

## **POLICY ISSUE INFORMATION**

September 18, 2002

SECY-02-0169

FOR: The Commissioners

FROM: William D. Travers  
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SUBJECT: 2002 ANNUAL UPDATE - STATUS OF DECOMMISSIONING PROGRAM

### PURPOSE:

To provide the Commission with an annual comprehensive overview of decommissioning activities, including the decommissioning of Site Decommissioning Management Plan (SDMP) sites and other complex decommissioning sites, commercial reactors, research and test reactors, uranium mill tailings facilities, and fuel cycle facilities. This report is a stand-alone document and provides a status update on the decommissioning activities presented in SECY-01-0156, as well as current key decommissioning program issues.

### SUMMARY:

This paper provides a comprehensive overview of all decommissioning activities. Consistent with Commission direction, the staff has provided a stand-alone document that presents a combined overview of all decommissioning activities within the Office of Nuclear Material Safety and Safeguards (NMSS), Office of Nuclear Regulatory Research (RES), and the Office of Nuclear Reactor Regulation (NRR). Using SECY-01-0156 as a baseline, progress made in each of the program areas, through at least June 1, 2002, is described in this paper.

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## BACKGROUND:

The Commission issued a Staff Requirements Memorandum (SRM) (M990729B) on August 26, 1999, requesting that the staff provide: (1) the status of the remaining active SDMP sites, including plans and schedules for each site; and (2) a summary report on all sites currently in the SDMP. In addition, an SRM dated June 23, 1999, directed the staff to provide a single coordinated annual report on all decommissioning activities, instead of annual reports from separate offices. In response to these SRMs, the staff provided a comprehensive overview of decommissioning activities in SECY-00-0094 and SECY-01-0156, dated April 20, 2000, and August 17, 2001, respectively.

The Commission has expressed interest in continuing the annual reporting process embodied in SECY-00-0094 and SECY-01-0156, highlighting significant accomplishments and changes. Further, in the SRM (M010928B) associated with SECY-01-0156 dated October 16, 2001, and the September 28, 2001, Commission briefing on decommissioning activities and status, the Commission requested that the staff discuss all aspects of decommissioning activities. In addition to the activities discussed in SECY-01-0156, the Commission requested a discussion on the decommissioning programs for uranium mill tailings facilities, non-power reactors, and fuel cycle facilities. Further, the Commission requested a discussion on the status of routine decommissioning activities. The Commission also requested that the staff highlight decommissioning activities that may need Commission attention and identify high-priority issues to be addressed in the next year.

## DISCUSSION:

### 1. Summary of Decommissioning Program

The U.S. Nuclear Regulatory Commission (NRC) regulates the decontamination and decommissioning of materials and fuel cycle facilities, power reactors, research and test reactors, and uranium mill tailings facilities, with the ultimate goal of license termination. A broad spectrum of activities associated with these program functions is discussed in Attachment 1. Principal program areas are discussed below.

Approximately 300 materials licenses are terminated each year. Most of these license terminations are routine, and the sites require little, if any, remediation to meet NRC's unrestricted release criteria. The decommissioning program includes termination of licenses that are not routine because the sites involve more complex decommissioning activities. Currently, there are 25 materials facilities undergoing non-routine decommissioning, 9 fuel cycle facilities, 20 nuclear power reactors, 16 research and test reactors, and 18 uranium recovery facilities undergoing decommissioning, or in long-term safe storage. Details on these sites are presented in Section 2, below.

NMSS, NRR, and RES share responsibility for decommissioning program activities. NRR has project management responsibility for all stages of research- and test-reactor decommissioning and oversight of the initial stages of power-reactor decommissioning. NMSS regulates the decommissioning of nuclear material facilities, fuel cycle facilities, and uranium recovery facilities, and has oversight of power reactors once the spent fuel is no longer stored in the spent fuel pool. RES provides substantial technical support through the development of

guidance, data, and models to support dose assessments. Examples of RES products since publication of SECY-01-0156 include: a probabilistic version of the RESRAD-BUILD computer code; data on the stability, absorption, and transport potential of chelating agent complexed radionuclides from resins in low-level waste; data on solubility and leaching of radionuclides in slags; and data on the release of radionuclides and chelating agents from ion-exchange resins. In addition, RES conducted various analyses as described in Attachment 1. (Note: NMSS and NRR are reevaluating the point at which power reactors are transferred to NMSS for project management, to improve efficiency and better use staff resources.)

The staff has taken steps to ensure integration of decommissioning activities within the Nuclear Waste Safety Arena. First, NMSS and RES mutually track and manage decommissioning activities. Second, the Decommissioning Management Board (hereafter the Board) meets bi-weekly to provide management input on decommissioning activities and issues. The Board, composed of managers from NMSS, RES, NRR, and the Regions, along with Office of the General Counsel (OGC), serves as an effective mechanism for integrating inter-Office and regional program activities and issue resolution. The Board is a mechanism by which the staff has enhanced intra-agency communication and ensure that NRC's regulatory processes are integrated.

The staff continues to implement streamlining objectives such as: (a) assuming a more proactive role in interacting with licensees undergoing decommissioning; (b) expanding the acceptance review process, to include a limited technical review, to reduce the need for additional rounds of questions; (c) ensuring that institutional controls and financial assurance requirements are adequate before beginning a technical review of the decommissioning plan (DP); (d) implementing other procedures, e.g., focused site visits to reduce the number of requests for additional information; (e) conducting in-process/side-by-side confirmatory surveys; and (f) relying more heavily on licensees' quality assurance programs rather than conducting large-scale confirmatory surveys. Furthermore, the staff is incorporating strategies to achieve the performance goals identified as part of the Agency's strategic planning process and Strategic Plan for FYs 2000-2005. Examples of strategies being incorporated include: focusing on resolving key issues, such as institutional control for restricted release and partial site release; participating in stakeholder workshops to seek licensee, industry, and public input; updating, consolidating, and risk-informing/performance-orienting decommissioning guidance; working with industry to identify and resolve technical and policy issues associated with decommissioning (e.g., Nuclear Energy Institute questions and answers); and developing both a stakeholder database and website.

NRC's Strategic Plan for FY 2000-2005 identifies the objective, scope, and general schedule for the program evaluation entitled, "Changes to the Decommissioning Process." The program will be evaluated over a two-year period from Fiscal Year 2001 to 2003. The staff completed a Work Plan in FY 2001 and will complete Procedures and Criteria in FY 2002 in preparation for conducting and reporting on the evaluation during FY 2003.

## 2. Decommissioning Activities

### a. Material Facilities

NMSS initially presented the SDMP to the Commission in SECY-90-121, dated March 29, 1990. The SDMP was created in response to SRMs dated August 22, 1989, and January 31, 1990, which directed the staff to develop a comprehensive strategy for achieving closure of decommissioning issues in a timely manner, and to develop a list of contaminated sites, in order of cleanup priority. Attachment 2 provides the criteria for placing a site on the SDMP.

The License Termination Rule (LTR) (10 CFR Part 20, Subpart E) authorized two different sets of cleanup criteria--the SDMP Action Plan criteria, and dose-based criteria. Under the provisions of 10 CFR 20.1401(b), any licensee that submitted its DP before August 20, 1998, and received NRC approval of that DP before August 20, 1999, could use the SDMP Action Plan criteria for site remediation. In the SRM on SECY-99-195, the Commission granted an extension of the DP approval deadline, for 12 sites, to August 20, 2000. In September 2000, the staff notified the Commission that all 12 DPs were approved by the deadline. All other sites must use the dose-based criteria of the LTR. In addition, Agreement States were expected to adopt equivalent dose criteria by August 20, 2000. As of June 30, 2002, 25 States had adopted the LTR, or other legally binding requirements, and 7 States had not.

There are currently 22 SDMP sites and three additional complex sites undergoing decommissioning (see Attachment 3). Twenty-four sites have been removed from the SDMP after successful remediation (see Attachment 4). In addition, 11 sites have been removed from the SDMP by transfer to an Agreement State or the U.S. Environmental Protection Agency (EPA) (see Attachment 5). NRC is currently committed to removing one site from the SDMP in fiscal year 2002 (FY2002) and FY2003. Since publication of SECY-01-0156, two sites were removed from the SDMP after successful remediation. Cabot Corporation, in Revere, PA, was removed in September 2001, and Lake City Army Ammunition Plant was removed in October 2001.

In addition to regulating the cleanup of SDMP and complex decommissioning sites, the decommissioning program is responsible for overseeing the cleanup of contaminated sites identified under the Oak Ridge National Laboratory (ORNL) Terminated License Review Project. As a result of the ORNL review, and subsequent follow-up by the Regions, 40 formerly licensed sites were found to have residual contamination levels exceeding NRC's criteria for unrestricted release (see Attachment 6). After successful remediation, nineteen sites have been closed, and 11 have been closed by transfer to Agreement States or a Federal entity. One site, International Mining Company, was closed in 2001. Ten sites remain open pending remediation. Two of the formerly licensed sites were added to the SDMP because these sites require non-routine decommissioning activities. The remaining sites are considered to be non-complex and, therefore, do not warrant placement on the SDMP at this time. However, it is possible that these sites may be added to the SDMP if site information changes. The staff officially completed the Terminated License Review Project on September 26, 2001, with the publication of the "Final Report on Results of Terminated License Reviews."

Although NRC has completed its evaluation of formerly licensed sites, several Agreement States continue to evaluate license files transferred to them under the Terminated License

Review Project. Approximately 100 files remain to be reviewed. NRC established a grant program to provide financial assistance to Agreement States to support reviews of outstanding NRC formerly licensed files. Since the grant program began in January 2001, two sites have been found to have contamination levels exceeding NRC's unrestricted release criteria.

In calendar year 2001, the Division of Waste Management staff continued implementation of the rebaselining initiative that began in September 1999. The objective of rebaselining was to develop and implement a comprehensive integrated plan for successfully bringing SDMP and complex decommissioning sites to closure. Site status summaries are maintained, and updated monthly, for each SDMP and complex decommissioning site (see Attachment 7). These summaries describe the status of each site and identify the technical and regulatory issues impacting removal of the site from the SDMP, or completion of decommissioning as of the date indicated on every summary. The staff also developed and maintains Gantt charts for each site, which are updated quarterly, to guide the management of decommissioning activities. The Gantt charts identify all major decommissioning activities and schedules for completion. For those licensees that have submitted a DP, the schedules are based on the staff's assessment of the complexity of the DP review. For those licensees that have not submitted a DP, the schedules are based on other information available to the staff and the decommissioning approach anticipated by the staff.

A table summarizing the decommissioning schedule for all SDMP and complex decommissioning sites is provided in Attachment 8. The schedules presented can be influenced by the quality and timeliness of licensee submittals and modifications in the licensee's remediation schedule. However, the staff's streamlining efforts will mitigate these schedule impacts somewhat. From the table, the following conclusions can be drawn: (1) 4 of 25 SDMP and complex decommissioning sites have not yet submitted DPs (the last DP should be submitted in 2003); (2) NRC has approved 14 of 21 DPs submitted to date [the last DP (Fansteel, Inc.) should be approved by 2009]; and (3) the last site (Fansteel) should be removed from the SDMP by 2015. Fansteel has an extremely protracted schedule because of its bankruptcy and uncertainty regarding future decommissioning plans. Site decommissioning schedules are based on the assumptions presented in Attachment 9 and licensee input.

#### b. Fuel Cycle Facilities

NMSS provides licensing oversight and decommissioning project management to fuel cycle facilities including conversion plants, enrichment plants, and fuel manufacturing plants. Most of these facilities have been in operation for 20 or more years. As technology improves and operations at these facilities change, there are often unused areas on the site with residual contamination. Pursuant to 10 CFR 70.38 (NRC's "Timeliness Rule"), any licensee with a building or outdoor area with residual contamination that has not been in use for two years must begin decommissioning, and submit a DP, or request an extension to the time period for submitting a DP. The NRC staff continues to work closely with the States and EPA to regulate remediation of unused portions of fuel cycle facilities. In 2002, one conversion facility (Honeywell), two Navy fuel manufacturers (BWX Technologies and Nuclear Fuel Services), and four commercial fuel manufacturers (Framatome Richland, General Atomics, Westinghouse Hematite, and ABB Windsor) have decommissioning activities in progress. Details on the status of each of these facilities is presented in Attachment 1.

c. Reactor Decommissioning

NMSS and NRR signed a Memorandum of Understanding (MOU), on March 10, 1995, that delineates the responsibilities for power reactor decommissioning between NRR and NMSS. In accordance with the MOU, NRR, along with the appropriate Region, will be responsible for project management, inspection, and oversight for a power reactor undergoing decommissioning, until the spent fuel is permanently removed from the spent fuel pool. Once the spent fuel is permanently removed from the spent fuel pool, the facility is transferred to NMSS, and NMSS assumes responsibility for project management, and, along with the appropriate Region, inspection oversight. However, a facility may submit a License Termination Plan (LTP) before the spent fuel is permanently removed from the spent fuel pool. In this case, NRR retains project management oversight, while NMSS is responsible for reviewing the LTP and preparing the safety evaluation report, the environmental assessment, and the license termination order and amendment. NMSS is also responsible for confirmatory surveys and license termination activities, including assurance that appropriate site-release criteria have been met. The staff is preparing a paper that informs the Commission of changes in staff regulatory oversight of decommissioning commercial nuclear reactor plants, whereby the responsibility for project management will be transferred from NRR to NMSS earlier in the decommissioning process. As discussed in this paper, the transfer of project management responsibility should result in a more efficient and effective approach that maintains safety while increasing public confidence and reducing unnecessary regulatory burden on reactor licensees.

NRR currently has regulatory project management responsibility for 18 decommissioning power reactors. Plant status summaries for reactors under NRR project management are provided in Attachment 10. Regulatory project management responsibilities for two reactors (Fermi 1 and Peach Bottom Unit 1) have been transferred from NRR to NMSS. Plant status summaries for Fermi 1 and Peach Bottom Unit 1 are provided in Attachment 11. NMSS is currently reviewing the LTPs for Maine Yankee, Saxton, and Connecticut Yankee, and expects to receive the LTP for Big Rock Point in January 2003. Attachment 12 provides a schedule for reactor decommissioning activities.

In February 2001, the responsibility for reactor decommissioning rulemaking and generic activities was transferred from NRR's Division of Licensing and Project Management (DLPM) to the Division of Regulatory Improvement Programs (DRIP). This transfer of activities allows the rulemaking for decommissioning to be consolidated with all other NRR rulemaking responsibilities in DRIP, and allows DLPM project managers to continue to process licensing actions. Project management responsibilities for 15 of the 18 power reactors under NRR oversight remained with DLPM. Decommissioning project management of three early demonstration reactors--GE VBWR, Nuclear Ship Savannah, and Saxton--is assigned to the Research and Test Reactor Section in DRIP.

Currently, 12 research and test reactors have decommissioning orders or amendments. Additionally, four research and test reactors are in "possession-only" status, either waiting for shutdown of another research or test reactor at the site or for removal of the fuel from the site by the U.S. Department of Energy (DOE). Further, 4 of the 12 test and research reactors with decommissioning orders or amendments and 1 of the 4 test and research reactors in possession-only status still have fuel in storage at the reactor. NRR is responsible for project

management and inspection of these facilities. Plant status summaries for research and test reactors under NRR project management are provided in Attachment 13.

#### d. Uranium Mill Tailings Facilities

The NRC authority over Atomic Energy Act 11e.(2) byproduct material at licensed uranium (or thorium) mill sites was established in Title II of the Uranium Mill Tailings Radiation Control Act of 1978. NRC and the Agreement States that are authorized for 11e.(2) byproduct material (Colorado, Illinois, Texas, and Washington) oversee decommissioning at licensed sites. Under Title I of that Act, DOE was authorized to remediate the 24 designated abandoned uranium mill sites, with State and NRC concurrence on remedial plans, activities, and completion reports. NRC was also authorized to concur in the long-term surveillance plan for each site and place it under general license to DOE, when remediation was complete. The surface decommissioning at all Title I sites is complete.

NMSS provides project management and technical review for decommissioning and reclamation of facilities that are regulated under 10 CFR Part 40, Appendix A. These licensees include conventional uranium mills and other facilities that process ore primarily for its source material content, such as uranium in-situ leach, heap leach, and ion-exchange facilities. Currently, there are 12 Title II NRC-licensed sites in decommissioning. Additionally, six Title I sites are completing ground water restoration (three active and three natural flushing), and restoration plans for eight other sites are currently under staff review. Attachment 14 provides the status of Title II sites.

### 3. Guidance and Rulemaking Activities

In SRMs dated July 20, 2000, and September 5, 2000, the Commission directed the staff to develop a Rulemaking Plan to address the entombment option for power reactors. On June 1, 2001, the staff forwarded SECY-01-099, "Rulemaking Plan and Advanced Notice of Proposed Rulemaking [ANPR]: Entombment for Power Reactors," which contained three options for proceeding. The ANPR was published for public comment in October 2001. Comments were received from nineteen parties during the comment period, which ended on December 31, 2001. The staff will present a preferred option to the Commission later this year.

