DECOMMISSIONING PROGRAM

CONTINUOUS IMPROVEMENT REPORT FOR FY 2004-2005

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1. Introduction

1.1 Purpose

This Continuous Improvement Report describes the U.S. Nuclear Regulatory Commission's (NRC's) improvement activities and products completed during Fiscal Year (FY) 2004-2005 as part of the Integrated Decommissioning Improvement Plan (IDIP) Revision 1 (NRC, 2005 b). This improvement report is a followup to the evaluation of improvements made to the program during FY 2000-2003 that are described in the Decommissioning Program Evaluation (NRC, 2003 b).

1.2 Background

Improvements associated with the License Termination Rule (LTR) Analysis, Decommissioning Program Evaluation recommendations, and Commission direction resulting from the annual decommissioning briefing held in October 2004, were combined in the IDIP to integrate the plans for all improvements. Background is given below on these three groups of improvements.

1.2.1 LTR Analysis and Commission Direction

NRC staff experience using the LTR resulted in identifying implementation issues important to the decommissioning of sites. The Commission directed the staff, in June 2002, to conduct an analysis of LTR implementation issues, with particular emphasis on resolving the restricted release and institutional control issues. The staff analysis and recommendations for eight issues were provided to the Commission on May 2, 2003, (SECY-03-0069) (NRC, 2003 a) and the Commission approved the staff recommendations with comments on November 17, 2003. Subsequently, on March 1, 2004, the staff provided the Commission with its analysis of a ninth issue on intentional mixing of soil (SECY-04-0035) (NRC, 2004 a), and the Commission approved the staff recommendation, with comments on May 11, 2004. The Commission-approved recommendations and comments are the basis for the planned regulatory improvements conducted during FY 2004-2005 and planned during FY 2006-2007 as identified in the IDIP. A summary of the LTR Analysis, Commission direction, and planned activities for each of the nine issues is given in a Regulatory Issue Summary (RIS) 2004-08 (NRC, 2004 a). The RIS completed the work for two of the nine issues: unimportant quantities and a separate standard for uranium and thorium.

1.2.2 Decommissioning Program Evaluation Recommendations

NRC's Strategic Plan for FY 2000-2005 identified a program evaluation entitled *Changes to the Decommissioning Process* to be conducted in FY 2003. On September 29, 2003, the NRC

staff completed the Decommissioning Program Evaluation (NRC, 2003 b). In this report, the staff evaluated the effectiveness of NRC's Division of Waste Management (DWM) Decommissioning Program and recommended future improvements. The staff evaluated overall program effectiveness using: 1) NRC's Strategic Plan measures and targets; 2) the Office of Nuclear Material Safety and Safeguards (NMSS) Operating Plan accomplishments; and 3) the Office of Management and Budget (OMB) Program Assessment Rating Tool (PART). The staff used the PART questions as an independent methodology to systematically and comprehensively evaluate its program to identify areas of the program's effectiveness that might need further improvement. The staff also evaluated the effectiveness of 18 specific changes/improvements that were made to the program during the FY 2001–FY 2003 evaluation period.

The Decommissioning Program Evaluation noted that although significant improvements had been completed, future improvements would be beneficial. In particular, it concluded that the recommendations in the LTR Analysis (SECY-03-0069) to resolve the LTR implementation issues, when implemented as directed by the Commission, offer potentially significant future improvements for the program. To complement these regulatory improvements, the Decommissioning Program Evaluation included additional recommendations that primarily would improve internal program management . The IDIP identified the improvements to be completed in FY 2004-2005 and planned for FY 2006 to address the recommendations in the Decommissioning Program Evaluation.

1.2.3 Commission Direction Resulting from the Annual Decommissioning Briefing

In October 2004, the staff provided its annual briefing on the Decommissioning Program to the Commission. In addition to the staff presentation, invited stakeholders representing industry and a State presented their views on the Decommissioning Program. As a result of this meeting, the Commission directed the staff to address several items (Staff Requirements Memoranda (SRM)-M041013A). The Commission requested that the staff discuss at the next annual briefing on decommissioning, its progress in capturing lessons learned and best practices from recent experience which can instruct both licensees and NRC staff undertaking current and future decommissioning projects. The Commission also directed the staff to continue to address salient issues that affect the efficiency and effectiveness of NRC's decommissioning program, including: improving radiological monitoring; establishing measures to provide finality in the decommissioning process; improving consistency among State and Federal regulators; and enhancing guidance to better address issues of flexibility in decommissioning approaches and institutional controls for restricted release scenarios. The IDIP identified improvement activities for each of these issues.

1.2.4 Report Content

Section 2.0 of this report provides a summary of key improvements activities completed during FY 2004 and FY 2005 and the expected outcomes from these activities. Section 3.0 provides a description of the completed improvement activities. Each description references the appropriate IDIP number for tracking purposes and references the NRC products that document the improvement activities. Attachment 1 summarizes the products for each improvement.

2. Summary of Key Improvement Activities and Outcomes

The IDIP identified 18 improvement activities: 4 regulatory improvements; 9 program management improvements from the Decommissioning Program Evaluation; and 5 improvements from the Commission's SRM. The staff completed all improvement activities planned in the IDIP for FY 2004-2005. Many of these improvements include additional work planned for FY 2006-2007, such as the rulemaking to prevent future legacy sites and finalizing the decommissioning guidance that was issued as a draft for public comment in FY 2005.

Key improvement activities for FY 2004 and FY 2005 are summarized below, and expected outcomes are given for NRC's Strategic Plan goals. Each improvement is described in Section 3.

2.1 Improvement Activities Completed in FY 2004

Published a RIS to inform licensees and stakeholders of NRC's analysis and plans for the nine LTR implementation issues (RIS 2004-08) (NRC, 2004 a).

Completed interim guidance on a Long-Term Control (LTC) license for the Shieldalloy Metallurgical Corporation (SMC) site that the licensee is using to revise its Decommissioning Plan (DP) and demonstrate compliance with the LTR requirements for legally enforceable institutional controls at a restricted use site (NRC, 2004 b).

Restructured into a comprehensive decommissioning program and reorganized DWM into two separate divisions.

Conducted staff training to implement the three volumes of the Consolidated Decommissioning Guidance in NUREG-1757, and hired staff in critical disciplines.

Shared guidance on LTR Analysis issues with stakeholders (Waste Management (WM) 04) Symposia papers and National Mining Association annual meeting).

