on-site disposal. Onsite disposal options require more detailed analyses of radiological impacts and, in some cases, the development of an EIS. This course of action would reduce NRC resources needed to review decommissioning plans, could reduce public concern about onsite disposals, and might reduce the possibility of litigation. Onsite disposal options under NWPA, Sections 151(b) and (c), or 10 CFR Part 40, Appendix A, would resolve institutional control issues and enable NRC to more quickly review decommissioning plans.

Option 8: Develop a Strong Litigation Strategy

1. Option

At most sites undergoing decommissioning, there is no immediate threat to public health and safety. Under this option, NRC would review the litigative risks for taking enforcement actions in these cases and, if necessary, strengthen regulations so that decommissioning standards can be aggressively enforced.

2. Background

During the 1989 hearings before the House of Representative's Subcommittee on Energy, Environment, and Natural Resources, the NRC General Counsel stated that NRC has sufficient authority under the AEA to compel parties to properly decommission sites. The NRC staff, however, could be challenged when it takes enforcement actions in the decommissioning area, especially since most decommissioning cases involve situations in which there is no immediate threat to public health and safety.

3. Impacts

If weaknesses in NRC's regulations, which provide the basis for enforcement actions, are identified, NRC would amend its regulations to strengthen its enforcement basis. It is expected that no legislative changes would be necessary. Any rulemaking found to be needed would be expected to require several staff-years of effort to promulgate. Strengthening the basis of NRC's enforcement authority for site remediation could improve the timeliness of remediation actions. Licensees would be expected to move more quickly in completing decommissioning projects, thereby reducing NRC review costs.

Option 9: Seek Superfund Authority

1. Option

Congress could give NRC the same Superfund authorities that are provided to EPA. These provisions could include joint and several liability requirements and authority for seeking triple damages from responsible parties. These provisions could provide a strong incentive for licensees and responsible parties to decommission sites in a timely manner, provide an enforcement authority if licensees do not decommission the sites, and provide access to funding from responsible parties other than the licensee.

2. Background

CERCLA is designed to remedy the mistakes in hazardous waste management made in the past. The act authorizes a number of Government actions to remedy the condition that could result in a release or the effects of a release of hazardous constituents and also has provisions to make the parties responsible for the releases pay for the remediation actions. CERCLA can be used to require potentially responsible parties (PRPs) to perform remedial work, or the Government and private parties can perform the remedial work, with EPA seeking reimbursement from the PRPs. In seeking reimbursement, EPA can obtain triple damages from the PRPs. Under CERCLA, PRPs are also legally "jointly and severally liable for cleanup costs. Under these "joint and several" liability provisions, a single PRP could be forced to pay for the entire site

cleanup even if it is not the only party that may have contributed to the contamination. The triple damage and "joint and several" liability provisions are strong inducements for PRPs to cooperate with EPA to remediate problem sites.

3. Impacts

Seeking NRC Superfund authority would require congressional legislation. Since Superfund reauthorization legislation is now being debated in Congress, and the liability provisions are one of the most controversial issues, the Commission could take a position on keeping the strong incentives as they exist under the current law. Under the current Superfund law, EPA is authorized to use Superfund powers for source, byproduct, and special nuclear material. Even though NRC does not have Superfund authority, NRC can still request that sites be turned over to EPA, if responsible parties are unwilling or incapable of performing site decommissioning. The NRC staff would also need to amend its regulations to make the appropriate changes to conform to the new authority.

Approximately 10 staff-years would be required to coordinate the preparation of new legislation and for making the necessary conforming changes to NRC regulations. Additional resources would be needed if licensees or responsible parties decided to litigate NRC decisions under this authority. These resource requirements would have to be balanced by the future usefulness of Superfund authority for the few sites to which it would apply. In addition, litigation has held up many EPA remedial actions under CERCLA, and similar litigation would represent an additional NRC burden.

Giving NRC Superfund authority could also give licensees an incentive to cooperate with the NRC staff in remediating problem sites. However, some licensees and responsible parties might decide to litigate NRC decisions. Litigative actions could substantially delay remedial actions and would require substantial NRC resources. For the few sites to which this authority might be applicable, there may be little net gain in NRC program efficiency, especially since under the current Superfund program NRC can turn over problem sites to EPA for disposition.