In response to the NMSS performance goals in the Strategic Plan, NMSS implemented a project to consolidate and update the policies and guidance of its decommissioning program. The final product will be completed in FY 2003 and will consist of a three-volume NUREG series that will address the following topics: (1) decommissioning process; (2) characterization, survey, and determination of radiological criteria; and (3) financial assurance, recordkeeping, and timeliness.

The staff has undertaken an effort to update the 1988 "Generic Environmental Impact Statement (EIS) on Decommissioning" (NUREG-0586) for power reactors. The staff worked closely with EPA, industry, and interested members of the public in defining the scope of the draft EIS. In October 2001, the staff published Draft Supplement 1 for comment. The staff plans to issue the Final Supplement in October 2002.

The Commission issued an SRM, dated June 23, 1999, requesting that the staff: (1) consider the viability of an integrated, risk-informed reactor decommissioning rule versus individual rulemakings, to address insurance, emergency preparedness, safeguards, backfit, fitness-for-duty, and staffing -- if viable, the staff should outline its plans for pursuing such a rule; and (2) provide a single coordinated annual report on all decommissioning activities. SECY-99-168, dated June 30, 1999, recommended approval of an integrated rulemaking approach and outlined plans for such a rulemaking. Accordingly, the staff subsumed earlier rulemaking activities in the areas of emergency planning, insurance, safeguards, operator staffing, and backfit into one integrated rulemaking. The staff is re-evaluating this rulemaking and will provide a recommendation to the Commission.

The staff presented decommissioning policy options to the Commission in SECY-01-100, "Policy Issues Related to Safeguards, Insurance, and Emergency Preparedness at Decommissioning Plants," dated June 4, 2001. The policy recommendations in this paper were premised on the very low likelihood of a zirconium fire and the staff's judgment that the decommissioning site safeguards policy recommended in the paper would provide a high assurance of adequate protection against radiological sabotage. While this paper was under Commission review, the September 11 terrorist attacks took place, raising safeguards implications that had not been previously considered for any nuclear facility. The staff realized that the safeguards recommendations in SECY-01-100 needed to be reassessed and, on October 25, 2001, withdrew the decommissioning policy options paper. In the aftermath of the September 11 terrorist attacks, the Chairman directed the staff to thoroughly reevaluate NRC's safeguards and physical security programs. This comprehensive safeguards and security review will reevaluate the threat vulnerability and risks for NRC-licensed facilities, materials, and activities, including decommissioning plants, and develop appropriate regulatory and rulemaking recommendations. To support future decommissioning regulation, the staff will revise and resubmit a policy options paper on decommissioning regulatory issues (superseding SECY-01-100), related to insurance and emergency planning, 3 months after Commission direction is received on programmatic regulatory changes for safeguards and security. In the absence of any anticipated nuclear power plant decommissionings soon, the staff believes that there is no immediate need for moving forward with a majority of the decommissioning regulatory improvement work currently planned. Specifically, broad-scope regulatory improvements for decommissioning do not appear to be of sufficient priority, given an apparent lack of future licensees that would benefit. Because of other higher priorities, resources are being deferred for decommissioning rulemakings that are not currently in progress or not related to security, and will not be included in the FY 2004 and FY 2005 budgets. If any plants do unexpectedly shut down permanently, decommissioning regulatory issues could continue to be addressed through the exemption process in a manner similar to the current practice.

In September 2001, the staff published a proposed rule adding a new section 10 CFR 50.83, to standardize the process for allowing a licensee to release part of its reactor facility or site for unrestricted use (partial site release) before receiving NRC approval of its LTP. The staff is currently resolving public comments and plans to provide the final rule to the Commission in November 2002.

A listing of the major decommissioning documents developed during the past year is presented in Attachment 15.



#### 4. Issues Requiring Commission Attention

In addition to the items discussed in Section 3, several other issues will also require future Commission attention. Decommissioning funding is one such issue. The Commission previously asked the staff to analyze decommissioning funding issues in Agreement States and non-Agreement States. In accordance with SRM-SECY-99-0193, staff is currently administering a grant program to facilitate cleanup of formerly terminated NRC sites in Agreement States. Similarly, following the Commission's direction in SRM-SECY-00-0180, staff worked toward a MOU with DOE for long-term stewardship of potential restricted release sites (SECY-02-0008), and staff conducted a financial analysis of decommissioning sites in non-Agreement States (SECY-02-0079). The staff will provide further information to the Commission as part of the LTR analysis, and will provide recommendations to enhance licensee requirements for financial assurance. Regarding the DOE MOU, the staff plans to provide status reports on DOE's actions, or seek direction if DOE makes decisions about its role in long-term stewardship.

Other issues requiring Commission attention next year will be identified as part of the staff's response to the SRM resulting from AAR Manufacturing Group Inc.'s (AAR's) request to remediate areas of their site with greater than 0.05 percent by weight source material [40.13 (a)]. In an SRM dated June 18, 2002, the Commission approved the staff's proposal to deny the use of 10 CFR 40.13(a) as a decommissioning criterion and require AAR to return to its approved remediation plan, meet the terms of the LTR voluntarily, or be subject to license, under which the LTR would be applicable. The SRM also: (1) instructs the staff to consider creative options that would make restricted release (under the LTR) more available to a site, using AAR as a pilot for consideration of alternative approaches; (2) advises the staff to interact with AAR to determine if there are options AAR would like the NRC staff to consider, which the staff believes are viable and which can be accomplished in a time frame which would be acceptable to both AAR and NRC; and (3) instructs the staff to conduct a comprehensive analysis of the restricted release provisions (10 CFR 20.1403) and the alternate criteria (10 CFR 20.1404) of the LTR, and how to make those provisions more available for licensee use. In 2003, the staff will prepare Commission papers presenting the results of its analyses and provide feedback to the Commission on the interactions with AAR.

#### RESOURCES:

The total decommissioning program staff budget, for FY 2002 and FY 2003, is 64 full time equivalents (FTEs) and 57 FTEs, respectively. These resource figures include: licensing casework directly related to SDMP and other complex decommissioning sites; inspections; regional follow-up on formerly terminated license sites; project management and technical support for decommissioning power reactors, uranium mill tailings facilities and fuel cycle facilities; development of rules and guidance; and EIS' and environmental assessments. These figures do not include overhead associated with the decommissioning program. Resource breakdown for staff (in FTEs) and contractor support (in thousands of dollars), as reflected in the FY 2002 budget to Congress, by Office, follows:

	FY02		FY03	
	Staff (FTE)	Contractor (\$ K)	Staff (FTE)	Contractor (\$ K)
NMSS	24	2118	21	2190
NRR	13	200	10	290
RES	9	1954	11	2775
OGC	2		2	
Regions	16		13	
<b>TOTAL</b>	<b>64</b>	<b>4272</b>	<b>57</b>	<b>5255</b>

COORDINATION:

OGC has reviewed this paper and has no legal objections. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

***/RA Carl J. Paperiello Acting For/***

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ATTACHMENTS:

1. "Decommissioning Program Activities"
2. "Criteria for Placing Site on the SDMP"
3. "Current SDMP and Complex Decommissioning Sites"
4. "Sites Removed from the SDMP after Successful Remediation"
5. "Sites Removed from the SDMP by Transfer to Agreement States or EPA"
6. "Contaminated Formerly Licensed Sites"
7. "Site Status Summaries for SDMP and Complex Decommissioning Sites"
8. "Schedule for Termination of SDMP and Complex Decommissioning Sites"
9. "Assumptions Used to Develop SDMP and Complex Decommissioning Site Gantt Charts"
10. "Status Summaries for Reactors Undergoing Decommissioning"
11. "Plant Status Summaries for Fermi Unit 1 and Peach Bottom Unit 1"
12. "Schedule for Reactor Decommissioning Activities"
13. "Plant Status Summaries for Research and Test Reactors"
14. "Title II Site Decommissioning Status"
15. "Major Decommissioning Documents"

## **DECOMMISSIONING PROGRAM ACTIVITIES**

## DECOMMISSIONING PROGRAM ACTIVITIES

### 1.0 BACKGROUND

In a staff requirements memorandum (SRM) dated October 16, 2001, the Commission directed the staff to expand the “Annual Update on the Status of the Decommissioning Program” to include discussions on all aspects of decommissioning activities. As a result, this update now includes summaries of decommissioning activities for: (1) material facilities; (2) fuel cycle facilities; (3) power reactors, and research and test reactors; and (4) uranium recovery facilities. The activities associated with each program area are provided below. Since development of guidance and regulations is an activity common to all program areas, it will be discussed in terms of the overall program.

### 2.0 DEVELOPMENT OF GUIDANCE AND REGULATIONS

In SRMs dated July 20, 2000, and September 5, 2000, the Commission directed the staff to develop a Rulemaking Plan to address the entombment option for power reactors. On June 1, 2001, the staff forwarded SECY-01-0099, “Rulemaking Plan and Advance Notice of Proposed Rulemaking: Entombment for Power Reactors,” which contained three options for proceeding with entombment. The first option is to continue with the current approach and handle entombment requests on a case-by-case basis. The second option is to conduct rulemaking, to add flexibility to 10 CFR 50.82 to amend the 60-year time frame for completion of decommissioning, and to clarify the use of engineered barriers for reactor entombments. The third option is to conduct rulemaking to establish performance objectives and licensing requirements for an entombed facility. On October 16, 2001, the staff published an “Advance Notice of Proposed Rulemaking” in the Federal Register, to invite input from affected parties and the public. The comment period expired on December 31, 2001. Comments were received from 19 parties. The staff will present a preferred option to the Commission later this year.

On March 23, 2000, the staff provided the Commission with a paper (SECY-00-070) that provided recommendations on issues concerning the control of solid materials at licensed facilities. In an SRM dated August 18, 2000, the Commission decided to defer a final decision on whether to proceed with rulemaking and directed the staff to proceed with a National Academy of Sciences (NAS) study on possible alternatives for control of solid materials, and to continue the development of a technical information base to support a Commission policy decision in this area. In March 2002, the U. S. Nuclear Regulatory Commission (NRC) received a report, from the NAS, that reviewed the technical bases, policies, and precedents for controlling the release of solid materials. The staff has reviewed the report recommendations and has factored them into its recommendations to the Commission. It submitted a paper to the Commission, on this subject, entitled, “Control of Solid Materials: Options and Recommendations for Proceeding,” in July 2002 (SECY-02-0133).

The staff prepared a rulemaking plan to standardize the process for allowing the partial site release of a reactor facility or site before approval of the license termination plan (LTP). The Commission approved the plan on April 26, 2000. The proposed rule was submitted to the Commission for approval on May 9, 2001, and published for comment in the Federal Register on September 4, 2001. The staff is currently resolving public comment issues, including comments on site boundary definition, and applicability of the U.S. Environmental Protection Agency (EPA) 40 CFR Part 190 to released material.

On January 16, 2002, the staff published, “NRC Regulatory Issue Summary 2002-02: Lessons Learned Related to Recently Submitted Decommissioning Plans and License Termination

Plans,” to inform licensees of lessons learned from reviews of recently submitted decommissioning plans (DPs) and LTPs. The staff believes that this regulatory issue summary will enable licensees to develop more complete DPs and LTPs, which should result in more effective and efficient use of licensees’ and NRC’s resources. The staff has provided several presentations on the content of the regulatory issue summary at industry meetings and workshops to reinforce the lessons learned.

In an SRM dated May 29, 2001, the Commission directed the staff to develop guidance documents to implement Commission direction set forth in the SRMs for SECY 99-012, 99-013, and 99-277. In January 2002, the staff published two standard review plans (SRPs), revised as directed. The revised information included the new NRC policy (Regulatory Issue Summary 2000 - 23) of exclusive authority over the non-radiological, as well as radiological, hazards of 11e.(2) byproduct material, and thus State approval of clean-up of these constituents is no longer required, although the staff will work with the State to try to resolve differences.

In support of the Office of Nuclear Material Safety and Safeguards (NMSS) performance goals in the Strategic Plan, NMSS implemented a project to consolidate, risk-inform and performance orient the policies and guidance for its decommissioning program. The project involves reviewing, updating, and consolidating existing NMSS decommissioning guidance documents, decommissioning technical assistance requests, decommissioning licensing conditions, and all decommissioning generic communications issued over the past several years. The project is being conducted using Business Process Re-engineering (BPR) techniques. The BPR approach is being implemented to develop the product and manage the review and concurrence process, using self-managed teams consisting of NRC staff from Headquarters and regional offices, and representatives from Agreement States. The goal is to produce consolidated NMSS decommissioning guidance that allows the NRC staff to evaluate information submitted by licensees in a timely, efficient, and consistent manner that protects public health and safety. The end result will be a three-volume NUREG series of reports grouped into decommissioning functional categories. Further ease of use will be realized by making this a web-based document. The project team published Vol. 1 of NUREG-1757, “Decommissioning Process,” for public comment in January 2002, with the goal to complete drafts of Vols. 2 and 3 by the end of fiscal year (FY) 2002. The overall project is on schedule to be completed by the end of FY 2003. The updated, consolidated guidance will be provided to all users, both NRC and licensees, in hard-copy and/or electronic media. Since each group will have access to the same guidance, the expected results are more complete license documents that will expedite the approval process for both applicants and reviewers. As a result, it is expected that this project will serve to improve the overall decommissioning process. A complete listing of guidance developed during the past year is presented in Attachment 15.

The Office of Nuclear Regulatory Research (RES) provides data and models to NMSS to support assessments of public exposure to environmental releases of radioactive material from site decommissioning. Since SECY-01-0156 was published, RES has provided the Division of Waste Management with: (1) a NAS National Research Council report on alternative strategies for the control of slightly contaminated materials; (2) the results of a comprehensive literature search, for publications on human interactions with soil, that will be used to establish reasonable scenarios for estimating the effects of alternative policies on the control of slightly contaminated soils; (3) a probabilistic version of the RESRAD-BUILD computer code that will be used to assess LTPs where licensees propose to leave structures in place; (4) data on the stability, absorption, and transport potential of chelating agent complexed radionuclides from

resins in low-level waste that identifies conditions where movement is more likely to occur; (5) data on solubility and leaching of radionuclides in slags that will be used to assess DPs for sites with contaminated slags; (6) data on the release of radionuclides and chelating agents from ion-exchange resins used in the full system decontamination of a nuclear power plant; (7) fundamental calculations of molecular dynamics of sorption on basal surfaces of clay minerals for RES' use in establishing more realistic approaches for modeling sorption processes at decommissioning sites; (8) an assessment of the effect of hydrologic uncertainty assessments on performance predictions, using complex and simplified models; and (9) analyses of the effects of different sorption parameter values on predictions of uranium migration at a field site, which emphasize the potential significance of both sorption parameter values and related site conditions. In addition, RES continued technology transfer activities that included training courses on the strategy for assessing conceptual model uncertainty, and for use of the Army Corps of Engineers Groundwater Modeling System (GMS)[a powerful tool, for analyzing groundwater systems, that has been made available through an RES interagency agreement with the Corps]. Major RES activities to be completed in 2002-2003 include: (1) the revision of NUREG-1640 to provide individual dose estimates for scenarios for the re-use of slightly contaminated materials; (2) the completion of collective dose calculations associated with these re-use scenarios; and (3) data on radionuclide solubilities that will be used in assessments of sites with contaminated soils. RES also completed, after extensive coordination with NMSS, the "Research Plan for Radionuclide Transport in the Environment," which provides a systematic plan for addressing significant sources of uncertainty in analyses of license termination activities.

### 3.0 MATERIAL FACILITIES DECOMMISSIONING

Material facilities decommissioning activities include: (1) regulatory oversight of Site Decommissioning Management Plan (SDMP) sites and other complex decommissioning sites; (2) completing the Commission's direction under DSI-9, by conducting a pilot study for performing decommissioning without the submittal of a DP; (3) completing license termination file reviews; (4) undertaking financial assurance reviews; (5) providing West Valley oversight; (6) examining issues and funding options to facilitate remediation of sites in non-Agreement States, including working with the U.S. Department of Energy (DOE) to facilitate the long-term control of sites with long-lived radionuclides; (7) interacting with the EPA and the Interagency Steering Committee on Radiation Standards (ISCORS); (8) inspecting SDMP and other complex decommissioning sites; (9) maintaining the Computerized Risk Assessment and Data Analysis Lab (CRADAL); (10) evaluating Agreement State implementation of the license termination rule (LTR); (11) public outreach; (12) participating in International decommissioning activities; and (13) conducting a program evaluation.

! Activities associated with the SDMP and complex site decommissioning program include: (1) review of site characterization plans; (2) review and approval of DPs; (3) implementation of a streamlined licensing approach by conducting pre-DP development meetings with licensees; (4) review of licensee final status survey reports and conduct of confirmatory surveys; and (5) preparation of environmental assessments (EAs) and environmental impact statements (EIS). Since publication of SECY-01-0156, the staff has approved two DPs, reviewed four final status survey reports, conducted two confirmatory surveys, and prepared one EA.