2.2 Improvement Activities Completed in FY 2005

Prepared draft decommissioning guidance in NUREG-1757 for public comment on LTR Analysis issues: restricted use; onsite disposal; realistic scenarios; removal of material after license termination; and intentional mixing of soil. Also developed draft guidance for other topics including engineered barriers; coordination of radiation surveys and use of Multi-Agency Radiation Laboratory Analytical Protocols (MARLAP); and cancelling or returning financial assurance instruments (NRC, 2005 h) (see Section 3.3.1).

Used a risk-informed approach to develop general guidance for inspections and enforcement to reduce the potential for subsurface contamination at operating sites and to prevent future legacy sites (i.e., sites that are complex and cannot decommission within existing resources for a variety of financial and technical reasons) (NRC, 2005 f) (see Section 3.1.2).

Began the proposed rulemaking/supporting guidance for changes in financial assurance and operations to prevent future legacy sites by obtaining early stakeholder input at the Decommissioning Workshop and procuring contractor support (see Section 3.1.3).

Continued to implement the decommissioning guidance in NUREG-1757 by training staff on dose modeling, risk-informed approaches, LTR Analysis issues, and institutional controls. Continued tailored consultations with licensees who are using new guidance and LTR issues (e.g., the SMC site and the West Valley site) (see Section 3.2.2).

Enhanced critical skills in dose modeling and health physics by hiring new staff and training existing staff from Headquarters and the Regions to conduct dose modeling reviews (see Section 3.2.3.1).

Developed new tools for efficient resource management including a risk-informed work prioritization procedure and a resource expenditure tracking system (see Section 3.2.3.2).

Developed an approach to estimate baseline costs specific activities at decommissioning sites. Explored the feasibility of methods to measure efficiency gains for NRC activities (see Section 3.2.3.2).

Ensured that goals and long-term outcomes for the program aligned with the new Strategic Plan, revised annual output measures, and added a new performance measure for the effectiveness goal beginning in FY 2006 (see Section 3.2.6).

Prepared the IDIP that consolidated and integrated the plans for continuous improvement during FY 2004-2007 (NRC, 2005 b). Prepared the first Decommissioning Continuous Improvement Report (this report) to document completed improvements during FY 2004-2005 (see Section 3.2.8).

Prepared many program improvement procedures that are being included in a major update to the Decommissioning Operations Manual.

Continued meaningful stakeholder involvement by: 1) holding a stakeholder workshop to provide new information about the program, obtain early input on guidance, exchange lessons learned, and obtain suggestions for further program improvements and 2) establishing a State working group with representatives from the Organization of Agreement States (OAS) and Council of Radiation Control Program Directors (CRCPD) that assisted the staff in developing the draft guidance (see Section 3.1.1).

Continued to enhance stakeholder communications by: 1) enhancing the Decommissioning web site; 2) developing a new decommissioning brochure to inform the public about the program; and 3) revising the annual status report for the Decommissioning Program (see Section 3.2.9).

Developed a lessons learned web page that makes existing NRC lessons learned more readily available. Began a collaborative effort with industry groups and Agreement States to broaden the participation in decommissioning lessons learned. Arranged for

and will lead a panel on lessons learned and will chair a decommissioning lessons learned session at the Waste Management 2006 Symposium (see Section 3.3.1).

Improved the process for guidance development with early involvement by stakeholders, the Advisory Committee on Nuclear Waste (ACNW), and States. Coordinated with the ACNW to conduct an independent working group meeting. This meeting provided early technical review and comments for the staff to consider in developing the draft guidance for the LTR issues. The working group included five outside decommissioning experts in addition to the ACNW members (see Section 3.1.1).

Shared guidance and lessons learned at both domestic conferences (e.g., WM 05 Symposia, American Nuclear Society (ANS) 05 Conference) and international conferences and workshops (e.g., International Conference on Environmental Remediation and Radioactive Waste Management, the Federal Environmental Industrial and Nuclear Supervision Service of the Russian Federation, and organizations working with nuclear power in China).

2.3 Outcomes from Improvement Activities

Major outcomes from the staffs' improvement activities are described below for the following NRC's Strategic Plan goals.

Safety

Decommissioning progress was made at three sites that have particularly challenging decommissioning problems and financial limitations.

One licensee (SMC), considering restricted use, was able to make progress revising its DP by proposing the new NRC LTC license as a legally enforceable and durable institutional control.

Use of the realistic scenario approach for dose modeling was instrumental in making decommissioning progress at two sites that have significant financial limitations. Realistic scenarios and a risk-informed, phasaed decommissioning resulted in starting remediation at the FMRI Inc. (formerly Fansteel) site. At the Kiski Valley Water Pollution Control Authority site, an unlicensed site, NRC completed its action at the site after determining that no further decommissioning action was needed.

Decommissioning progress was made possible at two other sites.

At the Cabot Reading site, the licensee used the realistic scenario approach and the flexibility of the LTR to design an engineered barrier for erosion protection to revise and resubmit its DP. This approach to completing decommissioning is key for the City of Reading to proceed with its extensive redevelopment plans.

At the Michigan Department of Natural Resources site, license termination was facilitated by using the realistic scenario approach. This resulted in not

disturbing the contamination and avoiding impacts to workers and the environment as well as minimizing the decommissioning costs.

Five LTR implementation issues were addressed by preparing a draft supplement to the decommissioning guidance in NUREG-1757 for public comment. The draft provides approaches that are more risk-informed, flexible, and realistic. New risk-informed approaches were developed for institutional controls and engineered barriers. Flexible implementation of the LTR was enhanced by the guidance for each of the LTR issues and engineered barriers. Dose modeling will be more realistic by using reasonably foreseeable land uses in exposure scenarios.

Openness

Enhanced stakeholder communication tools and early stakeholder involvement with regulatory guidance development have improved stakeholder understanding of the decommissioning process, regulations/guidance, and current issues. The staff also has learned more about stakeholder views on the key issues and ways to improve the Decommissioning Program. Stakeholder feedback forms from the Decommissioning workshop were very positive about the staff efforts at the workshop.

Effectiveness and Efficiency

During FY 2004 and FY 2005 there were a higher number of decommissioning project completions than in previous years. This resulted from a combination of numerous process improvements, including: 1) proactive approaches to licensing; 2) implementation of detailed guidance for staff and licensees; 3) improved radiological survey approaches; 4) use of more realistic dose models; 5) increased number of staff with critical skills; and 6) increased flexibility in resolving technical and policy issues that have been impeding site cleanups.