V. RELATED ISSUES

After the Commission has made decisions concerning the Direction-Setting Issue discussed above, additional issue(s) such as those related to implementation details will be addressed as the Strategic Plan is implemented. The related issues are listed in this section to provide a more complete understanding of the higher level Direction-Setting Issue.

A. Given the possibility of more uranium recovery licensee bankruptcies, how should NRC ensure that the licensees will have adequate financial sureties in place?

This issue concerns how aggressively NRC wishes to pursue the financial assurance of uranium recovery licensees and how this issue may lead to rulemaking. This issue is linked to decommissioning because the NRC's policies concerning remediation of uranium mill tailings sites should be consistent with the agency's decommissioning policies.

B. What public participation measures can be used by NRC to optimize an efficient decommissioning process?

This issue is linked to this paper because it establishes a balance between NRC resource costs and the benefits of extensive public involvement in decommissioning. Public involvement programs can reduce the risk of litigation if the public is given an opportunity to contribute to the decommissioning solution and can begin to develop confidence in NRC's commitment to public health and safety.

VI. COMMISSION'S PRELIMINARY VIEWS

Staff actions regarding the various options should be held in abeyance pending the Commission's final decision on this issue paper. The Commission's preliminary views are:

The Commission's initial preference on this DSI is a combination of options, subject to the modifications specified below, including Option 2 (Change the Decommissioning Review Process), Option 6 (Focus on Decommissioning Cases in which Progress can be made; Transfer Stalled Sites to EPA), Option 7 (Take an Aggressive Position to Develop Regulatory Frameworks for Lower Cost Decommissioning Waste Disposal Options), and Option 8 (Develop a Strong Litigation Strategy). In combination, these options would place appropriate responsibility on licensees to remediate their sites while giving NRC appropriate tools to deal with problem sites and licensees.

With regard to Option 2, the Commission believes that the option should be tested on a pilot scale for a few selected materials licensees to determine the potential success and effectiveness of this option if it were to be adopted on a broader scale. The pilot program participants should be volunteers that are found to be suitable for participating in the pilot program by the NRC. Based on the results of the pilot program, the NRC could consider, at a later date, whether this option should be adopted on a broader basis.

Full implementation of Option 2 could significantly affect the way NRC licensees carry out their responsibilities for decommissioning and remediating sites. Some licensees might be in a poor position to hire and effectively use the contractors they would need to carry out these responsibilities. Accordingly, the NRC specifically seeks comment on whether NRC should hold seminars or workshops for licensees to make sure that they understand what NRC expects of them and what they, in turn, should expect of their contractors. Such training could help to assure that limited cleanup resources would be effectively applied.

With regard to Option 6, the Commission believes that rather than focussing only on the progress being made on the site review, the staff should also, consistent with DSI 12, examine the level of risk associated with each site. The NRC could focus on both progress and risk in making determinations on the disposition of sites. The NRC could focus on the higher risk sites where progress is being made and place lesser emphasis on the lower risk sites. Staff should consider the feasibility of transferring the low risk, stalled sites to the EPA's Superfund Program. Determinations on whether to send to EPA's Superfund Program a stalled, high-risk site or a low risk site where progress is being made, should be made on a case-by-case basis.

The implementation process for Option 6 should not preclude the Commission from reviewing a low risk, stalled site if conditions warrant, nor should the process automatically send the site to EPA's Superfund Program.

ACRONYMS

AEA	Atomic Energy Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DOE	Department of Energy
DSI	Direction-Setting Issue
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FTE	Full-Time Equivalent
FY	Fiscal Year
MOU	Memorandum of Understanding
NARM	Naturally Occurring and Accelerator-Produced Radioactive Materials
NRC	Nuclear Regulatory Commission
NWPA	Nuclear Waste Policy Act
PRPs	Potentially Responsible Parties
RCRA	Resource Conservation and Recovery Act
SDMP	Site Decommissioning Management Plan
SRM	Staff Requirements Memorandum
UMTRCA	Uranium Mill Tailings Radiation Control Act