In June 2002, the staff prepared SECY-02-0095, entitled, "Applicability of Section 11e.(2) of the Atomic Energy Act to Material at the Sequoyah Fuels Corporation Uranium Conversion Facility," to request Commission approval that certain SFC waste can be classified as AEA Section 11e.(2) byproduct material. In a subsequent SRM, the Commission approved the staff's proposal. Under this option, SFC could dispose of the 11e.(2) material in a 10 CFR Part 40, Appendix A, tailings impoundment at the site. At completion of remediation, ownership of the 11e.(2) material cell would be transferred to DOE under Title II of UMTRCA.

! Three facilities (Westinghouse Cheswick Pump Repair Facility, Viacom/CBS Forest Hill Laboratory, Phillips Petroleum Radiation Laboratory) participated in the pilot study to perform decommissioning without DP submittal. All three facilities have completed decommissioning. In December 2001, the staff prepared SECY-01-0229, to inform the Commission of the final status of the pilot program.

! In 1990, NRC decided to undertake a review of terminated materials licenses to assure that facilities were properly decontaminated and posed no threat to public health and safety. Oak Ridge National Laboratory (ORNL) was contracted to review all materials licenses terminated by NRC, or its predecessor agencies, from the inception of materials regulation, to: (1) identify sites with potential for meaningful residual contamination, based on information in the license documentation; and (2) identify sealed sources, with incomplete or no accounting, that could represent a public hazard. ORNL identified approximately 675 loose material licenses and 564 sealed source licenses that required further review by the Regions. Regional staff reviewed ORNL-identified sites in accordance with Temporary Instruction 2800/026, "Follow-up Inspection of Formerly Licensed Sites Identified as Potentially Contaminated," dated April 15, 1998. Approximately 140 loose material licenses and 90 sealed source licenses were transferred to Agreement States for review. Of these, approximately 80 loose material and 20 sealed source licenses that are currently being reviewed by Agreement States under the NRC grant program. Since publication of SECY-01-0156, the staff has completed the Terminated License Review Project. On September 26, 2001, the staff published the "Final Report on Results of Terminated License Reviews."

! Staff routinely reviews financial assurance submittals for materials and fuel facilities, and maintains a financial instrument security program. Between 40 and 60 financial assurance submittals are reviewed each year. The staff has identified a number of steps that could be taken to improve the financial assurance process and plans to communicate with the Commission in the future on this issue.

! Until 1980, NRC licensed the reprocessing operation at the West Valley site under License CSF-1. In 1981, NRC put the license in abeyance to allow DOE to carry out the West Valley Demonstration Project (WVDP). The West Valley site property is owned by the New York State Energy Research and Development Authority (NYSERDA).

NRC has a number of regulatory responsibilities for decommissioning the West Valley site delineated by statute, regulation, policy statement, and agreements with DOE and other agencies. These responsibilities include: (1) prescribing requirements for decontamination, decommissioning, and waste disposal; (2) providing review and



consultation to DOE on the project; (3) reviewing and providing guidance for the decommissioning EIS; (4) reviewing safety analysis reports; (5) monitoring the activities under the project for the purpose of assuring the public health and safety; (6) determining whether DOE's preferred alternative in the decommissioning EIS meets NRC's decommissioning criteria; and (7) interface with stakeholders.

The Commission's final policy statement was issued on February 1, 2002. The NRC staff is in the process of implementing the final policy statement. The final policy statement specified the LTR as the decommissioning criterion. The final policy statement also specified that DOE and NYSERDA will be developing the decommissioning EIS. On April 16-17, 2002, the NRC staff participated in a series of public meetings regarding the Commission's Final Policy Statement and the draft Regulators Communication Plan in West Valley, New York. The Regulators Communication Plan is a document developed by the NRC staff and the regulatory agencies involved in the decommissioning process, to discuss the clean-up criteria and the roles and responsibilities of each agency at the West Valley site, thus addressing concerns set forth in Government Accounting Office (GAO) Report No. GAO-01-314. The regulators, DOE, and NYSERDA agreed to participate in future meetings to follow up on the West Valley site decommissioning process and the EIS.

- ! In August 2000, the staff provided the Commission with an analysis of issues to facilitate remediation of decommissioning sites in non-Agreement States. The analysis considered both formerly licensed sites and currently licensed sites where future funding of decommissioning might be difficult. The staff also provided options to address these difficulties, and the Commission directed the staff to pursue some of the recommended options.

One of the principal options the Commission approved was for the staff to pursue an agreement with DOE to accept ownership and provide long-term control, for a limited number of SDMP and complex sites, using the restricted-release option under Part 20, as authorized under Section 151(b) of NWPA. DOE and NRC had made some progress on a Memorandum of Understanding (MOU) by which sites would be selected for DOE control under its long-term stewardship program, which is documented in SECY-02-008. Subsequently, however, DOE recommended, in a January 24, 2002, letter, from Undersecretary Card, that DOE and NRC work together with the appropriate Federal land management agencies, such as the Department of Interior (DOI), as well as the Office of Management and Budget, to seek a viable solution to this issue. DOE's proposed policy change is to transfer lands and long-term stewardship responsibilities to DOI. This proposal has resulted in DOE stopping work on the MOU. The staff continues to monitor DOE efforts on this proposal; however, little progress has been made to date. As a result, the Commission directed the staff, in the July 17, 2002, SRM for SECY-01-0194, to conduct an analysis of the restricted-release provisions and alternate criteria provisions of the LTR, to determine how to make these provisions more available for licensee use.

The Commission also tentatively approved (SRM-SECY-00-0180) the staff's recommendation to request authorization and appropriations for State-directed remediation at formerly licensed sites in non-Agreement States where there is insufficient funding available. The Commission requested the staff to better define the

number of sites, potential costs for remediation, and willingness of the States to direct remediation with appropriated funds. Similarly, the Commission also requested the staff to provide further information about currently licensed sites undergoing decommissioning that might have insufficient funds to decommission the facility. Staff analyzed the non-Agreement State sites, that were formerly licensed or are currently licensed and in the process of decommissioning, with regard to: (1) the potential remediation costs; (2) the amount of financial assurance; (3) the financial capability of the responsible party to fund cleanup from assets outside of financial assurance; and (4) the possibility of another agency directing remediation if NRC decides to pursue Congressional funding. In May 2002, the staff reported its findings in SECY-02-0079. In summary, staff did not recommend that the Commission seek an appropriation for any sites at this time. Staff recommended a new aggressive regulatory posture, for selected sites, that will afford NRC the best opportunity to bring financially suspect sites to closure without Federal funding. For the most significant site--Safety Light Corporation--the staff recommended enhanced interaction with EPA. The financial status of the sites in SECY-02-0079 has not changed since May 2002, and in future annual updates of this paper, staff will apprise the Commission of the status of these sites. Staff is currently examining the steps necessary to provide this information, while protecting its proprietary nature.

- ! The staff continues to work with EPA and ISCORS to resolve issues related to the regulation of radionuclides. This interaction is necessary to avoid unnecessary duplication of regulatory requirements, including risk harmonization, mixed waste, recycle, decommissioning/cleanup, and sewer reconcentration. Publication of a draft final guidance document entitled "Guidance on Radioactive Materials in Sewage Sludge and Ash at Publicly Owned Treatment Works" is scheduled for calendar year 2002.
- ! Staff continues using the Integrated Licensing and Inspection Plan (ILIP) developed in 1998. The primary objective of the ILIP for decommissioning projects is to ensure that appropriate coordination, planning, documentation, and scheduling of key decommissioning inspection and licensing activities take place. The ILIP is used to track and coordinate pending licensing actions and inspections. It helps keep management and staff focused on decommissioning activities that in many cases are unique events. Because many decommissioning activities are unique events, and occur on schedules established by licensees/responsible parties, it is important for the NRC staff (project managers and inspectors) to be aware of pending decommissioning activities and licensee schedules, to effectively plan and conduct inspections.
- ! CRADAL provides the staff with a high-performance computing capability that includes a platform to conduct intensive numerical calculations and parallel computing in support of licensing activities.
- ! In December 2000, NRC issued a request for technical information, to all Agreement States, regarding their LTR status. Of the 32 Agreement State Programs, 21 State Programs have adopted dose criteria equivalent to the LTR, four States have adopted criteria more restrictive than the LTR, and seven have yet to adopt dose criteria. All Agreement States were expected to adopt dose criteria equivalent to, or more restrictive than, the LTR by August 20, 2000. In May 2002, the Office of State and Tribal Programs issued a request to all Agreement States to update and confirm the results of

the 2000 survey. As of June 2002, 14 programs have confirmed their State data. Agreement State Implementation of decommissioning criteria is again a proposed agenda item for the annual Organization of Agreement States Meeting, in October 2002.

- ! Decommissioning staff interacts with the public in several ways. In March 2001, the staff completed development of a Communication Plan for Regulation of Decommissioning. The goals of NRC's decommissioning communications activities are to increase public confidence in NRC's commitment and ability to carry out licensing and regulatory responsibilities for the decommissioning of nuclear facilities, and increase the efficiency, effectiveness, and realism of analyses supporting license termination decisions. The Plan provides guidance for developing individual Communication Plans for specific activities associated with the regulation of radiological decommissioning. These include, but are not limited to, the decommissioning of commercial nuclear power reactors, fuel cycle and materials licensees, and sites on the SDMP. Since publication of SECY-01-0156, the staff has prepared and implemented site-specific communication plans for all SDMP and complex sites. Site-specific communication plans are useful tools to help us ensure that we are identifying and reaching the appropriate stakeholders and to help staff focus on messages NRC wants to convey. Communication Plans for each site include: (1) history and background of the site; (2) list of stakeholders; and (3) planned communication activities and schedules.

In 2001, the staff began an effort with the Nuclear Energy Institute (NEI) to develop a shared view of acceptable generic approaches for dealing with several license termination issues while ensuring that the requirements of the LTR will be met. This shared view should provide opportunities for standardized approaches of developing, reviewing, approving, and implementing LTPs. In an effort to clarify existing guidance associated with the LTR (10 CFR Part 20, Subpart E), NRC and NEI have adopted an approach whereby the NEI License Termination Task Force generates questions and answers (Q&As), and submits them to NRC for review. The submittal is placed on NRC's web site for the public. NRC reviews the Q&As, provides comments to NEI, and either approves or disapproves the answer as an acceptable approach to the question. NRC's response to NEI is also placed on the web site. NEI can address disapproved Q&As and resubmit them, or withdraw them. Approved Q&As would be incorporated into the consolidated draft decommissioning guidance. The draft guidance, including Q&As, is released for public comment, and posted on NRC's web site. The NRC writing and review teams developing the consolidated guidance (discussed above) addressed the public comments on the Q&As. Final Q&As are published with the final consolidated guidance, released to the public, and posted on NRC's web site. NRC evaluates the need for further updating of the guidance (and Q&As) every 3 years, based on internal review and external public comments.

- ! Decommissioning staff have also taken significant steps in enhancing public participation in the decommissioning process. Under an interagency agreement with the NRC, the U.S. Institute for Environmental Conflict Resolution (USIECR) has just completed a project for NRC on effective public involvement in facility decommissioning. The NRC will host a workshop in early September 2002 to discuss the results of the project – best practices for public involvement in general, with specific application to restricted-use decommissioning of NRC-licensed facilities (per 10 CFR

Part 20.1403). The workshop is designed for licensees as well as both NRC and Agreement State regulators.

Cleanup of sites contaminated with radioactive material can be extremely controversial in the community where the site is located. Such controversy is exacerbated when a licensee proposes restricted use decommissioning rather than cleaning the site to meet unrestricted use guidelines. Public knowledge of the issues and involvement in decision-making is crucial for restricted use proposals, but achieving efficient and effective public involvement is often difficult. NRC acknowledges the need for public involvement in the decommissioning process and has promulgated relevant regulations (10 CFR Part 20.1403).

NRC has concluded that the development of "best practices" for meeting the performance objectives of its public involvement regulations would be useful. Under an interagency agreement, USIECR has prepared a guidance document for NRC. The guidance is based, in part, on information obtained from stakeholders, at NRC licensed sites, who have experience with public involvement concerning radioactive contamination and long-term management of contaminated sites.

- ! Decommissioning staff takes part in a variety of international decommissioning activities such as: (1) technical assistance to the international community; (2) participation in international regulatory organizations; (3) hosting foreign assignees; (4) bilateral technical exchanges; and (5) participation in international symposia.
- ! NRC's Strategic Plan for FY 2000-2005 identifies the objective, scope, and general schedule for the program evaluation, entitled *Changes to the Decommissioning Process*. This program evaluation will consist of a number of evaluations. First, the overall effectiveness of NMSS's Decommissioning Program will be evaluated, including materials decommissioning and the portion of reactor decommissioning for which NMSS is responsible. In addition, evaluations will be conducted of the effectiveness of 15 specific changes to the decommissioning program. The results of these evaluations will be used to recommend further changes to the program as well as the existing goals, strategies, and measures/metrics for the decommissioning program. The program will be evaluated over a 2 year period, from FY 2001 to 2003. The staff completed a "Work Plan" in FY 2001, and will complete "Procedures and Criteria" in FY 2002, in preparation for conducting and reporting on the evaluation during FY 2003.

#### 4.0 FUEL CYCLE FACILITIES DECOMMISSIONING

The following is a status of current and future decommissioning activities at fuel cycle facilities:

##### *Conversion Facilities:*

Honeywell - This facility is located in Metropolis, IL, and is the only operational conversion facility in the United States. There are two CaF<sub>2</sub> settling ponds on this site. In calendar year (CY) 2001, NRC determined that the material in the ponds could be treated as unimportant quantities of source material, as defined in 10 CFR 40.13(a), and should be disposed of accordingly. In CY 2002, the licensee will continue to remediate these ponds and dispose of material at an appropriate disposal facility.

### *Navy Fuel Manufacturers:*

BWX Technologies (BWXT) - This facility is located in Lynchburg, VA. It is a Category I facility, which is authorized to fabricate and assemble nuclear fuel components for the U.S. Naval Reactors Program. This facility has decommissioned several landfills that were used for disposal of facility waste. The landfills were supposed to be nonradioactive, but contained small amounts of contamination. In CY 2001, remediations of two of the three remaining landfills were completed in accordance with an NRC-approved DP. The DP for the remaining landfill is expected to be submitted to NRC in CY 2002.

Nuclear Fuel Services (NFS) - This facility is located in Erwin, TN. It is a Category I facility, which produces nuclear fuel for the U.S. Naval Reactor Program. There are currently four decommissioning projects on the site: Pu Building, 200 Complex, North-site burial ground, and Southwest burial trenches. The Southwest burial trenches remediation was completed in CY 2001, but the licensee has not yet demonstrated that the decommissioning criteria were met. This issue will need to be addressed at the time of license termination. Under the existing license, the licensee will continue to decommission the Pu and the 200 complex buildings in CY 2002. The North-site decommissioning activities are continuing under the NRC-approved DP.

### *Commercial Fuel Manufacturers:*

Framatome Richland - This facility has five lagoons, which were used as part of the waste water treatment process. The State of Washington has ordered the licensee to drain the lagoons and begin decommissioning by 2004. The licensee plans to initiate dialog with the NRC staff, in CY 2002, regarding scheduling and cleanup criteria.

General Atomics - This facility is located in San Diego, CA. It was licensed to fabricate low-enriched light water reactor fuel. The site is undergoing site-wide decommissioning under an NRC and State-of-California approved site-wide DP.

Westinghouse Hematite - This site, located in Hematite, MO, ceased principal activities in June 2001. It will submit a site DP in April 2004. In CY 2002, the licensee will continue to characterize the site and will meet with NRC staff to begin discussions regarding scheduling and cleanup criteria.

ABB Windsor - This site, located in Windsor, CT, ceased principal activities in January 2002. The licensee submitted a license amendment request to allow decontamination and dismantlement of building complexes. In CY 2002, the licensee continued to characterize the site. It has met with NRC staff to discuss scheduling and cleanup criteria.

### *Enrichment Facilities*

There are currently two enrichment (gaseous diffusion) facilities in the United States, located in Portsmouth, OH, and Paducah, KY. NRC has certified these facilities, and according to the lease agreement between the United States Enrichment Corporation and DOE, at the end of plant life, DOE will resume ownership of the facilities and is responsible for future decommissioning activities on these sites.

## 5.0 REACTOR DECOMMISSIONING

Reactor decommissioning activities include: (1) NMSS project management and technical review responsibility for decommissioning of two power reactors; (2) Office of Nuclear Reactor Regulation (NRR) project management and licensing oversight for 18 decommissioning reactor facilities; (3) conduct of core inspections; (4) project management for all licensed research and test reactors; (5) supporting development of rulemaking on entombment; (6) development of rulemaking and guidance on partial site release; and (7) development of guidance on changing LTPs without requiring a license amendment.

- ! NMSS has project management and technical review responsibility for the Fermi 1 and Peach Bottom Unit 1 power reactors. Status summaries for these reactors are contained in Attachment 11 of the preceding Commission Paper. In addition, NMSS is currently reviewing LTPs for Maine Yankee, Connecticut Yankee, and Saxton and expects to receive the LTP for Big Rock Point in January 2003. NRC approved the LTP for Trojan on February 12, 2001.
- ! NRR has project management and licensing oversight for 18 power reactors that have either submitted DPs (or equivalent) or PSDARs (see Attachments 10 and 12 of the preceding Commission Paper).