The process developed for identifying realistic scenarios combined with previous improvements, such as the use of more proactive approaches to interacting with licensees, resulted in completing the Yankee Rowe LTP review in 15 months. This review time is approximately one year faster than the average of the five previous LTP reviews.

Efficiencies are already evident in the improved timeliness of major reviews. In addition more efficient use of staff resources should result from using the new tools developed for tracking and managing staff resource expenditures.

Understanding of NRC's decommissioning issues and lessons learned should result in more efficient licensee decommissioning and also might assist the Agreement States' implementation of the LTR for sites in their states.

The identification of the types of operating sites and components that could have a high potential for subsurface contamination and future decommissioning problems was used to develop general guidance for heightened inspections. This guidance should improve the focus of the planned rulemaking to prevent future legacy sites and the development of inspection procedures and enforcement guidance in FY 2006.

Management

The staff's IDIP and completion of the improvements summarized in this report demonstrates and ensures the staff's commitment to continuous improvement.

3.0 Description of Completed Improvements

3.1 Regulatory Improvements

3.1.1 Revised Decommissioning Guidance on LTR issues and Other Topics (IDIP 4.1)

This improvement activity involved implementing the Commission's direction on five of the LTR Analysis issues through developing new guidance or revising existing guidance.

During FY 2004, the staff developed interim guidance for the LTC licence at the SMC site. The LTC license is one of the new options for institutional controls. This option is being used by SMC in its revised DP.

During FY 2005, the staff developed and published draft guidance for public comment on the following five LTR Analysis issues as directed by the Commission.

Restricted use/institutional controls
On-site disposal
Realistic Scenarios
Removal of material after license termination
Intentional mixing of soil

Draft guidance also was developed for other topics including: engineered barriers; coordination of radiation surveys; use of the MARLAP; and cancellation or return of financial assurance instruments. The revised guidance for engineered barriers enhances the guidance for restricted and unrestricted release sites. The draft guidance was published for public comment as NUREG-1757, Supplement 1 (NRC, 2005 h).

The staff enhanced its development of the draft guidance by incorporating early stakeholder involvement from diverse groups. A decommissioning workshop was conducted in April 2005. Approximately 180 stakeholders attended, including licensees, State representatives, U.S. Department of Energy (DOE), U.S. Environmental Protection Agency (EPA), U.S. Army Corps of Engineers, interested members of the public, and the ACNW. Individual breakout sessions were conducted for each of the above issues to explain the issue and obtain early input from stakeholders for the draft guidance. In addition to the workshop, a State working group was established with representatives from OAS and CRCPD. The working group members exchanged information with the staff on the issues and participated in the staff's internal review process. Early input was also obtained from an ACNW working group made up of the ACNW members and five external experts involved with decommissioning. This independent working group provided early review and comment on the staff's approaches to the draft guidance.

3.1.2 General Guidance for Inspections and Enforcement to Prevent Future Legacy Sites (IDIP 4.2)

This improvement activity involved determining which NRC- licensed operating facilities and activities could have a high potential for subsurface contamination and developing general guidance for inspection and enforcement to address these facilities and activities. This improvement activity along with the rulemaking and guidance described in Section 3.1.3 are all intended to enhance the prevention of future legacy sites.

The work completed during FY 2005 used a risk-informed approach to inventory and evaluate information from 82 decommissioning sites to identify which of these sites had subsurface contamination and what caused the contamination. The staff evaluated this information and identified the types of sites, facility components, and operational activities that could have a higher potential for subsurface contamination. This study provides lessons learned and risk insights from decommissioning sites that will be useful to existing and future operating sites licensed by NRC. Using these lessons learned, the staff developed general guidance for inspection and enforcement that will be used to develop inspection procedures and enforcement guidance during FY 2006. These lessons learned from decommissioning sites also will be used in developing the site operations part of the rulemaking and guidance for preventing future legacy sites during FY 2006-2007. This report is electronically available at ML052630421 (NRC, 2005 f).

3.1.3 Preparation for Rulemaking and Supporting Guidance to Prevent Future Legacy Sites (IDIP 4.3)

During FY 2005 the staff began the rulemaking process by establishing a rulemaking working group, developing a rulemaking schedule, and procuring a contractor who will provide technical assistance to the staff for the rulemaking. In addition, early stakeholder input was obtained at the Decommissioning Workshop on the two LTR Analysis issues for preventing future legacy sites that will be addressed by the rulemaking.

3.2 Program Management Improvements Recommended by the Decommissioning Program Evaluation

3.2.1 Establish a Comprehensive Decommissioning Program Perspective (IDIP 5.1)

This improvement activity involved describing the roles and the decommissioning activities of various NRC organizations making up the Comprehensive Decommissioning Program and taking restructuring steps to achieve the defined program. (Note that the prioritization approach identified in IDIP 5.1 is now reported under section 3.2.3.3 as one of the initiatives to improve efficient utilization of staff). The restructuring was largely accomplished in FY 2004 as reported in the *Federal Register* (69 *Federal Register 33946)* by eliminating the Site Decommissioning Management Plan (SDMP) designation for sites and managing the SDMP sites as “complex sites” under a comprehensive decommissioning program (*Federal Register*, 2004 d). Further implementation of the comprehensive program perspective was achieved by consolidating descriptions of all the Agency decommissioning activities and related information in the annual update for the Decommissioning Program and by upgrading the Decommissioning web site to a more comprehensive source of information. The description of the roles of various NRC

organizations was also documented in a procedure to be included in the Decommissioning Operation Manual. This procedure explains how the NMSS/DWMEP Decommissioning Program, as defined in the Budget (Tier II Subprogram) for complex materials sites and power reactors, relates to the other Agency decommissioning activities.

A coordinating role was identified for other NRC organizations responsible for currently operating licensed sites to begin identifying and resolving conditions or events that could complicate future decommissioning. This role was added to the revised Charter for the Decommissioning Board and incorporated into a procedure for the Operations Manual. These roles will evolve and will be further defined as a result of the rulemaking to prevent future legacy sites planned for FY 2006-2007.

During the 2005 Decommissioning Counterparts meeting, discussions were held on the roles of Headquarters and the Regions for project management and reviews of complex materials sites. An agreement was reached on the assignment of lead offices for new decommissioning sites. Per this agreement, the Decommissioning Directorate (DCD) will have responsibility for managing new complex materials site decommissioning projects that require site-specific dose modeling evaluations, have contaminated groundwater or are requesting restricted release or alternate criteria (i.e., Group 4-7 sites). The Regional offices will retain regulatory oversight responsibility for the new sites described in Groups 1 and 2. Sites described in Group 3 can be managed by either DCD or the Regions, and will be determined through case-by-case discussions.