## 6.0 URANIUM MILL TAILINGS FACILITIES DECOMMISSIONING

Uranium recovery decommissioning activities in the Division of Fuel Cycle Safety and Safeguards include: (1) regulatory oversight of decommissioning uranium recovery (milling) sites; (2) review of site characterization plans and data; (3) review and approval of DPs; (4) preparation of EAs; (5) conduct of decommissioning inspections, including confirmatory surveys; (6) decommissioning cost estimate reviews; and (7) oversight of license termination. The staff also reviews DOE ground water corrective action plans and changes to Long-Term Surveillance Plans for the Title I remediated mill sites and assists the Office of State and Tribal Programs with review of Agreement State uranium recovery site completion reports and provides concurrence with license termination for these sites.

- ! Staff activities associated with decommissioning involve evaluation of plans and accomplishments for soil, structures, and ground water. Reclamation evaluations include stabilization of the tailings pile (engineered cover design, construction, and function, and surface water diversion) at mills and restoration of the land surface (re-contouring and seeding) at all the sites.
- ! The impact of the Regulatory Issue Summary 2000-23, issued November 30, 2000, on uranium recovery policy changes, has been pronounced. The criteria for disposal of non-11e.(2) byproduct material allowed Umetco to take pre-1978 uranium tailings from a formerly NRC-licensed site that was decommissioned by the Wyoming Abandoned Mine Lands Program. Also, the policy that NRC regulates non-radioactive constituents, in groundwater, raised issues with applications for alternate concentration limits for groundwater constituents in Wyoming and New Mexico, because the States continue to regulate these constituents.

- ! Staff worked with DOE, the Bureau of Land Management, and the Corp of Engineers on procedures and a schedule for eventual land transfers to DOE at Title II sites that have completed decommissioning.
- ! Staff has improved decommissioning guidance recently by revising SRPs on evaluation of reclamation/DPs and associated cost estimates; disposal of non-11e.(2) byproduct material; applications for alternate concentration limits; NRC regulation of the non-hazardous constituents of 11e.(2) byproduct material, and license termination. These SRPs were issued for public comment in January 2002, as NUREG-1620, Rev.1 (mills) and NUREG-1569, Rev.1 (in-situ leach facilities). A Commission paper transmitting the SRPs for Commission approval will be submitted in October 2002. Also, a revised procedure for inspection of decommissioning uranium recovery sites (IP 87654) was available in March 2002 and two regulatory guides on mill surveys and occupational exposures were revised after obtaining public input, and published in May 2002.
- ! In March 2001, staff completed the Uranium Recovery Program Communication Plan to guide communications with the public, other agencies, and licensees. The staff continued to implement the plan this FY which included contacts with stakeholders on decommissioning issues (e.g., dual jurisdiction with EPA on underground injection and DOE long-term surveillance of mill tailings sites).
- ! In October 2001, the staff completed an administrative rulemaking to add a reference to Part 40, Appendix A, Criterion 6, to 10 CFR 40.42 (j)(2) and (k)(3), so the section would clearly include the decommissioning of uranium recovery sites. Prior to CY 2002, 10 CFR 40.42 only indicated decommissioning to subpart E criteria, and uranium recovery facilities subject to Appendix A of Part 40 are exempt from subpart E of Part 20.
- ! DPs for two sites were approved in 2002, and EAs were written for these licensing actions. License termination activities were initiated for two other sites (Bear Creek and L-Bar).
- ! One mill site was authorized to use alternate concentration limits for ground water and thus allowed to stop corrective actions. The licensee demonstrated by modeling that the proposed criteria would still keep constituent values within the range of background at the point of exposure for 1000 years. By ending the pumping and evaporation of ground water, the site will be able to complete decommissioning.
- ! Staff is preparing a Commission Paper concerning the acceptance of institutional controls at the Split Rock mill site, to address ground water contamination and thus allow cessation of corrective action, so that the license can be terminated.
- ! Issues related to groundwater corrective action continue at Homestake, Split Rock, Petrotoomics Shirley Basin, Ambrosia Lake, Lucky Mc, Lisbon, and Churchrock.

**CRITERIA FOR PLACING A SITE ON THE  
SITE DECOMMISSIONING MANAGEMENT PLAN LIST**



## CRITERIA FOR PLACING A SITE ON THE SDMP

For a site to be placed on the original Site Decommissioning Management Plan (SDMP) it had to meet one of the following five criteria:

1. Problems with a viable responsible organization (e.g., inability to pay for, or unwillingness to perform, decommissioning);
2. Presence of large amounts of soil contamination or unused settling ponds or burial grounds that may be difficult to dispose of;
3. Long-term presence of contaminated, unused facility buildings;
4. License previously terminated; or
5. Contamination or potential contamination of the groundwater from onsite wastes.

In accordance with SECY-98-155, the following criteria is used to add new sites to the SDMP list:

1. Restricted-use sites; or
2. Complex unrestricted-use sites (sites requiring detailed site-specific dose modeling, sites subject to heightened public, State, or Congressional interest; or sites with questionable financial viability).

**CURRENT SITE DECOMMISSIONING MANAGEMENT PLAN (SDMP)  
AND COMPLEX DECOMMISSIONING SITES**



	Name	Location	Date Put On SDMP	Date DP Submitted	Date DP Approved	Cleanup Criteria	Projected Removal
10	Fansteel, Inc.	Muskogee, OK	3/90	8/99 Revised 11/02*	1/09* +	LTR-UNRES	8/15
11	Kaiser Aluminum	Tulsa, OK	8/94	(Phase 1) 8/98 (Phase 2) 5/01	2/00 12/02*	Action-UNRES LTR-UNRES	8/06
12	Kerr-McGee	Cimarron, OK	3/90	4/95	8/99	Action-UNRES	5/07
13	Kerr-McGee	Cushing, OK	3/90	4/94	8/99	Action-UNRES	12/03
14	Sequoyah Fuels Corp.	Gore, OK	6/93	3/99	8/04* +	LTR-RES	4/09
15	Babcock & Wilcox	Vandergrift, PA	10/93	1/96	10/98	Action-UNRES	7/03
16	Babcock & Wilcox (Shallow Land Disposal Area)	Vandergrift, PA	10/95	6/01	5/05* +	LTR-UNRES	6/07
17	Cabot Corp.	Reading, PA	3/90	8/98	7/02*	LTR-UNRES	10/03
18	**Kiski Valley Water Pollution Control Auth.	Vandergrift, PA	NA	10/02*	1/07*	LTR-UNRES	6/11
19	Molycorp, Inc.	Wash., PA	9/93	6/99	8/00	Action-UNRES	10/05
20	Molycorp, Inc.	York, PA	3/90	8/95	6/00	Action-UNRES	6/03
21	Permagrain Products	Media, PA	3/90	4/98	7/98	Action-UNRES	10/04
22	Safety Light Corp.	Bloomsburg, PA	3/90	11/98	9/99	LTR-UNRES	12/04
23	Westinghouse Electric	Waltz Mill, PA	3/90	4/97	1/00	LTR-UNRES	8/03

Name	Location	Date Put On SDMP	Date DP Submitted	Date DP Approved	Cleanup Criteria	Projected Removal	
24	Whittaker Corp.	Greenville, PA	3/90	12/00 Revised 7/02	12/03*	LTR-UNRES	9/07
25	**Union Carbide	Lawrenceberg, TN (Buildings) (Soil)	NA	8/98	7/00 12/00	Action-UNRES LTR-UNRES	12/05

\* - Estimated Date      \*\* - Complex Decommissioning Site (Non-SDMP)

+ - Timeline for approving DP is protracted due to (1) satisfying NEPA requirements, (2) conduct of public hearing, (3) Multi-phase DP submittals, or (4) combination of all the above

Action - SDMP Action Plan Criteria

LTR - License Termination Rule Criteria

RES - Restricted Use

UNRES - Unrestricted Use

NOTES:

- NFS is a complex decommissioning site not listed above because; (1) it is an operating licensee undergoing partial decommissioning, (2) project managed by the Division of Fuel Cycle Safety and Safeguards.
- Two sites; Lake City Army Ammunition Plant and Cabot Corporation (Revere, PA) were removed from the SDMP since publication of SECY-01-0156.
- The cleanup criteria identified in this table presents the staff's most recent information, but does not necessarily represent the current or likely outcome.
- The staff is currently working with AAR to develop options that would make restricted release (under the LTR) more available.

**SITES REMOVED FROM THE SITE DECOMMISSIONING MANAGEMENT  
PLAN (SDMP) AFTER SUCCESSFUL REMEDIATION**

## SITES REMOVED FROM THE SDMP AFTER SUCCESSFUL REMEDIATION

	Name	Location	Date On SDMP	Date of Lic. Term.	Date Off SDMP	Current Use
1	Pratt & Whitney	Middletown, CT	6/92	6/71	10/95	Property and warehouses remain under Pratt & Whitney control
2	Texas Instruments, Inc.	Attleboro, MA	3/90	3/97	3/97	Managed under active MA license
3	Watertown Mall	Watertown, MA	3/90	1970	9/00	Commercial retail and recreational use
4	Anne Arundel County / Curtis Bay	Anne Arundel County, MD	1/93	NA	7/97	Site is currently used for baseball fields and a prison
5	Frome Investments	Detroit, MI	8/94	NA	7/96	Currently operating as a warehouse
6	Minnesota Mining & Manufacturing (3M)	Pine County, MN	3/90	10/67	8/00	Site is currently forest land.
7	Lake City Army Ammunition Plant	Independence, MO	3/90	NA	10/01	U.S. Army facility

	Name	Location	Date On SDMP	Date of Lic. Term.	Date Off SDMP	Current Use
8	Allied Signal Aerospace	Teterboro, NJ	3/90	1975	2/92	Aerospace operation still active under new owner (Honeywell), property under owner control.
9	RTI Inc.	Rockaway, NJ	5/92	2/97	1/97	Property attached to facility owned and operated by Sterigenics, Intl, NRC License No. 29-30308-01.
10	Chevron Corp.	Pawling, NY	4/92	1975	6/94	Recreation area controlled by the Department of Interior
11	Alcoa	Cleveland, OH	3/90	2/61	4/96	ALCOA's Cleveland works remains a large, multiple-function aluminum refining, casting and refinishing facility
12	Chemetron Corp. (Bert Ave)	Cleveland, OH	3/90	7/99	7/99	This ravine-like, former uncontrolled landfill is now an engineered disposal cell with a thick soil cover, topped by a level, grassy field with unrestricted use



Name	Location	Date On SDMP	Date of Lic. Term.	Date Off SDMP	Current Use	
13	Chemetron Corp. (Harvard Ave)	Cleveland, OH	3/90	7/99	7/99	This site is now owned by McGean-Rohco, Inc. There is a closed engineered disposal cell at the west end of the property( where the main processing building stood) and the buildings remaining on the site are being used for industrial chemical production and processing.
14	Clevite Corp.	Cleveland, OH	8/94	NA	9/98	Building used for multiple small businesses and light manufacturing
15	Elkem Metals Inc.	Marietta, OH	1/95	1985	9/99	This site is a manufacturer of manganese products for the steel industry, with several onsite storage facilities.
16	Old Vic	Cleveland, OH	3/92	7/93	12/93	This site is now the location of an ongoing warehousing operation.
17	Babcox & Wilcox	Apollo, PA	9/93	4/97	1/97	Fenced field
18	Budd Co.	Philadelphia, PA	3/90	4/93	4/93	Property secure; under owner control
19	Cabot Corp.	Boyerton, PA	3/90	Active	9/98	Active license
20	Cabot Corp.	Revere, PA	3/90	9/01	9/01	Property secure; under owner control

	Name	Location	Date On SDMP	Date of Lic. Term.	Date Off SDMP	Current Use
21	Pesses Co. (METCOA)	Pulaski, PA	3/90	7/86	9/99	Abandoned buildings and property controlled inside security fence
22	Schott Glass Technologies	Durea, PA	3/90	4/92	9/98	Security fence maintained around owner controlled area
23	UNC Recovery Systems	Wood River Junction, RI	3/90	9/95	10/95	Property remains under UNC ownership, CERLCA issues being addressed
24	Amax Inc.	Washington, WV	3/90	6/94	6/94	Department of Energy site

**SITES REMOVED FROM THE SITE DECOMMISSIONING  
MANAGEMENT PLAN (SDMP) BY TRANSFER TO AGREEMENT  
STATES OR U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)**

## SITES REMOVED FROM THE SDMP BY TRANSFER TO AGREEMENT STATES OR EPA

	Name & Location	Date On SDMP	Date Transferred	Cleanup Criteria	Status
1	Kerr-McGee (West Chicago) Chicago, IL	3/90	11/90	Surface- 20 pCi/g U <sub>total</sub> Subsurface-50 pCi/g U <sub>total</sub>	Active decommissioning, estimated completion date-2004. No unforeseen factors delaying decommissioning.
2	Englehard Corp. Plainville, MA	1/92	3/97	Buildings - SDMP Soils - To be determined	Analyzing chemical contamination, not actively decommissioning. No unforeseen factors delaying decommissioning. Estimated closure date - 2003.
3	Nuclear Metals, Inc. Concord, MA	6/93	3/97	SDMP - but licensee wants to revise criteria	Current Licensee, active decommissioning. No unforeseen factors delaying decommissioning. No license termination planned.
4	Wyman Gordon N. Grafton, MA	4/91	3/97	To Be Determined	Groundwater monitoring, no plans to decommission. No unforeseen factors delaying decommissioning. No estimated site closure date.
5	West Lake Landfill (to EPA) Bridgeton, MO	6/92	6/95	Site will utilize cap or cover rather than soil cleanup criteria. If soil remediation is required - 40 CFR 192.	EPA waiting for revised remediation plan. No estimated date for completion.

	Name & Location	Date On SDMP	Date Transferred	Cleanup Criteria	Status
6	Advanced Medical Systems, Inc. Cleveland, OH	3/90	8/99	LTR	No decommissioning to date. No unforeseen factors delaying decommissioning. No estimated license termination date.
7	BP Chemicals America Lima, OH	4/92	8/99	SDMP	Active decommissioning. Estimated license termination date is 2003. No unforeseen factors delaying decommissioning.
8	Horizons, Inc. Cleveland, OH	8/94	8/99	SDMP	Non-licensee. Clean-up complete.
9	Northeast Ohio Reg. Sewer Dist. Cleveland, OH	4/92	8/99	SDMP	On hold - no activity. No estimated clean-up completion date. No unforeseen factors delaying decommissioning.
10	RMI Titanium Co. Ashtabula, OH	8/91	8/99	SDMP	Active decommissioning. No unforeseen factors delaying decommissioning. Estimated termination date - 2005+
11	Shieldalloy Metallurgical Corp. Cambridge, OH	3/90	8/99	LTR	Active decommissioning. Estimated termination date - 2003+ if terminated at all.