3.2.2 Implement the New Consolidated Decommissioning Guidance (IDIP 5.2)

This improvement activity involved enhancing use of the Consolidated Decommissioning Guidance in NUREG-1757 completed in September 2003 by conducting staff training and consultations with licensees.

Staff training on the new Consolidated NMSS Decommissioning guidance in NUREG-1757 was completed for NMSS and Regions during FY 2004. A formal training course on dose modeling was developed by the staff and Argonne National Laboratory (ANL), and decommissioning staff from Headquarters and the Regions were trained during FY 2005. The dose modeling course included training on realistic scenarios. The staff also began informal staff seminars to explain and discuss important and emerging topics. Seminars were conducted on the LTR's risk-informed approaches, the LTR Analysis, the institutional control issue, and interim guidance on the use of the LTC license at a restricted use site.

Staff training was followed by consultations to inform licensees and stakeholders as appropriate. For example, meetings were conducted with SMC on the interim guidance for the LTC license and use of realistic scenarios for a restricted use site. Implementing future guidance would also include putting draft new or revised guidance on the new Decommissioning web site.

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The approach of staff training and specific licensee consultations will continue and be used when there is new guidance to implement. This approach has been documented in a new operating procedure to be included in the DWMEP Operations Manual.

3.2.3 Improve Staff Skills and Efficient Utilization (IDIP 5.3)

3.2.3.1 Improve Staff Availability in Critical Disciplines

This improvement activity involved resolution of a shortage of critical staff skills in dose modeling and health physics identified in 2003 at the time of the Decommissioning Program Evaluation. Lack of these critical skills had caused delays in conducting staff licensing reviews.

Hiring staff with dose modeling and health physics skills to support decommissioning was a priority during FY 2004 and FY 2005. As a result, there was a net increase of two staff members in health physics and a net increase of two staff members in dose modeling. Additionally, there was a net increase of three staff members having both health physics and dose modeling capabilities, resulting in an overall net increase of seven staff having health physics or dose modeling capabilities to support decommissioning. The results are described in terms of net increase, since assuring adequate staffing is dynamic. Although there was a net increase of seven staff, that increase resulted from adding 11 staff while at the same time losing four. Two staff members included in the net increase are serving as project managers.

The staff also expanded its dose modeling capability by contracting with ANL to develop a dose modeling course during FY 2004. Staff and ANL conducted the training during FY 2005. The purpose of this training was to provide technical and project management staff in Headquarters and the Regions with the capability to conduct simple dose modeling reviews or dose modeling reviews with some help from the staff from the core performance assessment section.

Finally, a separate and dedicated dose modeling core staff for the decommissioning program resulted from the reorganization of the Division of Waste Management in FY 2004 into two new divisions–the DWMEP and the Division of High-Level Waste Repository Safety.

3.2.3.2 Resource Tracking Process and Development of a Decommissioning Cost Baseline and Method for Measuring Efficiency

Two activities were conducted to develop new tools for tracking and evaluating staff resource expenditure data. The first activity developed a staff resource (full time equivalent) tracking method to use during budget execution each year. The second activity explored the feasibility of a quantitative method to measure efficiency gains in the decommissioning program from year to year.

To develop the resource tracking process the staff has:

Revised the procedure for assigning new resource codes;

Aligned resource codes to the line items in the budget;

Developed a monthly reporting process of resource expenditures for codes and budget line items and comparison to budget estimates; and

Developed a procedure for the above items to be included in the Operating Manual.

This activity will support several ongoing staff improvement efforts. First, it will provide the staff with an independent approach to evaluate the monthly resource expenditures and comparing them to the apportioned resources in the Decommissioning Program budget. Second, it will allow the staff to identify areas where more efficient approaches may be warranted in order to achieve Program goals and measures. Third, it will allow the staff to better estimate the resources necessary in the future to accomplish program goals.

In considering the feasibility of measuring efficiency gains, the staff has:

Collected and processed resource expenditure data from FY 2003 and FY 2004 for selected sites that had submitted a DP;

Defined FY 2003 as the "baseline" year;

Developed a method of comparing decommissioning resource data from year to year and begun comparing FY 2003 and FY 2004 resource data for DP reviews; and

Collected DP review time data for Calender Year (CY) 1997 through CY 2002 and LTP review time for CY 1999 through CY 2005 and evaluated the feasibility of using review time as a measure of efficiency gain. The staff concluded that using DP and LTP review time is a measure of effectiveness and timeliness; however, for a measure of efficiency, both time and resource expenditure data need to be evaluated.

When FY 2005 resource expenditure data becomes available, it will be analyzed along with FY 2003 and FY 2004 data to evaluate the feasibility of using resource and time data to measure efficiency gain.

3.2.3.3 Develop a Risk-Informed Approach to Prioritize Site Decommissioning Work

This improvement activity involved development of a risk-informed, prioritization approach to manage the resources allocated to all site-specific NRC staff licensing activities. The goal is to more explicitly consider risk and other decommissioning challenges in allocating an appropriate amount of resources to specific sites and resolving work priorities. The approach would be used in the budget process as well as budget execution to manage staff expenditure during the operating year and when resource reallocations might be needed for management decisions on work priority and staff assignments. The approach uses a scoring scheme to rank current decommissioning sites. Scores are determined for the following factors: funding problems; groundwater contamination; offsite/onsite contamination; other hazardous material; license/no license; public interest; unrestricted/restricted use; site-specific/default derived concentration guideline limits; EPA Memorandum of Understanding (MOU) site; closeness to license termination (return on investment); licensee cooperation; and involvement by another regulator. This approach was documented in a procedure to be included in the Operations Manual. (This item was in IDIP Section 5.1 but was moved to Section 3.2.3 in this report because it better aligned with other activities in this section.)

3.2.4 Expand Management Reviews of Decommissioning Site Progress (IDIP 5.4)

This improvement activity involves: 1) enhancing the coordination between Headquarters and the Regions for existing decommissioning sites to ensure decommissioning progress, consistency, and efficiency of resolving common policy and technical issues, and 2) enhancing coordination with NRC organizations responsible for regulating operating licensed sites to identify and resolve conditions or events that could complicate future decommissioning.

For the first action, during FY 2004-2005, the staff: 1) revised the Operating Plan input process; 2) revised the Decommissioning Board Charter and meeting agendas to focus discussions on cross-cutting process, technical, and policy issues (to ensure more timely and consistent resolution of issues); 3) implemented an annual management visit to each Regional office to discuss issues; and 4) revised Manual Chapter 2602 to enhance planning and coordination of inspections. The staff developed a new method for providing the Regions with Operating Plan milestones and metrics, which allows the Regional staff to provide Headquarters with updates in a more timely manner. The status of existing and potential new sites are discussed in a focused manner at the Decommissioning Board meetings as a specific agenda item. In addition, the Board agenda calls for each Region to present, on a rotating basis, technical or policy issues for discussion and resolution during the Board meeting. There is closer coordination between the Regions and Headquarters staff during the development of budgets and the Operating Plan by requesting Regional review and input on both data sets during initial development.

For the second action, during FY 2005 the Decommissioning Board Charter and meeting agendas were revised to include a coordinating role for other NRC organizations responsible for currently operating licensed sites (e.g., fuel cycle facility sites) to begin identifying and resolving conditions or events that could complicate future decommissioning. Quarterly updates are given at Decommissioning Board meetings on sites that may enter decommissioning. The revised Charter was incorporated into a procedure that will be included in the Operations Manual. These roles will evolve and will be further defined as a result of the study of sites with a high potential for subsurface contamination completed in FY 2005 (see Section 2.2) and the rulemaking to prevent future legacy sites planned for FY 2006-2007.

3.2.5 Compare and Evaluate NRC's Decommissioning Program (IDIP 5.5)

This improvement activity involved exploring the potential for an exchange of decommissioning lessons learned as an effort to improve coordination and compare similar programs and experience using the LTR for decommissioning of sites. A second purpose was to consider options and feasibility for an independent review of NRC's Decommissioning Program. The status of these two improvement activities is given below.

3.2.5.1 Sharing Information

The staff completed several activities intended to expand and improve the ongoing exchange of decommissioning information with stakeholders and other organizations conducting similar decommissioning work for facilities with radioactive materials, including the Agreement States.

For NRC's decommissioning stakeholders, the staff enhanced the Decommissioning web site to

make more information about NRC's decommissioning program easily available (see Section 3.2.9). Information about NRC's decommissioning sites, process, regulations, key documents, and lessons learned were added to the web site. The staff informed licensees, Agreement States, and other stakeholders about the availability of the web site through a demonstration at the Decommissioning workshop.

As mentioned in Section 3.3.1, the staff organized and conducted an exchange of decommissioning lessons learned with Agreement States, industry groups, and other stakeholders at the Decommissioning workshop. Subsequent to the workshop, the staff invited the Agreement States and industry groups (Nuclear Energy Institute (NEI) and Fuel Cycle Facilities Forum (FCFF)) to consider options for sharing decommissioning lessons learned. The feasibility of a collaborative effort to identify, store, and make available future lessons learned will be discussed with Agreement States and industry groups during FY 2006. These decommissioning lessons learned would help those groups who are or will be involved with decommissioning sites under NRC's LTR.

NRC also has started efforts to exchange information with DOE on its cleanup strategies at sites not regulated by NRC. During FY 2004, NRC and DOE completed a reimbursable Interagency Agreement (IA) for NRC to assist DOE with implementing its End States approach to cleanup of DOE sites. The purpose of the IA is to share with DOE NRC's risk-informed, performance-based approaches to decommissioning, learn about DOE's End States approach, and exchange information about common decommissioning issues, such as institutional controls, and realistic land use scenarios. During FY 2005 NRC participated in a DOE stakeholder meeting to discuss the path forward for the DOE End State program. This meeting gave NRC an introduction to DOE's End State approach and issues, and NRC presented an overview of its risk-informed approach to decommissioning. FY 2006 could provide opportunities to exchange information on common cleanup issues at very large complex sites, depending on how DOE decides to proceed with its End State approach.

Finally, the staff routinely participates in several national and international decommissioning conferences and meetings. During FY 2004 and FY 2005, the staff focused many of its presentations at these conferences on the improvements to the Decommissioning Program and how it is resolving decommissioning issues such as institutional controls, realistic scenarios, intentional soil mixing, and preventing future decommissioning problems (i.e., preventing future legacy sites). These presentations are another way to keep the stakeholders aware of emerging issues and changes to NRC's Decommissioning Program, and to receive feedback.

3.2.5.2 Independent Reviews

This improvement activity involved obtaining appropriately independent reviews of the Decommissioning Program to supplement self assessments such as the Decommissioning Program Evaluation completed in FY 2003. Independent reviews of programs are one of many areas evaluated by OMB's PART.

The staff's approach to obtaining independent reviews of the program was to request reviews from organizations that are: readily available, independent from the staff, have experience with NRC' s regulatory role, and have some understanding of the decommissioning of nuclear facilities. As a result, NRC's Office of the Inspector General (OIG) was asked to conduct a

review of the Decommissioning Program, and the ACNW was asked to conduct a review of the staff's development of regulatory guidance for decommissioning issues (LTR Analysis issues). The ACNW established a special working group to conduct its review of the staff regulatory guidance development. This working group included five external experts representing industry and state regulators who volunteered their time to the review and brought diverse experience to the review that complemented the expertise of the ACNW members.

The OIG conducted an audit of the Decommissioning Program during FY 2005. The objective of its audit was to verify whether the Decommissioning program achieves its performance results and determine whether NRC's Decommissioning program staff implemented recommendations to improve program performance. A final audit report was completed on September 21, 2005 (NRC, 2005 e).

The ACNW review was conducted during FY 2005, and consisted of: 1) attending the April Decommissioning workshop where the guidance for the decommissioning issues was discussed, 2) reviewing the staff's draft guidance material; 3) conducting a full day working group meeting to discuss the issues with the staff and provide detailed comment; and 4) prepared an August 12, 2005, letter to the Commission with the results of the review (NRC, 2005 d). The staff and ACNW have agreed that ACNW will continue the review of the final guidance developed during FY 2006.

Finally, the staff developed a procedure to be included in the Operations Manual for updating IDIP that includes a description of the various types of program assessments, including independent reviews (See Section 3.2.8).