LTR - License Termination Rule Criteria

SDMP - SDMP Action Plan Criteria

**CONTAMINATED FORMERLY LICENSED SITES**

## CONTAMINATED FORMERLY LICENSED SITES

	Name	Location	Date of Lic. Term.	Status
1	U.S. Army Chemical Corp.	Fort McClellan, AL	1965	In process of decommissioning
2	Reynolds Metals	Bauxite, AR	1957	Transferred to Arkansas (AR completed remediation)
3	Aerojet General Co.	San Ramon, CA	1970	Transferred to California
4	Isotope Specialties	Burbank, CA	1959	Transferred to California
5	Isotope Specialties	Burbank, CA	1959	Transferred to California
6	Verdi Mill	Mohave, CA	1958	Transferred to California
7	United Nuclear	New Haven, CT	1974	In process of decommissioning
8	U.S. Naval Research Lab.	Washington, DC	1987	Closed via letter from Navy
9	Salmon River	Salmon, ID	1959	Under NRC Headquarters review
10	Norton	Worcester, MA	1968	Closed- successfully remediated

	Name	Location	Date of Lic. Term.	Status
11	AAR Manufacturing, Inc.	Livonia, MI	1970	In process of decommissioning
12	American Metal Products	Ann Arbor, MI	1964	Closed- successfully remediated
13	Frome Investment Co.	Detroit, MI	1970	Closed- successfully remediated
14	General Electric	Warren, MI	1970	Closed- successfully remediated
15	Tenneco Chemicals	Fords, NJ	1973	Closed- successfully remediated
16	Navy	St. Albans, NY	1973	Closed-new license issued to Veterans Affairs
17	Cleveland Pneumatic Tool Co.	Cleveland, OH	1972	Closed- successfully remediated
18	Clevite	Cleveland, OH	1962	Closed-successfully Remediated
19	Horizons, Inc.	Cleveland, OH	1959	Transferred to Ohio
20	National Carbon Co. (Union Carbide)	Fostoria, OH	1964	Closed- successfully remediated
21	Standard Oil Co. (BP America)	Cleveland, OH	1973	Closed- successfully remediated
22	Thompson Products	Cleveland, OH	1963	Closed- successfully remediated
23	Union Carbide	Parma, OH	1972	Closed- successfully remediated



	Name	Location	Date of Lic. Term.	Status
24	Kaiser Aluminum	Tulsa, OK	1971	In process of decommissioning
25	Atlantic Metals	Philadelphia, PA	1971	Closed - successfully remediated
26	Department of the Army	Frankford Arsenal, Philadelphia, PA	1981	In process of decommissioning
27	International Chemical and Nuclear	West Mifflin, PA	1969	Closed - successfully remediated
28	Nuclear Laundry Rental Services	Jeanette, PA	1973	Closed - successfully remediated
29	Superior Steel	Pittsburgh, PA	1958	In process of decommissioning
30	Westinghouse Electric	Blairsville, PA	1961	In process of decommissioning
31	Union Carbide	Lawrenceburg, TN	1974	In process of decommissioning
32	American Smelting & Refining	Houston, TX	1971	Transferred to Texas
33	Dow Chemical	Freeport, TX	1964	Transferred to Texas
34	LTV Corporation	Dallas, TX	1964	Transferred to Texas

	Name	Location	Date of Lic. Term.	Status
35	Marquardt Corp.	Ogden, UT	1971	Transferred to Utah
36	Marquardt Corp.	Hill AFB, UT	1972	Transferred to U.S. Air Force Radioisotope Committee
37	Atlantic Research Corp.	Alexandria, VA	1979	Closed - Review of records indicates that the ARCO facility was properly decommissioned in 1995
38	Fostoria Glass	Moundsville, WV	1969	Closed - dose assessment indicated facility below 25mrem/yr
39	Homer Laughlin	Newell, WV	1972	Under Regional review
40	International Mining Co.	Greenville, WY	1961	closed - dose assessment indicated facility below 25 mrem/yr

## **SITE STATUS SUMMARIES**

**AAR MANUFACTURING GROUP, INC.**  
(Updated August 28, 2002)

## 1.0 SITE IDENTIFICATION

Location: Livonia, MI  
License No.: STB-0362 (terminated)  
Docket No.: 04000235  
License Status: Terminated  
Project Manager: Kristina Banovac

## 2.0 SITE STATUS SUMMARY

Surface and subsurface thorium contamination has been identified at several locations in open land areas on the site. Contaminated soil has also been identified below the building foundation in three locations.

AAR Manufacturing Group, Inc. (AAR) submitted a site remediation plan (RP), including a site characterization report, for NRC review and approval on April 8, 1996. The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the RP and provided comments to AAR on February 13, 1997. NRC concluded that AAR's RP was unacceptable as presented, and provided AAR with an acceptable method for surveying and averaging concentrations of thorium in contaminated subsurface soil. AAR submitted a revised RP on October 14, 1997, and the NRC approved the revised RP on May 22, 1998. Remediation at the site began on October 12, 1998. AAR conducted geoprobe sampling onsite, to more precisely locate areas of contamination. As a result of the geoprobe sampling, additional soil contamination was identified in the open area on the western side of the property.

On September 17, 1999, AAR submitted the "Site Characterization Report, Phase II, Former Brooks & Perkins, Inc. Site, AAR Manufacturing Group, Inc., Livonia, Michigan" from B.Koh & Associates, Inc., which included a proposed revision to the approved RP. The plan proposed remediation of only soils containing thorium concentrations exceeding 116 pCi/g, which is the unimportant quantity (0.05 weight percent) of source material, exempt from regulation, established in 10 CFR 40.13(a). On March 31, 2000, NRC informed AAR that, based on a dose assessment completed by NRC staff, NRC could not approve the proposed remediation criteria and that further remediation at the site would be conducted at its own risk. NRC gave AAR the option to return to the RP approved on May 22, 1998, or to perform its own site-specific dose assessment, and submit it for NRC review. The March 31, 2000, letter also included NRC comments on Phase II of the Site Characterization Report.

AAR responded to NRC comments on July 17, 2000 and submitted the "Summary of Final Survey and Sampling Data for the Former Brooks and Perkins, Inc. Site, AAR Manufacturing, Inc., Livonia, Michigan, March 2000." This summary report described remediation of indoor areas conducted in January 2000, and provided sampling and survey results.

During an inspection conducted on June 15, 2000, Region III inspectors found that contaminated materials excavated during indoor remediation activities were being temporarily stored on-site without posting and control. In its approved RP, AAR agreed to control and conspicuously post contaminated materials resulting from remediation activities. Therefore, NRC requested in a letter dated September 18, 2000 that AAR take immediate action to

conspicuously post (as specified in 10 CFR 20.1902) the fenced area where contaminated materials are currently being stored and secure the area to restrict public access. The letter also asked AAR to meet with NRC to discuss the issues dealing with the decommissioning of its site.

A public meeting between AAR and NRC was held on November 14, 2000. Topics discussed were the indoor remediation activities, the contaminated materials being stored on site, the proposed RP, and the site-specific dose assessment. NRC provided AAR with a copy of the current guidance, NUREG-1727, "NMSS Decommissioning Standard Review Plan," to review before formally submitting the dose assessment. At the meeting, AAR agreed to make arrangements for the disposal of contaminated material being stored on site, submit the cost differential between remediation of the site under the approved criteria vs. the proposed criteria, and submit the site-specific dose assessment by December 15, 2000.

AAR submitted the site-specific dose assessment on December 29, 2000, which did not include enough information for the staff to begin a technical review. The staff generated a request for additional information (RAI) to obtain the needed information; however, the RAI was put on hold until the NRC could resolve the policy issue of using 40.13(a) for decommissioning. NRC conducted an inspection of the site on August 30, 2001, and found that AAR had properly posted the areas where the decommissioning waste is being stored.

There are no immediate radiological hazards at the site.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

Contamination at the site was identified as a result of the Oak Ridge National Laboratory terminated license review project. This site was owned and operated by Brooks & Perkins, Inc. from 1959 - 1971. AAR purchased Brooks & Perkins in 1981. Since AAR is not directly responsible for the contamination onsite, it believes it should not be responsible for the cost of remediation. In an effort to reduce the cost of remediation, AAR submitted a revised RP on September 17, 1999.

In the revised RP, AAR takes the position that less than 116 pCi/g thorium is an exempt quantity (based on 10 CFR 40.13), and therefore, only soil exceeding 116 pCi/g thorium must be remediated. The NRC previously approved a 13 pCi/g thorium release limit as specified in "Method for Surveying and Averaging Concentrations of Thorium in Contaminated Subsurface Soil" (NRC, February 1997). The staff reviewed the revised RP, and based on a dose assessment, found that the proposed revision to the RP could not be accepted. The staff gave AAR the option to return to its approved RP or perform a site-specific dose assessment. AAR presented its site-specific dose assessment during a November 14, 2000, public meeting and formally submitted it for NRC review on December 29, 2000. After a preliminary review of the dose assessment, it was determined that there was insufficient information to conduct a technical review.

In an SRM dated June 18, 2002, the Commission approved the staff's proposal to deny the use of 10 CFR 40.13(a) as a decommissioning criterion and require AAR to return to its approved remediation plan, meet the terms of the LTR voluntarily, or be subject to license, under which the LTR would be applicable. The SRM also: (1) instructs the staff to consider creative options that would make restricted release (under the LTR) more available to a site, using AAR as a pilot for consideration of alternative approaches; (2) advises the staff to interact with AAR to

determine if there are options AAR would like the NRC staff to consider, which the staff believes are viable and which can be accomplished in a time frame which would be acceptable to both AAR and NRC; and (3) instructs the staff to conduct a comprehensive analysis of the restricted release provisions (10 CFR 20.1403) and the alternate criteria (10 CFR 20.1404) of the LTR, and how to make those provisions more available for licensee use. In 2003, the staff will prepare Commission papers presenting the results of its analyses and provide feedback to the Commission on the interactions with AAR.

Also at the November 14, 2000, meeting, AAR presented Th-230 as a contaminant in the dose assessment. Historically, AAR has only considered Th-232 and Th-228 as contaminants on site. Apparently, elevated concentrations of Th-230 were found in soils on the AAR site during initial site characterization in 1995, but these results were not formally presented to the NRC until March 19, 2001. NRC has requested AAR to further research this issue to determine whether uranium contamination is also present, and to establish a thorium isotope distribution.

Since AAR is not a licensee, it is not obligated to submit a decommissioning funding plan. AAR has not provided certification of financial assurance to cover the cost of decommissioning. AAR has questioned its responsibility for funding the cost of decommissioning, given that it is not responsible for the contamination on the site. If remediation costs become large, it is possible that AAR may legally challenge its responsibility to fund the remediation activities.

Elevated levels of thorium have also been identified along the fence separating AAR and CSX Transportation, Inc. (CSX). Although contamination appears to be very limited, there is the potential that financial responsibility for the contamination on CSX property may become an issue. No remediation has been performed by CSX.

To date, public interest in remediation activities at the site is minimal.

#### 4.0 ASSUMPTIONS

- An environmental impact statement (EIS) will not be required.
- Standard assumptions.

#### 5.0 ESTIMATED DATE FOR CLOSURE 12/04

## **B&W PARKS OPERATING FACILITY**

(Updated May 15, 2002)

### 1.0 SITE IDENTIFICATION

Location: Parks Township, Armstrong County, PA  
License No.: SNM-414  
Docket No.: 07000364  
License Status: Active  
Project Manager: Amir Kouhestani

### 2.0 SITE STATUS SUMMARY

The BWX Technologies (BWXT) facility is located in Parks Township, Armstrong Co. PA., approximately 37 kilometers (KM) (23 miles) east-northeast of Pittsburgh. Principal radioactive contaminants at the site are americium (Am)-241, plutonium (Pu), uranium, cobalt (Co)-60, and cesium (Cs)-137.

BWXT submitted the decommissioning plan (DP) for the below-grade structures and soil in January 1996. The NRC approved the decommissioning plan in October 1998. BWXT earlier completed decommissioning of the above-grade structures at the site under its license, and in November 2001, completed its decommissioning of the soils and sub-grade structures and utilities under its decommissioning plan. BWXT completed providing interim final survey reports of project areas decommissioned. The Oak Ridge Institute of Science and Education (ORISE) performed interim confirmatory surveys of project areas decommissioned. Beginning March 2002, the licensee initiated development of a groundwater monitoring work plan and staff has commented on the plan.

BWXT will complete facility remediation with the intention of requesting unrestricted use of the site and termination of its radioactive materials license. BWXT is using the SDMP Action Plan criteria as the cleanup level.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

No financial assurance issues have been identified at this time. The staff has not identified any major offsite environmental issues that will not be addressed during decommissioning of the facility.

### 4.0 ASSUMPTIONS

- Standard assumptions.
- Confirmatory surveys for individual building footprints will be done by Region I as remediation is completed.
- The site-wide confirmatory survey will be performed by ORISE.

### 5.0 ESTIMATED DATE OF CLOSURE 7/03

## **B&W PARKS SHALLOW LAND DISPOSAL AREA**

(Updated May 15, 2002)

### 1.0 SITE IDENTIFICATION

Location: Parks Township, Armstrong County, PA  
License No.: SNM-2001  
Docket No.: 07003085  
License Status: Active  
Project Manager: Amir Kouhestani

### 2.0 SITE STATUS SUMMARY

The BWX Technologies (BWXT) Shallow Land Disposal Area (SLDA) is located in Parks Township, Armstrong Co., PA., approximately 37 Km (23 miles) east-northeast of Pittsburgh. The site consists of 10 trenches that were used to dispose of wastes, scrap, and trash from a nearby nuclear fuel fabrication facility in Apollo, PA. Principal radioactive contaminants at the site are natural, enriched, and depleted uranium, and lesser quantities of Am-241, plutonium, and thorium.

This site is designated by the U.S. Army Corps of Engineers (USACE) as a Formerly Utilized Sites Remedial Action Program (FUSRAP) site. In December 2001, Congress directed USACE to remediate the site. In March 2002, USACE issued a final site Preliminary Assessment (PA) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA). The PA concludes that USACE will proceed with the SLDA project to carry out the Congressional Act language to remediate the site in accordance with CERCLA and FUSRAP requirements and consistent with the July 2001, USACE-NRC Memorandum of Understanding (MOU). In December 2001, staff conditioned the BWXT-SLDA license to allow for suspension of the license until USACE has completed its Record of Decision as required under CERCLA. On May 8, 2002, USACE held a public meeting in vicinity of the site. The USACE has indicated all remediation options will be considered.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

NRC staff currently anticipates that BWXT will request license termination, with restrictions on future land use. There is significant public and Congressional interest in the site. The Pennsylvania Department of Environmental Protection (PADEP) is also involved in the decommissioning and has stated that it will not assume responsibility for the site (i.e., become the institutional control authority) if it is decommissioned with land-use restrictions. No financial assurance issues have been identified at this time. The staff has not identified any major off-site environmental issues that will not be addressed during decommissioning of the facility.

### 4.0 ASSUMPTIONS

- Standard Assumptions.
- BWXT will request license termination with restrictions on future land use.
- The time required for the licensee to complete decommissioning activities is based on information in NUREG-1613, "Draft Environmental Impact Statement (DEIS), Decommissioning of the Babcock and Wilcox SLDA in Parks Township, Pennsylvania" (note this DEIS was withdrawn in September 1997).



- ORISE will perform a limited Confirmatory Survey, during the Final Site Survey Report (FSSR) review phase to validate radiation levels on and around the site.

#### 5.0 ESTIMATED DATE OF CLOSURE

Contingent on USACE schedule (anticipated mid-07).

**CABOT PERFORMANCE MATERIALS INC. (CABOT)**  
(Updated June 1, 2002)

### 1.0 SITE IDENTIFICATION

Location: Reading, PA  
License No.: SMC-1562  
Docket No.: 04009027  
License Status: Active (possession only)  
Project Manager: Ted Smith

### 2.0 SITE STATUS SUMMARY

There is surface and subsurface uranium and thorium contamination, in the form of slag, along a slope area at the edge of the site.

Cabot submitted a DP, for NRC review and approval, on August 28, 1998. The NRC noticed the receipt of the DP and provided an opportunity for a hearing in the Federal Register on October 28, 1998. Two parties [Reading Redevelopment Authority/City of Reading, and Jobert Inc./ Metals Trucking Inc. (owner of the site at the time of filing)] petitioned for a hearing. In March 2000, the City of Reading took title to the property. In May 2000, the Jobert Inc./ Metals Trucking Inc hearing request was vacated. Several months of private negotiations between the City of Reading and Cabot Corporation concluded with the City's request to withdraw their hearing request. The court vacated the City's hearing request in October 2000. Beyond the hearing, public interest in the site is minimal, other than potential interest by a representative from St. Joseph's Hospital.

The DP proposes unrestricted release of the site in its current condition. Because of a lack of dose-modeling guidance and staff resource limitations, review of the DP was delayed until the spring of 1999. The NRC contracted with Sandia National Laboratories (SNL) to review the dose assessment. SNL completed its preliminary review and presented its findings in a meeting on October 5, 1999. Issues raised as a result of this review are discussed below. A RAI was issued on October 19, 1999. A second SNL review, based on Cabot's additional information, was completed in June 2000. The NRC is currently reviewing the SNL analysis and Cabot's latest DP.

There are no immediate radiological hazards at the site.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

The slag was generated from the processing of iron and tin ores for tantalum in 1967 and 1968. Additional source material was placed on the pile when the process building was decontaminated in 1977 and 1978, and contaminated slag from the Canton Yards site in Baltimore, Maryland site was placed on the pile. The pile encompasses approximately 5094 cubic meters (180,000 cubic feet). The average contamination levels are 45 pCi/g thorium-232 and progeny, and 30 pCi/g of uranium-238 and progeny. Cabot proposes to leave the material in place, without remediation, under criteria in the LTR.

Cabot's dose analysis considered worker and trespasser exposure scenarios. This is a major technical issue because Cabot did not analyze the default resident farmer. SNL's preliminary

review of the DP indicates that doses could be higher for a residential gardener exposure scenario. Staff requested that the licensee consider a residential gardener scenario. The licensee's RAI response considered a resident gardener scenario as part of sensitivity analysis. SNL's review of licensee's response raised further questions about several parameters in the resident gardener scenario. A key issue is whether a slab-construction building at the edge of the slag-pile should be considered. NRC has evaluated all the issues and is in the process writing an environmental assessment and commission paper to remove the site from the site decommissioning management plan (SDMP).

No major off-site environmental or financial assurance issues are associated with this site. A potential financial assurance concern would arise if off-site disposal were required.

#### 4.0 ASSUMPTIONS

- Cabot's proposal for unrestricted release without remediation is valid.
- Cabot's site characterization is acceptable.
- Cabot takes no more than 60 working days to respond to the RAI.
- Standard assumptions.

#### 5.0 ESTIMATED DATE FOR CLOSURE 10/03

**DOW CHEMICAL COMPANY (DOW)**  
(Updated May 31, 2002)

## 1.0 SITE IDENTIFICATION

Location: Bay City, MI  
License No.: STB-527  
Docket No.: 04000017  
License Status: Active  
Project Manager: Sam Nalluswami

## 2.0 SITE STATUS SUMMARY

Dow's Bay City, Michigan, site contains thorium contaminated slag storage piles.