3.2.6 Revise Performance Measures (IDIP 5.6)

This improvement activity involved revising annual budget output measures and targets to be outcomes that are representative of expected key accomplishments for the year, including improvements. In FY 2003, when the Decommissioning Program Evaluation was conducted, the Decommissioning Program had one annual output measure, i.e., remove a specific number of sites from the Site Decommissioning Management Plan list each fiscal year. The staff determined that this measure was not indicative of the performance of the program, because the removal of a set number of sites is, in many instances, predicated on a large number of external factors which the staff cannot control--licensee's capability (both technical and financial); stakeholder involvement; the need to coordinate compliance with other State, local or Federal regulatory requirements; the technical complexity of the site; and unexpected technical issues that must be addressed before proceeding with cleanup. In addition, because many of the sites are not licensed, NRC has limited ability to compel timely cleanup. Therefore, the staff revised the output measure to illustrate the work performed by the NRC staff and to consider outcome measures.

In 2004, the Commission revised the NRC's Strategic Plan for FY 2004-FY 2009. As part of that effort the NRC revised Goals, Strategic Outcomes, Strategies, and Means to meet the Goals. This effort provided a foundation for subsequent revisions to the performance measures for each new Goal that are applicable to Agency programs, including the Decommissioning Program. Subsequently, the annual budget output measure was changed from the number of sites removed from the SDMP or Complex site list to measures that were aligned with the

Strategic plan, such as developing a prioritization approach for managing site work (FY 2005) completing final guidance to address LTR implementation issues (FY 2006) and completing high priority licensing actions (all years). Furthermore, the FY 2007 Performance Budget to Congress includes a number of improvements to clarify the linkage between the agency's performance measures, output measures, and the agency's strategic outcomes. Revised performance measures are identified for the Decommissioning Program along with the other agency programs. In particular, a new decommissioning performance measure for the effectiveness goal was added beginning in FY 2006 to improve the timeliness of the review process for nuclear power reactor License Termination Plans by at least 30% over 3 years as compared to the historical average.

3.2.7 Consider Using Incentives (IDIP 5.7)

During FY2005, staff considered the use of incentives and disincentives to encourage progress on decommissioning sites where cleanups have slowed, and to accelerate other cleanups, if warranted. Staff has already used incentives to assist in completing decommissioning activities at selected sites, by providing staff review without fees at a site where funds were limited and by conducting dose analysis at a non-licensee's site. Staff developed options to expand the use of these and other incentives and to implement disincentives for sites where progress was not being made. These options were presented to the attendees at the Decommissioning workshop, and comments on these options were solicited at a breakout session at the workshop. Based on these discussions, the staff has decided that developing a "universal" incentive program for decommissioning is not practical. However, the staff will continue to provide incentives already used on a case-by-case basis for higher priority sites or used programatially, such as increasing flexibility of decommissioning options. In the FY 2005 Fee Rule, it was decided that NRC efforts at non-licensed sites will be fee-recoverable. This requirement creates an incentive for non-licensees to complete site remediation. Staff has decided not to implement any disincentives because these could delay decommissioning activities.

3.2.8 IDIP Process (IDIP 5.8)

This improvement involved beginning a general process for "continuous improvement" for the Decommissioning Program and documenting it in the IDIP.

During FY 2005, the first IDIP was prepared and was used to guide the completion of staff improvements (NRC, 2005 a). The IDIP documented improvements completed in FY 2004 and plans for additional improvements during FY 2005-FY 2007. The IDIP integrated three sets of improvements: regulatory improvements to resolve the LTR Analysis issues; program management improvements resulting from the recommendations in the 2003 Decommissioning Program Evaluation; and improvements directed by the Commission in the SRM for the October 2004 briefing. The plan includes a description of each improvement and associated milestones, schedules, and staff assignments. The Operating Plan was used to track the key milestones and schedules. The staff plans on periodically revising IDIP as needed. A revision is planned for early in FY 2006 to update plans for work during FY 2006 and FY 2007 and may also include actions responding to the OIG audit. IDIP also schedules another revision in FY 2007 to reflect the results of the FY 2006 OMB PART review.

In addition to the IDIP, the staff prepared a procedure to be included in the Operations Manual for periodically updating the IDIP. The procedure describes an iterative process consisting of a repeating cycle of four steps: 1) assess program; 2) plan improvements; 3) conduct improvements; and 4) measure and reassess program.

3.2.9 Communication Strategy (IDIP 5.9)

The staff's communication strategy for FY 2005 resulted in four major improvements to the communication tools used by the Decommissioning Program: revised annual report format; enhanced decommissioning web site; prepared a decommissioning brochure; and conducted a decommissioning workshop for stakeholders.

Changes were made to the format and content of the annual decommissioning report in accordance with Commission direction. These included publishing the annual report as a NUREG in the even years, and as a shortened report to the Commission with references made to information on the Decommissioning web site in the odd years. These changes are intended to make information about the Decommissioning Program more readily available to more stakeholders. The 2004 annual report, published as NUREG-1814, was the first annual report to incorporate the changes (NRC, 2005 a).

During FY 2005 the staff completed several enhancements to NRC's Decommissioning web site located at http://www.nrc.gov/what-we-do/regulatory/decommissioning.html. The new web site consolidates decommissioning information into a single location and expands the scope to include all the NRC decommissioning activities that are included in the Comprehensive Decommissioning Program. The web site was redesigned and restructured to include more information in a format that should be easier to use. For example new information was added that describes the decommissioning process for power reactors, material sites, and uranium recovery sites. Site information was also added, including maps showing facility/site locations and tables with decommissioning schedules for about 90 sites. Links were provided for simple access to electronic documents with detailed descriptions of each site. Links were also given for regulations, guidance, and program documents important to decommissioning (e..g., annual updates to the status of the Decommissioning Program, Decommissioning Program Evaluation, IDIP, and EPA MOU). A lessons learned page was added that provides direct links to four sets a previously published NRC lessons learned as well as an example of a site-specific lesson learned that illustrates the format to be used for future lessons learned. A link is also given to access NRC's Terminated License Tracking System. Finally, a "contact us" page was added for stakeholders to comment or ask questions about decommissioning.

The staff also developed and published a brochure to enhance its communication with the public (NUREG/BR–0325) (NRC, 2005 g). The brochure briefly describes NRC's decommissioning process, the facilities it regulates, how members of the public can participate in the decommissioning process, and information sources for the public. The brochure also contains a map showing the facilities currently in decommissioning. This map give a visual idea of the wide range of facilities subject to NRC's jurisdiction.

The staff conducted a two-day Decommissioning Workshop in April 2005 that was attended by over 180 stakeholders, including licensees, State representatives, DOE, EPA, U.S. Army Corps

of Engineers, ACNW, and interested members of the public. The workshop had multiple purposes:

Inform stakeholders of NRC's IDIP, including regulatory and program management improvements;

Discuss the NRC staff development of guidance for issues resulting from the LTR Analysis; and

Solicit feedback and suggestions from stakeholders on guidance, decommissioning lessons learned, and other planned improvements.