Dow submitted a DP and a license amendment request, for NRC review and approval, on October 12, 1995. The remediation approach and methods were approved in July 1996. Notice of a Finding of No Significant Impact (FONSI) and Opportunity for Hearing for the issuance of this license amendment were published in the Federal Register on July 19, 1996. Approval of the unrestricted-use criteria, based on branch technical position (BTP) Option 1, and the final survey plan, was granted in July 1997.

Dow made a presentation on September 14, 2000, at the NRC Headquarters and explained that the decommissioning of the Bay City site has been complicated by a larger volume of contamination than originally estimated, the presence of wetlands, and winter flooding. Dow submitted an application for license amendment to extend the time schedule for decommissioning to December 31, 2002, and it was approved on November 3, 2000. The remaining area to be remediated is about 9.1 acres (about 25%) of the original Bay City site. During a meeting in Bay City on July 20, 2001, Dow informed the staff it planned to submit a supplement to the previously approved DP by September 30, 2001. On August 17, 2001, Dow submitted a supplement to the previously approved DP. The administrative review of the supplement identified significant omissions/deficiencies. On September 25, 2001, Dow was requested to resubmit the supplement with the identified information. In response to NRC's September 25, 2001, request, Dow re-submitted on January 31, 2002, a revised supplement to amend the previously approved DP. A public meeting was conducted at NRC Headquarters on April 30, 2002, to discuss various issues in the revised supplement. DOW was requested to provide additional information to support the supplement and other information presented during the public meeting. DOW provided partial information which is under review.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

There are no immediate radiological hazards at the site.

Part of the Bay City site is in wetlands. Therefore, there are potential issues with the restricted release, that concern the State of Michigan and the U.S. Army Corps of Engineers authority over wetlands. The staff has not identified any major off-site environmental issues that will not be addressed during decommissioning of the facility.

NRC met with the licensee, in August 1998, to further discuss complications that it is having with the removal of material at the Bay City site and the status of guidance on the LTR criteria.

Dow was planning to discuss decommissioning funding issues and present it with the supplement to the decommissioning plan in September 2001. The funding issue was not included in the supplement. To date, there has been minimal public interest in the decommissioning activities at this facility.

#### 4.0 ASSUMPTIONS

- The State of Michigan's and the U.S. Army Corps of Engineers's possible concerns with the NRC's release criteria will not be significant enough to unduly delay the project schedule.
- Dow takes no more than 45 working days to respond to the RAI.
- Standard assumptions.

#### 5.0 ESTIMATED DATES FOR CLOSURE 4/04

The estimated closure date is based on the adequacy of the supplement to the DP submitted by Dow.

**FANSTEEL INC.**  
(Updated May 31, 2002)

## 1.0 SITE IDENTIFICATION

Location: Muskogee, OK  
License No.: SMB-911  
Docket No.: 040-07580  
License Status: Active  
Project Manager: Jim Shepherd

## 2.0 SITE STATUS SUMMARY

From 1958 until 1989, the 110-acre Fansteel facility process was to recovery of tantalum, niobium, scandium, uranium, thorium, and other metals of commercial value from previous process waste residues. Fansteel has decontaminated approximately 35 acres of the Muskogee facility designated as the "Northwest Property," and the NRC released this area for unrestricted use. Fansteel has an approved NRC license dated March 25, 1997, to complete the processing of ore residues, calcium fluoride residues, and wastewater treatment residues contained in various site impoundments. The current license expires in September, 2002.

Fansteel is currently in shutdown/standby mode, and cleaning and draining of residual material from all plant systems has been completed. The residual waste in process (WIP) material will be packaged and stored in the Sodium Reduction Building. The calcium fluoride will be returned to the waste ponds via the waste water treatment system.

On January 15, 2002, Fansteel and its U.S. subsidiaries filed for voluntary bankruptcy (Chapter 11) in the U.S. Bankruptcy Court for the District of Delaware. On March 5, 2002, Fansteel requested a 90 day delay in submitting its annual financial assurance reports. Staff approved the request and the submittal is due on June 25, 2002. Fansteel notified NRC that it will submit a revised DP about December, 2002. It also stated that it intended to apply for license renewal to keep the option of operating the tantalum recovery process.

Region IV conducted an inspection during the week of June 18, 2002, to follow up a failure by Fansteel to make a 30 day report of exceeding concentrations in discharges. The concentrations have been brought within limits and there is no health or safety hazard.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

Contaminants at the site include natural uranium and decay products, and natural thorium and decay products; metals including tantalum, niobium, chromium, antimony, tin, barium, arsenic; and ammonia fluoride and methyl isobutyl ketone.

Soil contamination is non-uniformly distributed at the Fansteel site. Gross alpha concentrations range from 21 to 360 pCi/g; uranium concentrations range from 6.2 to 93 pCi/g; and thorium concentrations range from 7.2 to 51 pCi/g. The depth of contamination ranges from the ground surface to 7.9 m (26 ft) below, with the majority concentrated within the top 0.76 m (2.5 ft) of soil.

Groundwater contamination is non-uniformly distributed at the Fansteel site. Gross alpha concentrations ranged from 19 pCi/l to 2600 pCi/l and gross beta concentrations ranged from 59 to 1300 pCi/l. These levels of contamination were confined to the shallow groundwater zone. Sampling and analysis of deep (bedrock) groundwater wells detected no concentrations above background levels. Therefore, radioactive contamination of groundwater appears to be confined to the shallow alluvium at the top of the bedrock.

The estimated volume of contaminated soil and other material for which metal recovery operations are feasible and that must be transported off-site is 16,810 m<sup>3</sup> (594,000 ft<sup>3</sup>). "Offsite" is defined as any other area and may include areas currently owned by Fansteel and located adjacent to the Eastern Property Area.

On August 13, 1999, the licensee submitted a Decommissioning Funding Plan (DFP) with its amendment request to construct a containment cell. The DFP specifies a total cost estimate of \$4,694,890 to decommission with on-site disposal; the application for the on-site cell was formally withdrawn on November 9, 2000. By deposition to the Bankruptcy Court, Fansteel approximated costs to remediate the site for unrestricted use at \$56 million. A revised DFP will be submitted about December, 2002. NRC's contractor is performing an independent cost estimate which is scheduled for completion in September 2002. Fansteel's current position is that it has approved decommissioning criteria -- SDMP Option 1 -- and revisions to the DP do not alter that fact. In subsequent conversations, Fansteel stated it may consider using dose-based criteria for the revised DP. Staff will evaluate this when the revised DP is submitted.

There is public interest about the decommissioning of this site. There are two primary parties: the State of Oklahoma and the Cherokee Nation.

#### 4.0 ASSUMPTIONS

- The revised Fansteel DP and financial assurance submittal(s) will satisfactorily resolve the issues regarding flood plane, financial assurance, and institutional controls (if needed).
- Standard assumptions.

#### 5.0 ESTIMATED DATE FOR CLOSURE 8/15

**HERITAGE MINERALS INC. (HMI)**  
(Updated July 10, 2002)

## 1.0 SITE IDENTIFICATION

Location: Lakehurst, New Jersey  
License No.: SMB-1541  
Docket No.: 040-08980  
License status: Renewed - 9/20/99 (possession/decommissioning only)  
Project Manager: Craig Gordon, RI

## 2.0 SITE STATUS SUMMARY

The HMI Final Status Survey Plan submitted to the NRC in November 1997, provided the basis for disposal of 700 m<sup>3</sup> of thorium contaminated sand and remediation of mill buildings and equipment. An environmental assessment was issued in August 1999, to address decommissioning activities, concluding with a finding of no significant impact. HMI requested unrestricted release for the site after license termination.

The licensee's disposal method is to transfer the material to International Uranium Corporation's (IUC) White Mesa uranium mill, Blanding Utah. The IUC license was amended 12/00 to accept HMI material as alternate feed.

After the 1999 license renewal, HMI solicited contract bids for decommissioning activities. Selection of a decommissioning contractor was slow due to the inability of the property owner, Hovnanian Industries (a real-estate development company), to commit funds for cleanup.

HMI awarded a contract in June 2001, for site remediation and final surveys. The primary work activity, excavation of the monazite tailings pile, began on July 9, 2001, and is complete except for small amounts of subsurface residual material. NRC confirmatory surveys were performed December 2001.

Management meetings to discuss additional characterization of areas in need of further remediation prior to license termination were held on January 22, 2002 and April 23, 2002.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

The entire site covers a large area in Lakehurst, New Jersey, while the licensed material is secured within a very small area. NRC-licensed portions of the site are within an area of enhanced background, raising regulatory issues with New Jersey over continued radiological exposure if NRC terminates the license. The State believes that NRC jurisdiction should extend beyond the licensed tailings pile, to other areas which contain exempt quantities of uranium and thorium, but do not exceed unrestricted use criteria. The primary State issue is that once NRC terminates the license, the large contaminated areas of the site not subject to NRC licensing could involve costly remediation, some of which may be the State's responsibility.

The licensee cleaned and decontaminated mill buildings used during processing of feed material (sand) containing monazite, leaving remediation activities to the tailings pile and conduct of final status surveys. Financial assurance instruments were revised in 1999 and are sufficient to cover decommissioning costs.



A Petitioner from Moab, Utah challenged the IUC license amendment to accept HMI material because IUC is not licensed to possess thorium. The Commission denied the petition on July 30, 2001, ruling the thorium-bearing tailings resulting from the uranium extraction process is permitted under the IUC license.

Preliminary NRC surveys show that removal of contaminated material around the pile area and in the two process (mill) buildings was not completed.

A draft dose assessment based on licensee and NRC survey data was prepared by the staff to determine derived concentration guideline level (DCGL) values for residual material. DCGLs were consistent with approved DP commitments and Action Plan guidelines.

In a June 26, 2002, letter to NRC, HMI disagrees with the NRC methodology for counting residual contamination on surfaces and equipment in the mills. They believe NRC overestimated the beta component for remaining activity. The licensee also stated that remaining material is not covered by the HMI license. They are preparing a mass balance evaluation to show that all licensed material was shipped to IUC. HMI's technical justification for determining counting methodology is under staff review.

#### 4.0 ASSUMPTIONS

- Remediation will be complete if only small areas around the monazite pile are in need of cleanup, the HMI survey methodology to determine contamination on surfaces is acceptable, and the licensee removes affected equipment or demolishes the mill buildings by September 2002.
- Standard Assumptions.

#### 5.0 ESTIMATED DATE FOR CLOSURE 9/02

**JEFFERSON PROVING GROUND**  
(Updated October 1, 2002)

## 1.0 SITE IDENTIFICATION

Location: Madison, Indiana  
License No.: SUB-1435  
Docket No.: 04008838  
License Status: Active (possession only)  
Project Manager: Tom McLaughlin

## 2.0 SITE STATUS SUMMARY

The site has been closed for the testing of all ordnance including depleted uranium (DU) rounds since 1995. The monitoring of DU in soil, groundwater, surface water, and sediment continues on a bi-annual basis. The license was amended on May 8, 1996, resulting in the area south of the firing line being released for unrestricted use. License Condition 13 was added to the license, requiring the U.S. Army to submit a Security Plan and an Environmental Monitoring Plan. The NRC approved these plans in July 1996.

The U.S. Army submitted a revised DP in August 1999. NRC staff reviewed the DP and responded with a RAI in January 2000. The U.S. Army chose to revise its DP as a result of the RAI. The revised DP was submitted on June 28, 2000. NRC conducted an acceptance review of the DP and on September 28, 2001, rejected the DP due to deficiencies in the dose assessment, particularly the exposure to humans and the environment due to off-site transport of DU. A revised DP was submitted in June 2002, and is under staff review.

Weekly phone calls with the U.S. Army are being held to discuss the submittal of the revised DP and the environmental report (ER). There are no immediate radiological hazards at the site. Unexploded ordnance at the site represents a significant non-radiological hazard. The staff has not identified any major off-site environmental issues that will not be addressed during decommissioning of the facility. No financial assurance issues have been identified at this time.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

The presence of unexploded ordnance, the associated risk, and cost for cleanup of this material, as well as potential contamination of groundwater, are complicating remediation.

The licensee has signed a memorandum of agreement with the Department of the Interior (Fish and Wildlife) and the Department of Defense (Air Force) for long-term institutional control of the site. In January 2000, Save the Valley, a local environmental group, requested a hearing on the DP, citing that the DP does not adequately describe the decommissioning process and does not provide adequate assurance for long-term control.

## 4.0 ASSUMPTIONS

- The U.S. Army will choose restricted release.
- Standard assumptions.

## 5.0 ESTIMATED DATE FOR CLOSURE 1/06

**KAISER ALUMINUM SPECIALTY PRODUCTS (KAISER)**  
(Updated May 23, 2002)

## 1.0 SITE IDENTIFICATION

Location: Tulsa, OK  
License No.: STB-472 (terminated)  
Docket No.: 040002377  
License Status: Terminated  
Project Manager: John Buckley

## 2.0 SITE STATUS SUMMARY

The NRC added Kaiser to the SDMP on August 19, 1994. During site characterization Kaiser identified thorium concentrations above the unrestricted-release limits on Kaiser property and in soil located adjacent to the Kaiser property. Kaiser plans to remediate the site in two phases. In Phase 1, Kaiser will remediate the land adjacent to the Kaiser property. Remediation of the Kaiser property will be performed during Phase 2. On August 17, 1998, Kaiser submitted a remediation plan for the land adjacent to the Kaiser property.

On March 8, 2000, the staff published a Finding of No Significant Impact in the Federal Register. The staff approved the RP on April 4, 2000. Phase 1 remediation is complete. Kaiser submitted its FSSR to NRC on June 29, 2001. NRC staff performed an acceptance review and found the FSSR to be unacceptable for technical review. NRC rejected the FSSR on July 17, 2001. Kaiser submitted a revised FSSR on August 16, 2001. Following one request for additional information, Kaiser revised, and resubmitted, the FSSR on February 19, 2002. The staff approved the FSSR March 7, 2002.

Kaiser submitted the remediation plan for the Kaiser property (Phase 2) on May 25, 2001. The staff performed an acceptance review and found the DP to be acceptable for technical review. The staff is currently performing the technical review. Kaiser submitted an addendum to the DP on May 9, 2002. The staff is currently reviewing the submittal.

There are no immediate radiological or non-radiological hazards associated with this site.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

Remediation of the Kaiser property is being conducted in two phases: Phase 1 - remediation of land adjacent to the Kaiser property; Phase 2 - remediation of the Kaiser property. The purpose of Phase 1 remediation was to move contaminated soil located outside the current Kaiser property boundary onto Kaiser property so that it can be properly controlled and away from the general public. Adjacent land areas will be released for unrestricted use in accordance with the criteria presented in the "NRC Action Plan to Ensure Timely Cleanup of SDMP Sites," and NRC's BTP, "Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations." During Phase 2 remediation Kaiser will dispose of thorium-contaminated soil from the Kaiser facility. Kaiser has proposed to release the site for unrestricted use.

On February 12, 2002, Kaiser filed for Bankruptcy (Chapter 11 reorganization). Kaiser has informed NRC that the bankruptcy will not affect ongoing remediation activities at the site. To date there is minimal public interest in the decommissioning activities at the site. The staff has

not identified any major off-site environmental issues that will not be addressed during remediation of the facility.

#### 4.0 ASSUMPTIONS

- Since Kaiser is a non-licensee, there is no requirement to offer the public an opportunity for a hearing.
- For current planning purposes, it is assumed that Kaiser will not become a licensee.
- Standard assumptions.

#### 5.0 ESTIMATED DATES FOR CLOSURE

Phase 1 closure - 3/02

Phase 2 closure - 8/06

**KERR McGEE - CIMARRON**  
(Updated July 23, 2002)

## 1.0 SITE IDENTIFICATION

Location: Crescent, OK  
License No.: SNM-928  
Docket No.: 07000925  
License Status: Active (possession only)  
Project Manager: Ken Kalman

## 2.0 SITE STATUS SUMMARY

There is uranium contamination in groundwater at Burial Area 1 in the eastern portion of the Cimarron site. Technetium-99 (Tc-99) has also been found in the groundwater in the vicinity of Waste Pond 1 and 2 in the central portion of the Cimarron site. Concentrations of Tc-99 that are within applicable release criteria have also been found in Burial Area 1.

The licensee submitted a DP in April 1995. Pursuant to NRC staff comments that the DP had not adequately addressed groundwater, the licensee submitted a DP groundwater evaluation report in July 1998. In coordination with the Oklahoma Department of Environmental Quality (ODEQ), the NRC approved Cimarron's DP in August 1999. Cimarron proposed, in its DP, a groundwater release standard of 180 pCi/l for uranium. NRC staff approved this proposed groundwater release standard but added a license condition to note that it would not terminate Cimarron's license until Cimarron demonstrates that the total uranium concentrations in all wells have been below the groundwater release criteria for eight consecutive quarterly samples (2 years). In May 2001, Cimarron met with NRC staff to discuss alternatives Cimarron is considering for groundwater remediation in the vicinity of Burial Area 1. Cimarron submitted a groundwater evaluation assessment workplan in April 2002, which is currently under review by NRC staff. NRC staff transmitted comments on the plan in June 2002.

In April 1996, the NRC amended Cimarron's license to release, for unrestricted use, the Phase I subareas of the site - they had no history of licensed activities, and concentrations of uranium in the soil were below NRC's guidelines. Phase I subareas comprised 695 acres of the 840 acre site. In accordance with its Phase II Final Status Survey Plan (FSSP) (approved in March 1997) and its Phase III FSSP (approved in September 1998), Cimarron is submitting FSSRs for the unrestricted release of other discrete subareas of the site. The NRC staff completed its reviews of FSSRs for Subareas G and K and conducted confirmatory surveys of these two subareas in August 2001. NRC staff released Subarea K in May 2002, and anticipates releasing Subarea G in November 2003, (pending satisfactory resolution of issues pertaining to the occurrence of Tc-99 in Subarea G).

The site is also licensed for on-site disposal of up to 500,000 cubic feet of Option 2 contaminated soil. Approximately 164,518 cubic feet were emplaced in the first disposal cell, 155,952 cubic feet were emplaced in the second disposal cell, and 121,070 cubic feet were emplaced in the third and final cell which was completed in July 2000. In total, the Option 2 disposal cells contain approximately 441,540 cubic feet of contaminated material. NRC staff reviewed Cimarron's Subarea N Report (submitted in January 2002) and performed its independent confirmatory survey in June 2002. Subarea N is scheduled to be released by September 2002. Cimarron will not submit its Subarea F FSSR until it has resolved all

groundwater issues in that subarea. As a result, Cimarron currently anticipates submitting the Subarea F FSSR in May 2005. NRC currently anticipates terminating the license in May 2007. There are no immediate radiological hazards at the site.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

Groundwater samples have shown high concentrations of uranium, Tc-99, fluorides, and nitrates. In coordination with ODEQ, NRC has accepted Cimarron's proposed standard of 180 pCi/l for uranium in groundwater. This standard equates to a 25 millirem dose. The NRC will not terminate Cimarron's license until Cimarron can demonstrate that groundwater concentrations are below the proposed standard for two full years. Tc-99 concentrations appear to be diminishing over time. NRC staff is concerned with a uranium contaminated groundwater plume emanating from the vicinity of Burial Area 1. Cimarron is considering alternatives for groundwater remediation. ODEQ will retain controls over the non-radiological groundwater components.

Cimarron is grand fathered under the provisions of 10 CFR 20.1401.

There is minimal public interest in the decommissioning activities at this site. No financial assurance issues have been identified at this time. The staff has not identified any major off-site environmental issues that will not be addressed during decommissioning of the facility.

### 4.0 ASSUMPTIONS

- As early as October 31, 2003, Cimarron will be able to submit a report to demonstrate that uranium concentrations in groundwater were below 180 pCi/l for the past two years. NRC will not terminate Cimarron's license until Cimarron has successfully made this demonstration.
- Standard assumptions.

### 5.0 ESTIMATED DATE FOR CLOSURE - 05/07

**KERR McGEE - CUSHING REFINERY**  
(Updated August 21, 2002)

## 1.0 SITE IDENTIFICATION

Location: Cushing, Oklahoma  
License No.: SNM-1999  
Docket No.: 070-03073  
Licensing Status: Active/Decommissioning  
Project Manager: Stewart Brown

## 2.0 SITE STATUS SUMMARY

The radiological contaminants resulting from past operations at the Cushing site are uranium and thorium.

The licensee submitted a DP for the site in April 1994, that included a request for on-site disposal. The licensee revised the DP on August 17, 1998. In place of on-site disposal, the licensee proposed to ship the waste exceeding the SDMP Action Plan criteria to Envirocare, for disposal. The licensee, in its letter dated August 30, 1996, requested NRC to approve five sections of the DP, which would allow remediation of Acid Sludge Pit 4. On September 3, 1998, the staff approved these sections of the DP. The staff completed its review of this revised DP (license amendment 10, dated August 23, 1999). In August 2002, the licensee began shipping its radiological waste to Envirocare.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

No financial assurance issues have been identified at this time. During a meeting on January 15, 2002, the licensee informed the staff that there is contaminated groundwater leaving the licensed site. The licensee plans to develop a residual groundwater contamination limit and have that limit incorporated into the license. There is moderate public interest in site remediation activities.

## 4.0 ASSUMPTIONS

- Standard assumptions.

## 5.0 ESTIMATED DATE FOR CLOSURE 12/03

**KISKI VALLEY WATER POLLUTION CONTROL AUTHORITY (KVVWPCA)**  
(Updated July 31, 2002)

1.0 SITE IDENTIFICATION

Location: Vandergrift, PA  
License No.: No license  
Docket No.:  
License Status: Non-licensee  
Project Manager: Rebecca Tadesse

2.0 SITE STATUS SUMMARY

The KVVWPCA site is located about 40 Km (25 miles) Northeast of Pittsburgh, on the flood plain of the Kiskiminetas River. Approximately 9000 m<sup>3</sup> (317,790 ft<sup>3</sup>) of uranium-contaminated sludge ash, with an average concentration of ~147 pCi/g and ~4 percent enrichment are currently distributed in a 4,000 m<sup>2</sup> (43,040 ft<sup>2</sup>) lagoon on-site. The contamination resulted from the incineration and subsequent re-concentration of effluents released (within regulatory limits) from the nearby Babcox & Wilcox facilities. In July of 1997, PADEP requested that KVVWPCA prepare and submit a closure plan. No plan has been developed; however, KVVWPCA and its contractors have characterized the contamination with extensive sampling. The NRC has used these data, as well as information developed by NRC, to develop a detailed 3-dimensional geospatial model of the KVVWPCA lagoon. NRC developed site-specific remediation guidance, for the KVVWPCA facility, that was sent to KVVWPCA in November of 1999. NRC and PADEP met with KVVWPCA for clarification of the guidance in late March 2000. In March 2001, B&W, BWXT and KVVWPCA finalized an interim settlement agreement which provides arrangements for the preparation of a DP for the contaminated lagoon. The parties have appointed a team to oversee development of the DP by IT Corporation. Work toward developing the DP began in September 2001, and is expected to be completed in September 2002. The DP will be submitted to NRC in October 2002.

3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

KVVWPCA is not a licensed facility and currently it is unlikely that it possesses the funds necessary to remediate the site. For on-site remediation alternatives, NRC would apply the requirements of 10 CFR Part 20 Subpart E. For off-site disposal alternatives (excluding disposal at a licensed, low-level waste (LLW) disposal facility), the requirements of 10 CFR Part 20.2002 would apply and any residual contamination at the KVVWPCA site would have to meet the requirements of Subpart E.

Currently, approximately 9000 m<sup>3</sup> (317,790 ft<sup>3</sup>) of uranium-contaminated ash, with an average concentration of 147 pCi/g and approximately 4 percent enrichment, are located in the lagoon on the KVVWPCA site. However, there are no off-site environmental concerns at the present time.

Three remediation options are available. Option 1 (stabilization and capping on site) would involve disposal in a floodplain, and the NRC has never approved disposal in such a location. In addition, as KVVWPCA plans on extending its facility over the present lagoon, it has expressed concerns that on-site disposal is not an option. Option 2 (disposal in an LLW facility) would require that KVVWPCA pay for disposal, but KVVWPCA has severe financial restrictions.



Option 3 (disposal in a municipal landfill) would require that KVVWPCA meet the requirements of 10 CFR Part 20.2002. Note that a fourth option for remediation would involve some combination of the previously mentioned options.

PADEP prefers that no radioactive waste be disposed of in a Pennsylvania municipal landfill. PADEP's preference is to dispose of all radioactive material greater than 200 pCi/g in a licensed low-level waste facility. Material below 20 pCi/g could remain on site after stabilization, if it satisfies the Pennsylvania solid waste regulations, which include provisions for funding, capping, and groundwater monitoring. Another option acceptable to PADEP, is the disposal of all radioactive material in a RCRA Subtitle C (hazardous waste) site. However, there are no RCRA Subtitle C site in Pennsylvania, and thus, the waste would have to be transported out of State. BWXT and KVVWPCA are evaluating the feasibility of these two options and plan to present their preferred alternative in early September 2002.

There is political and public interest about remediation of the KVVWPCA site.

#### 4.0 ASSUMPTIONS

- A Feasibility study will be completed at the end of September 2002, and Option 3 (disposal in municipal landfill) has been chosen. Option 3 would require an exemption from PADEP for KVVWPCA because Pennsylvania law requires disposal of radioactive material only in a licensed LLW disposal facility and an EIS may be required.
- KVVWPCA, currently not a licensee, will maintain such status.
- KVVWPCA will submit a DP to the NRC in October 2002.
- Remediation is estimated to take 350 days (one-half of the 700 days in the generic scenario) because contamination is limited to a spatially small area [a 4000m<sup>2</sup> (43,040 ft<sup>2</sup>) lagoon], and it is anticipated that no buildings will require remediation.
- Standard assumptions.

#### 5.0 ESTIMATED DATE FOR CLOSURE 6/11

**MALLINCKRODT CHEMICAL INC. (MALLINCKRODT)**  
(Updated May 23, 2002)

## 1.0 SITE IDENTIFICATION

Location: St. Louis, MO  
License No.: STB-401  
Docket No.: 40-6563  
License Status: Decommissioning  
Project Manager: John Buckley

## 2.0 SITE STATUS SUMMARY

Contaminants at the Mallinckrodt site are:

U-238; U-235; U-234 and progeny; Th-230; Ra-226;  
Th-232; Th-228 and progeny; Ra-228; and K-40.

The Mallinckrodt site has been in operation since 1867 and has produced a wide range of products. In addition to the extraction of columbium and tantalum carried out under NRC license STB-401, various uranium compounds were extracted under contract to the Manhattan Engineering District and the Atomic Energy Commission (MED-AEC). Remediation of MED-AEC radiological constituents is currently being performed under FUSRAP by USACE.

Decommissioning at the Mallinckrodt site will take place in two phases. Phase 1 will decommission the buildings and equipment to the extent that whatever remains on-site will be released for unrestricted use. Phase 2 will complete the decommissioning of the building slabs and foundations, paved surfaces, and all subsurface materials to the extent that they can be released for unrestricted use.

Mallinckrodt submitted the Phase 1 DP on November 20, 1997. After several RAIs and several revisions to the DP, NRC approved the Phase 1 DP on May 3, 2002. Remediation at the site is expected to begin in July 2002.

Mallinckrodt is scheduled to submit the Phase 2 DP in January 2003.

There are no immediate radiological hazards at the site.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

Mallinckrodt has proposed a two-phase decommissioning for the site. In phase 1, Mallinckrodt will remove the equipment from the buildings, and either decontaminate the buildings or demolish the buildings.

USACE and Mallinckrodt currently do not agree on who has remediation responsibility for several areas within the facility. Further, since the NRC and the U.S. Department of Energy (DOE) are regulating remediation at the Mallinckrodt site, there is the potential that two different release criteria will be used at the site, making it difficult to release the areas remediated under NRC jurisdiction.



## MICHIGAN DEPARTMENT OF NATURAL RESOURCES (MDNR)

(Updated May 31, 2002)

### 1.0 SITE IDENTIFICATION

Location: Kawkawlin, Bay County, Michigan  
License No.: SUC-1581  
Docket No.: 04009015  
License Status: Active (possession only)  
Project Manager: Sam Nalluswami

### 2.0 SITE STATUS SUMMARY

The MDNR site, located in Bay County, MI, is part of the former Hartley & Hartley Landfill, and is currently known as the Tobico Marsh State Game Area. The site covers about 3 acres and is contaminated with thorium. The contamination came from magnesium-thorium alloy production at a defunct former licensee. The contaminated soil is covered with a 1.5 m (5 ft) thick clay cap and encapsulated with 0.9 m (3 ft) thick bentonite slurry walls.

The licensee plans to submit a DP by August 2002. The remediation of the site will start after the DP is approved. The type of release will depend on the results of the site characterization work that began in September 1999. On September 4, 2001, MDNR submitted Final Draft Characterization Report with appendices (August 2001) for NRC review. A public meeting was conducted on April 9, 2002, to discuss scenario(s) for dose modeling purposes. The licensee proposed a recreational/naturalist scenario over the default resident farmer scenario for the site. Various related issues were discussed by the NRC staff and the licensee representatives.

There are no immediate radiological hazards at the site. Chemical wastes are also present at the site. The staff has not identified any major off-site environmental issues that will not be addressed during decommissioning of the facility.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

Site characterization work began in September 1999. A licensee decision on unrestricted or restricted release of the site will depend on the site characterization data.

In July 1984, Oak Ridge Associated Universities (ORAU) undertook a radiological survey of the Tobico Marsh site. The results of this survey indicated a 0.15 to 0.20 m (0.5 to 0.7 ft) thick layer of Thorium-contaminated slag near the surface. The contaminated slag appeared to be distributed in a 10 to 20 m (33 to 66 ft) wide strip near the center of the property, extending almost the entire north/south length of the site. The NRC and State of Michigan concluded, on the basis of the radiological survey, that the Thorium contamination exceeded the Option 1 level of the 1981 BTP.

In 1984, the neighboring licensee undertook encapsulation measures at the site to isolate and prevent the migration of the non-radiological hazardous wastes. Encapsulation measures included the installation of a 1.5m-thick (5 ft) clay cap and 0.9m-thick (3 ft) bentonite slurry walls. As a result, this site involves buried waste that is likely mixed with hazardous chemical wastes. Remediation of the site will require coordination with Michigan Department of Environmental Quality, which regulates hazardous chemicals. The licensee concluded that the

mixture of non-radiological hazardous and radioactive waste would make the wastes unacceptable at a chemical or radioactive waste disposal site (other than an authorized mixed-waste disposal facility).

Currently, the State of Michigan does not want the clay cap over the wastes to be removed, because of the non-radiological hazards of the site. However, it is uncertain whether the site can be sufficiently characterized and decommissioned without removal of parts of the cap. No financial assurance issues have been identified at this time. There is minimal, if any, public interest, to date. Public interest is expected to continue to be minimal if the clay cap is not removed and waste removal is kept to a minimum.

#### 4.0 ASSUMPTIONS

- Unrestricted release of the site.
- Standard assumptions.
- The probability for a hearing is low if the licensee satisfies the unrestricted release criteria with minimal disturbance to the clay cap. The potential for a hearing increases if the licensee has to remediate the site involving removal of the clay cap.

#### 5.0 ESTIMATED DATE FOR CLOSURE 7/08

**MOLYCORP INC.**  
(Updated October 1, 2002)

## 1.0 SITE IDENTIFICATION

Location: Washington, PA  
License No.: SMB-1393  
Docket No.: 040-08778  
License Status: Timely renewal  
Project Manager: Tom McLaughlin

## 2.0 SITE STATUS SUMMARY

This site is located 56.3 Km (35 mi) southwest of the City of Pittsburgh in Canton Township, less than 0.8 Km (0.5 mi) southwest of the City of Washington, PA. Molycorp Inc. (Molycorp) produced a ferro-niobium alloy from an ore that contained natural thorium with some uranium. The operation resulted in the production of thorium-bearing slag that was used as fill over portions of the site. Average thorium concentrations over most of the site are between 100 and 200 pCi/g. In some locations, the contamination extends up to 3 m (10 ft) in the subsurface soil. Estimates of total waste volumes range from 45,846 - 114,615 m<sup>3</sup> (60,000 - 150,000 yd<sup>3</sup>).

Molycorp submitted its original DP in July 1995. The DP proposed on-site storage, followed by permanent disposal of the waste, from both the Washington and York sites, in an impoundment on the Washington site. Because on-site disposal would have exceeded the SDMP Action Plan criteria, the NRC staff requested that Molycorp submit an ER as part of the DP. The licensee supplemented the 1995 DP with an ER in April 1997. After consultation with NRC staff, the licensee stated its intention to submit the DP in two parts. Part I of the DP would address cleanup of the contaminated portion of the site and comply with the SDMP Action Plan criteria. Part II would address disposal of material from York and Washington in an impoundment on the Washington site and would comply with the LTR. NRC staff agreed to this approach and a revised DP (Part I) was submitted on June 30, 1999. The staff approved the Part I DP on August 8, 2000.

In a letter dated January 3, 2001, Molycorp withdrew its amendment request for approval of the Part II DP (on site disposal cell). While Molycorp will continue to decommission the Washington facility under its previously approved Part I DP, it will now dispose of the material off site and will ultimately seek a unrestricted release of the site. On February 26, 2001, Molycorp informed NRC that it finished removal of all its stored above ground waste and shipped the material to the Envirocare facility in Clive, Utah.

On March 19, 2001, Molycorp submitted a license amendment request for an alternate decommissioning schedule. The schedule was submitted with no text to support the approximately 5 year time frame for decommissioning. In a letter dated March 28, 2001, the proposed schedule was rejected.