A summary of the workshop is available on the Decommissioning web site at http://www.nrc.gov/what-we-do/regulatory/decommissioning/public-involve.html. This summary includes the results of public comments about the workshop. On the first day of the workshop, breakout sessions were conducted to allow detailed discussions and stakeholder input for the LTR Analysis issues and the staff's plans for draft guidance. The topics addressed during the breakout sessions included: restricted use/institutional controls; engineered barriers; realistic scenarios; financial assurance changes to prevent future legacy sites; operating licensee changes to prevent future legacy sites; on-site disposal; use of intentional mixing of soil; 20.2002 off-site disposal; and potential program improvements such as incentives for decommissioning; communications; finality (NRC/EPA MOU); and alignment of the NRC and State programs. The second day focused on lessons learned and included opening remarks by Commissioner Merrifield followed by panel discussion by members from NRC, FCFF, NEI, Maine Yankee Atomic Power Company, Westinghouse Electric Company, and Ohio Department of Health. The afternoon session provided an opportunity for audience feedback and comments about improvements to the decommissioning process and lessons learned.

3.3 Program Improvements Directed by the Commission

3.3.1 Lessons Learned (IDIP 6.1)

During FY 2005, the staff conducted several improvement activities to capture and share lessons learned and best practices with licensees and stakeholders. As mentioned previously, the staff established a decommissioning lessons learned page on the new Decommissioning web site. This web page includes a definition of a lesson learned, which is any item that could be of interest and benefit to many licensees. Lessons learned include positive or negative experiences that are worth sharing with NRC licensees and stakeholders to improve future efficiencies. The web page provides a short summary of each lesson, its potential benefits, and links to publicly available documents that discuss each lesson learned in further detail. The web page includes links to the following existing published sets of NRC lessons learned:

Results of staff reviews of decommissioning plans and license termination plans (documented in RIS-2002-002, and Appendix O in NUREG-1757)

Questions and answers from NEI on specific regulatory issues (documented in Appendix O in NUREG-1757)

Lessons learned during decommissioning final status survey in-process inspections and confirmatory surveys (documented in Appendix O in NUREG-1757)

Issues from the LTR Analysis (documented in RIS-2004-008)

An example of a site-specific lessons learned was also included to illustrate the format to be used for future lessons learned that the staff will periodically identify and add. The staff developed a procedure for the Operating Manual that outlines the existing process to identify, preserve, and share decommissioning lessons learned. One of the new approaches the staff plans on using to identify new NRC lessons learned is for the staff to identify lessons learned after completion of major licensing actions for specific sites, such as DP reviews and Final Status Survey reviews.

As mentioned in Section 3.2.9, staff conducted a two-day stakeholders workshop in April 2005. The second day of the workshop focused on decommissioning lessons learned. There was a panel discussion where representatives from NRC, industry groups, and Agreement States presented their own perspectives on lessons learned. This meeting also served as an opportunity to ask for input and views from stakeholders that attended the meeting. The staff also met with ACNW in June 2005 to discuss approaches to capture, preserve, and share decommissioning lessons learned. Based on feedback from these meetings, the staff started exploring a collaborative effort with industry groups and Agreement States to discuss ways and alternatives to capture and share decommissioning lessons learned. This approach was presented to NEI and the FCFF, and they were invited to participate in this effort. The staff also presented the idea to members of OAS and invited the Agreement States to participate in this initiative. Staff is currently planning a meeting with industry groups and Agreement States to discuss details of a collaborative approach and alternative methods to capture, preserve, and share lessons learned. This meeting is tentatively scheduled for November 2005.

As discussed in Section 2.2, as part of the work to develop general inspection guidance during FY 2005, the staff inventoried and evaluated information from 82 decommissioning sites to identify which of these sites had subsurface contamination and what caused the contamination. The staff evaluated this information and identified the types of sites, facility components, and operational activities that could have a higher potential for subsurface contamination. This study provides lessons learned and “risk insights” from decommissioning sites that should help prevent future decommissioning problems at existing and future operating sites (i.e., prevent future legacy sites).

The staff has arranged for and will lead a panel on lessons learned and will chair a decommissioning lessons learned session at the Waste Management 2006 Symposium. Similarly, the staff has started planning for participation at a lessons learned workshop sponsored by the International Atomic Energy Agency meeting in Greece in December 2006.

3.3.2 Radiological Monitoring (IDIP 6.2)

This issue focused on the responsiveness of confirmatory monitoring to licensee decommissioning schedules. Staff and industry discussions have confirmed that side-by-side confirmatory radiological surveys for parts of sites are more efficient than performing a final status survey for the whole site at the end of decommissioning. The staff revised its guidance

in NUREG-1757 Supplement 1 (NRC, 2005 h) to clarify that efficient side-by-side radiological surveys can be achieved by coordination between licensees and NRC. Although this has become NRC's practice, and was identified as a lessons learned in RIS 2002-02 and NUREG-1757 vol. 2, Appendix O, it was added to the draft guidance to ensure licensees attention. The revised guidance is included in the draft guidance for public comment described in Section 3.1.1.

Coordination of confirmatory surveys was discussed at the 2005 Counterparts Meeting by staff from Headquarters and the Regions to ensure consistency of practice and revised procedures. In particular, it was noted that NRC's contractor for conducting radiological surveys, Oak Ridge Institutute for Science and Education (ORISE), can be on-site to conduct confirmatory surveys within 72 hours on an emergency basis, although the normal time-frame for arranging confirmatory surveys is 2 to 4 weeks. Furthermore, it was discussed that regional inspectors can collect samples and provide these to ORISE for analysis as another way to facilitate confirmatory surveys. Associated with this approach, revised procedures and forms for sample shipping and chain-of-custody that are consistent with MARLAP were also discussed.

Finally, for the Molycorp Washington site, NRC, its contractor (ORISE), and the Pennsylvania Department of Environmental Protection are developing an approach where the state would supplement the NRC's conduct of side-by-side confirmatory surveys with the licensee based on NRC guidance and experience gained from observing NRC/ORISE confirmatory surveys. Agreement States and non-Agreement States might be interested in this approach.

3.3.3 Finality Process (IDIP 6.3)

During FY2005, the decommissioning staff continued to implement the 2002 MOU between the NRC and EPA for Consultation and Finality on Decommissioning and Decontamination of Contaminated Sites. Three letters of Notification were sent to EPA informing them of sites that were already undergoing decommissioning that would have required Level 1 Consultations if the MOU had been signed before the DP s for these sites had been approved (three Notification letters were also sent in FY2004). In parallel, the staff worked with the OGC to develop proposed language to transmit to Congress for modifications to the Comprehensive Environmental Response, Compensation, and Liability Act that would eliminate dual regulation.

The staff developed options to address finality, including an option to negotiate additional provisions to the MOU. These options were discussed with EPA Office of Solid Waste managers who oversee the EPA implementation of the MOU, and were presented to the attendees at the Decommissioning Workshop. Comments on these options were solicited at a breakout session at the Workshop.

At this time the staff will continue to implement the MOU as directed by the Commission. Staff will be conducting the first Level 2 Consultation under the MOU early in FY2006. This initial consultation should provide a good measure of how well the issue of finality will be addressed under the MOU consultation process. The staff will re-evaluate whether additional steps need to be taken to address finality once this initial consultation is completed.

3.3.4 Consistency among State and Federal Regulators (IDIP 6.4)

During FY2005, the staff developed options to enhance consistency between NRC and State regulators of decommissioning sites. These options were presented to the attendees at the Decommissioning Workshop, and comments on these options were solicited at a breakout session at the Workshop. The options included additional participation of NRC decommissioning staff in regularly-scheduled OAS meetings, and inclusion of specific material (e.g., lessons learned) on the NRC Decommissioning web site that addresses this issue.

The staff will implement these two actions as follows. The staff will work with the Office of State and Tribal Programs to be included on the schedule for the annual OAS meetings on a regular basis to update the Agreement States on developments with the NRC decommissioning program. Staff gave a presentation on new decommissioning developments and OAS involvement at the OAS annual meeting in October 2005. Staff also will add material to the Decommissioning web site that addresses specific topics and issues identified as critical in maintaining consistency between State and Federal regulators. Both of these actions are being implemented in FY2006. Opportunities for Agreement State decommissioning personnel to attend NRC-sponsored training pertinent to decommissioning activities are made available when classes are scheduled at Headquarters and the Regional Offices. Finally, state involvement with developing new guidance and rulemaking (see Sections 3.1.1 and 3.1.3) are ongoing efforts that should contribute to consistency.

3.3.5 Enhance Guidance on Flexibility and Institutional Controls (IDIP 6.5)

As discussed in Section 3.1.1, new draft guidance was developed for several issues that provides additional flexibility for decommissioning approaches available to licensees. New guidance was developed for institutional controls and engineered barriers. This new guidance describes a risk-informed graded approach for selecting appropriate types of institutional controls, duration of controls, and site-specific restrictions on future site use that would be use for restricted use sites. Similarly, a risk-informed graded approach was also developed and included in the draft guidance for design of engineered barriers. This draft guidance provides flexibility in the use of engineered barriers at either unrestricted or restricted use sites. It also explains a risk-informed and performance based approach for licensees to use dose assessments at a specific site to tailor the design of engineered barriers as necessary to meet the LTR dose criteria.

In addition to including a risk-informed graded approach for institutional controls in the draft guidance, flexibility was added by new guidance for the two new options for institutional controls involving NRC (i.e., LTC license and the Legal Agreement/Restrictive Covenant) that the Commission approved as a followup to the staff's LTR Analysis in SECY-03-0069. Flexibility is also added by the revised guidance for monitoring and maintenance that would be tailored to site-specific needs.

Flexibility was also enhanced by new draft guidance on use of intentional mixing of soil, which was also one of the LTR Analysis issues approved by the Commission. Use of intentional mixing of soil provides licensees, on a case-by-case basis, added flexibility in meeting the LTR dose criteria for limited conditions. For example, such flexibility might provide options for

licensees who might have limited funds or might have difficulties with implementing the restricted use decommissioning option.

Finally, a new section was added to the existing decommissioning guidance that discusses the enhancements to flexibility for institutional controls, engineered barriers, and intentional mixing.

4.0 Conclusions

The following conclusions can be made regarding the improvements to the Decommissioning Program.

> The staff completed the improvement activities identified in IDIP for FY 2004 and FY 2005.
>
> These improvements activities have: contributed to progress at challenging decommissioning sites; helped resolve LTR implementation issues; made decommissioning guidance more risk informed and flexible; and enhanced stakeholder communications and involvement with the program.
>
> The staff expects additional decommissioning progress will result as these improvements are implemented in the future by the staff and licensees.

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Improvements and Products Matrix

IMPROVEMENTS	**PRODUCTS**							
Strategic Plan Goals S–safety O–openness E–effectiveness M–management	Improvement Summary Report	Rulemaking 9/06 P 9/07 F	Consolidated Decom Guidance 9/05 D 9/06 F	Inspection/ Enforcement Guidance 9/05 general 9/06 D, 9/07 F	Operations Manual procedures 12/05	Communication Strategy 9/05	Budget/ Operating Plan	Staff Skills
Regulatory Improvements								
1. Institutional Controls SE	U		U					
2.Unimportant Quantities E	U							
3.Separate Standard U,Th E	U							
4.On-site Disposal SE	U		U					
5.Removal of Material E	U		U					
6.Realistic Scenarios SE	U		U					
7.Financial Assurance Changes SE	U	U	U					
8.Operational Changes SE	U	U	U	U				
9.Intentional Mixing E	U		U					

Attachment

IMPROVEMENTS	PLANNED PRODUCTS							
	Improvement Summary Report	Rulemaking	Consolidated Guidance	Inspection/ Enforcement Guidance	Operations Manual	Communication Strategy	Budget/ Operating Plan	Staff
Program Management Improvements								
1.Comprehensive Program –roles, prioritization EM	U				U		U	
2. Implement Guidance–training, licensee meetings EM	U				U			U
3.Critical Skills Availability, Resource Tracking EM	U				U		U	U
4.Expand Management Reviews EM	U				U			
5.Compare, Evaluate Program EM	U				U			
6.Revise Program Measures M	U						U	
7.Consider Incentives E	U							
8.Improvement Plan EM	U				U			
9.Lessons Learned EMO	U				U			U

10.Rad Monitoring Coordination E	U		U					
11.Finality/State Consistency E	U							
12. Enhance guidance on flexibility and institutional controls E	U		U					
13. Communication Enhancements–web page, brochure, annual update EO	U				U	U		