An open meeting was held at NRC headquarters to discuss Molycorp's proposed alternate decommissioning schedule on April 25, 2001. The NRC staff expressed a number of concerns about the proposed schedule. Molycorp agreed to provide the additional justification for the proposed schedule.

A meeting was held at the facility on December 20, 2001, to discuss the decommissioning schedule. In a letter dated February 19, 2002, Molycorp resubmitted its request for an alternate decommissioning schedule. The request is under review. Molycorp also submitted a supplemental characterization monitoring plan for groundwater, surface water, and sediments as required under its license condition 15(A). On March 12, 2002, a representative from PADEP was on site to split groundwater samples with the contractor for Molycorp. The samples were sent to ORISE for radiological analysis.

During the week of April 15, 2002, ORISE conducted confirmatory surveys on 11 buildings. Buildings 13, 14, 35, 36, 39, and 42 were cleared for demolition and release. Building 28 showed elevated levels for the rafters and these will be separated from the release of the rest of the shell of the building. The floors of all buildings will be surveyed separately after the shells are removed.

ORISE made a return trip during the week of May 20, 2002, to survey the buildings that did not pass the first inspection and other buildings that were ready for confirmatory surveys. Following the confirmation surveys by ORISE, it was decided that the shells of the buildings could be released and the rafters and equipment that did not meet release criteria would be identified and moved to a decontamination area to be cleaned and resurveyed.

Molycorp has started to tear down its buildings and send non-radioactive contaminated materials off-site.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

Public concern in the Canton Township, City of Washington area, is high. Congressional interest also mirrors that found in the local communities. The NRC has conducted two local public meetings to keep interested parties informed, the second of which was attended by over 300 people.

### 4.0 ASSUMPTIONS

- Standard assumptions.

### 5.0 ESTIMATED DATE FOR CLOSURE 10/05

**MOLYCORP INC.**  
(Updated October 1, 2002)

## 1.0 SITE IDENTIFICATION

Location: York, PA  
License No.: SMB-1408  
Docket No.: 04008794  
License Status: Timely renewal  
Project Manager: Tom McLaughlin

## 2.0 SITE STATUS SUMMARY

The site is located in the City of York, Pennsylvania, and occupies approximately 6 acres of land. Various chemical manufacturing has taken place at the site for over a 100 years with some chemical and radioactive material disposed of on site. Molycorp Inc. (Molycorp) purchased the site in 1930 and processed rare earth ores, containing low quantities of thorium and uranium, in large volumes from 1965 to 1992. From 1965 until 1981, Molycorp disposed of about 5,000 tons of rare earth residues containing 0.33 percent thorium in 4 local landfills. Following the receipt of a NRC materials license in 1981, Molycorp stored its waste in drums, then shipped the waste to its facility in California for further processing.

Molycorp submitted its original DP in August of 1995, proposing to clean-up the site to meet the SDMP Action Plan criteria for unrestricted use. The licensee provided a supplement to the DP on June 30, 1999. The DP was approved on June 6, 2000.

All the building structures have been taken down except for one administration/laboratory building. About two-thirds of the site has been excavated and over 650 railroad cars of contaminated material shipped off site to Waste Control Specialists (WCS).

ORISE conducted a confirmatory survey of about 10 percent of the site on October 29-30, 2001. Their surface scanning results were similar to those of the licensee. ORISE concluded that the ratio of 1.7 being used by Molycorp for the excess Th-230 and U-238 to Ra-226 is adequate at present. Molycorp sent 20 of its archived samples showing high activity from different depths and locations to an outside laboratory with high sensitivity germanium detection. ORISE reviewed these results and established that the ratio of 1.7 for excess Th-230 and U-238 should be used for the remainder of the site.

PADEP is assisting NRC by making several trips to the site to do radiological confirmation surveys of several deep pits and areas near the property boundary that need to be backfilled due to safety concerns. ORISE sent sampling protocols to PADEP to guide their sampling efforts. On December 20, 2001, PADEP surveyed several deep pits, the gravel pile in area 9, and the clean fill soil stored in area 2. NRC concluded that the areas surveyed could be released and the gravel and soil could be used as backfill.

On December 20, 2001, a meeting was held at the Molycorp, Washington facility in which the York site was discussed. The lawyer for the Molycorp parent company introduced a map from about 1930 (prior to Molycorp ownership) which showed the property lines of the York site. The road (now called Sherman) and railroad are in place. Molycorp is arguing that a seam of contamination (at a depth of 10 feet, 2 feet wide, and 200 feet long), extending more than 3 feet



into an embankment next to Sherman road and the railroad, is not from any Molycorp activity. The contamination is being analyzed to determine its characteristics. Molycorp is also re-surveying the property lines of the York facility. Molycorp suggested that it will submit a letter to NRC claiming that the seam of contamination belongs to the previous owners of the site and since it is off Molycorp's property line they do not have to clean it up.

Molycorp decided to ship its slightly contaminated concrete to WCS instead of requesting a 20.2002 disposal in a PA landfill. Molycorp has had to excavate to bedrock in several grid areas such as areas 17 and 18. Molycorp also had decided that the last remaining building on site must be torn down.

NRC surveyed areas 5, 6, 9, 11, 17, and 18 on March 19, 2002. A small elevated grid of activity was found in area 18, but the other areas were cleared for release. PADEP returned to the site in April to survey areas 4, 8, 10, 26, and 34. Also, more samples from the "seam" were taken to further analyze the nature of the contamination going off the property line. The last remaining building will be torn down and trailers will be set up in area 5 for office and laboratory space.

The results from the April sampling show that areas 4, 8, 10, 26, and 34 are cleared to be released and backfilled. On May 9, 2002, Molycorp stated that it had let its radiological consultant go and currently was not conducting further excavation of contaminated material. Molycorp asked for a meeting with NRC to discuss the problems it is having with the large amount of unanticipated material shipped off site and the large amount of material still remaining on site.

There are no immediate radiological hazards at the site.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

Groundwater sampling data indicates very low concentrations of uranium in the groundwater in the area of the York facility.

Public interest appears minimal at the present time. The Project Manager met with several members of the York City Council, local police, and firemen. The consensus of the public group was that no further public meetings were necessary.

### 4.0 ASSUMPTIONS

- Standard assumptions.

### 5.0 ESTIMATED DATE FOR CLOSURE 06/03

## **PERMAGRAIN PRODUCTS, INC.**

(Updated July 9, 2002)

### 1.0 SITE IDENTIFICATION

Location: Karthaus, PA  
License No.: 37-17860-02  
Docket No.: 030-29288  
License Status: Active  
Project Manager: James Kottan, RI

### 2.0 SITE STATUS SUMMARY

The Facility is located in the Quehanna Wild Area about 45 miles northwest of State College, PA. License No. 37-17860-01 is an active license issued to Permagrain Products, Inc. (PPI) for the operation of a Cobalt-60 irradiator.

The site consists of a main building built in 1957 to house the pool reactor and six hot cells. Two cells contained cobalt-60 sources and some loose cobalt-60 pellets. Strontium-90 is the main contaminant of concern at the facility which used the strontium-90 in the manufacture of thermoelectric generators.

The Commonwealth of Pennsylvania (Commonwealth) owns the site, leases it to PPI, and has provided the financial assurance. The decommissioning which started in July 1998 is being performed by Scientech.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

In June 2002, the Department of Justice rejected the Commonwealth's claim that the Federal Government should provide the funding to remediate the site because of a past contract between Martin Marietta and the Atomic Energy Commission. Presently no Commonwealth funds are earmarked for continued cleanup of the site. The Commonwealth had informed the NRC that the portion of the site containing legacy contamination will be placed into a secure, monitored status until this funding issue is resolved.

Areas which do not meet NRC criteria for unrestricted use have been identified as the six hot cells, their respective isolations rooms, two ventilation systems, an overhead crane system, a number of ancillary rooms, and the wastewater treatment building.

On October 12, 1998, decommissioning work in Cell 4 annex released approximately 120 mCi of strontium-90. The release was contained in the building and did not escape to the environment. One worker closely involved in the incident did receive an estimated dose of approximately 760 millirem from internal deposition of strontium-90. Four individuals were also found to have minor amounts of skin contamination. The root cause of the accident was determined to be previously unknown high concentrations of powdered strontium-nitrate.

Based on the finding of the high contamination levels in Cell 4, Scientech and the Commonwealth decided not to continue decontamination efforts on Cell 4 until all PPI personnel had been relocated out of the building.

Irradiator relocation efforts have been on-going and are being handled under separate license application. Decommissioning efforts have been reduced and are not expected to change during calendar year 2002.

The decommissioning project should be completed approximately a year after the relocation of the irradiator.

#### 4.0 ASSUMPTIONS

- The licensee is grandfathered under Option 1 of the BTP.
- The change to greenfielding the entire site will not jeopardize the grandfathered status.
- Standard assumptions.

5.0 ESTIMATED DATE FOR CLOSURE 10/04

## **SAFETY LIGHT CORPORATION (SLC)**

(Updated July 10, 2002)

### 1.0 SITE IDENTIFICATION

Location: Bloomsburg, PA  
License No.: 37-00030-02  
Docket No.: 030-05980  
License Status: Active  
Project Manager: Marie Miller, RI

### 2.0 SITE STATUS SUMMARY

The facility is located about five miles east of Bloomsburg, Pennsylvania, and is licensed (37-00030-02) to perform site characterization and decommissioning activities. The site is contaminated from the manufacturing operations of self-luminous watch and instrument dials and other items involving Ra-226, Cs-137, Sr-90, and Am-241. The site is approximately 10 acres in size and contains about 16 buildings. Work with radioactive materials (Ra-226) began at the site in 1948. License 37-00030-08 is still active for H-3 exit sign work utilizing a full time staff of about 20 individuals.

Radioactive waste was disposed of on site in three primary locations: silos, lagoons, and a waste dump. In 1971-72 approximately 12,000 pounds of Ra-226 contaminated soil was shipped offsite for disposal. In the fall of 1999 the licensee began removal of the radioactive material from the two underground silos and completed the work in the spring of 2000. This radioactive material is currently stored on site in 55 gallon drums and B-25 boxes awaiting further processing/sorting prior to disposal. The licensee is awaiting NRC, PADEP, and U.S. Environmental Protection Agency (EPA) Region 3 approval to perform this work under amendments to their licensees with NRC and PADEP, and under an Emergency Removal Action Order from EPA Region 3. Additional handling and analysis are expected to nearly double the approximate \$700,000 already spent on this activity.

With renewal of License No. 37-00030-02 in December 1994, for a five year period, SLC entered into a settlement agreement with the NRC to place funds into a trust account and contributed \$348,000 over five years. USR Industries, a previous responsible party contributed an additional \$48,000. The licensee also received insurance settlements in the amounts of \$1.3 million and \$500,000. These funds are for site maintenance and decommissioning. With the renewal of the license in December 1999, SLC is required to contribute to the trust account a total of \$492,000 over the five year term of the renewal.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

A 1995 site characterization identified primary soil contaminants as Ra-226 and Cs-137 with small amounts of Am-241. The onsite ground water is also contaminated with H-3, Sr-90, and Cs-137. The 1998 site decommissioning and decontamination (D&D) report submitted to the NRC called for a "task by task" approach to decommissioning because of limited funding availability. Estimated decommissioning costs were approximately \$15 million, excluding H-3 waste.

A more recent decommissioning cost estimate (DCE) submitted in 2000 estimated the decommissioning costs at \$29 million, including the H-3 waste. Review by NRC found the DCE significantly underestimated the costs for soil removal. Staff estimates the cost for unrestricted release to be between \$94-\$120 million.

Lack of financial assurance remains the key issue. Effective remediation work cannot be performed because of limited funding. The licensee is proposing that the remaining funds be used to characterize, re-package and dispose of waste that was removed from underground silos. Other decommissioning tasks have been outlined and estimated in the licensee's DP and DCEs that were submitted in 2001 under CERCLA.

The EPA plans to issue an Emergency Removal Action Order to SLC in July 2002, for offsite disposal of the stored hazardous waste removed from the underground silos. In December 2001, NRC requested that EPA Region 3 conduct a preliminary site assessment for the purpose of scoring the site for inclusion on the National Priorities List and possible remediation.

NRC staff submitted a claim in December 2001, against USR Industries (de jure licensee of NRC for the Bloomsburg facility) before the US Bankruptcy Court for the Southern District of Texas. However, in April 2002, the bankruptcy claims were dismissed by the Court, because the debtor failed to prosecute.

Coordination activities continue between NRC, EPA, and PADEP staffs to develop a path forward for this site.

#### 4.0 ASSUMPTIONS

- Standard assumptions.

#### 5.0 ESTIMATED DATE FOR CLOSURE 12/04

**SCA SERVICES (SCA)**  
(Updated May 31, 2002)

## 1.0 SITE IDENTIFICATION

Location: Kawkawlin, Bay County, Michigan  
License No.: SUC-1565  
Docket No.: 04009022  
License Status: Active (possession only)  
Project Manager: Sam Nalluswami

## 2.0 SITE STATUS SUMMARY

The SCA Services site, located in Bay County, MI, is part of the former Hartley & Hartley Landfill, and covers about 235 acres. Part of the site is contaminated with thorium that came from magnesium-thorium alloy production at a defunct former licensee. The contaminated soil is covered with a clay cap and encapsulated with slurry walls.

The licensee completed site characterization in 1996. The buried thorium wastes were not located. There are hazardous wastes present at the site and the site is being regulated under the State Superfund Law.

A license amendment was issued on October 10, 2001, extending the due date for submittal of the DP to September 30, 2003. The remediation of the site will start after the DP is approved. The licensee is investigating the restricted-release option.

There are no immediate radiological hazards at the site. There are hazardous wastes present at the site and therefore the site is also being regulated under the State's Superfund law. The staff has not identified any major off-site environmental issues that will not be addressed during decommissioning of the facility.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

The site characterization completed in 1996 could not locate the buried thorium wastes. ORAU had undertaken a radiological survey of the site in July 1984. The NRC and State of Michigan staffs concluded, on the basis of the radiological survey, that the thorium contamination exceeded the Option 1 level of the 1981 BTP. The licensee is likely to use the contamination level from this survey as the radiological contamination level at the site because the contamination is not likely to have migrated off-site and the licensee does not have to perform additional site characterization.

After the radiological survey, the licensee undertook cap repair measures at the site to isolate and prevent the migration of the non-radiological hazardous wastes. As a result, this site involves buried waste that is likely mixed with hazardous chemical wastes. Remediation of the site will require coordination with Michigan Department of Environmental Quality (MDEQ), which regulates hazardous chemicals. The licensee also concluded that the mixture of non-radiological hazardous and radioactive waste would make the wastes unacceptable at a chemical or radioactive waste disposal site (other than an authorized mixed-waste disposal facility) and agreed to implement a monitoring program and to place a restriction on the deed prohibiting intrusion. Currently, the State of Michigan does not want the clay cap over the

wastes to be removed, because of the non-radiological hazards of the site. There is minimal, if any, public interest to date. Public interest is expected to remain minimal if the clay cap is not removed.

If the licensee selects restricted release for the site, then it will need to find a long-term custodian. The neighboring MDNR site indicated that it is not willing to provide institutional control for this site. No financial assurance issues have been identified to date.

#### 4.0 ASSUMPTIONS

- SCA Services will choose restricted release.
- SCA Services will find an appropriate long-term institutional control of the site.
- Standard assumptions.
- The probability for a hearing is low if the licensee satisfies the restricted release criteria with minimal disturbance to the clay cap. The potential for a hearing increases if the licensee has to remediate the site, involving removal of the clay cap. An EIS is needed for the restricted release option.

#### 5.0 ESTIMATED DATE FOR CLOSURE 7/11

## SEQUOYAH FUELS CORPORATION (SFC)

(Updated August 1, 2002)

### 1.0 SITE IDENTIFICATION

Location: Gore, OK  
License No.: SUB-1010  
Docket No.: 04008027  
License Status: Expired (possession only)  
Project Manager: Jim Shepherd

### 2.0 SITE STATUS SUMMARY

There is surface, subsurface, and groundwater contamination from uranium and thorium throughout the site, and uranium, thorium, and radium in raffinate sludge ponds. There is also chemical contamination of arsenic, molybdenum, and copper in the soils, which being addressed under a Resource Conservation and Recovery Act (RCRA) Administrative Order on Consent issued by EPA Region 6.

The contamination was generated during the processing of uranium oxide (yellowcake) to uranium hexafluoride, from 1970 through 1992, and treatment of the process raffinate. Soil contamination levels range from about 5 pCi/g to more than 500 pCi/g of (primarily) uranium and thorium. Uranium concentration in the groundwater ranges from ~200 - 30,000 pCi/l. Radium concentration in the raffinate sludges are about 300 - 350 pCi/g. There is also process system waste comprising piping, vessels, and building materials contaminated with uranium in various chemical forms such as yellowcake, uranyl nitrate, and uranium hexafluoride. The total radiological and hazardous waste volume is estimated to be 141,600 - 311,520 m<sup>3</sup> (5 - 11 million ft<sup>3</sup>).

SFC submitted a DP for NRC review and approval, on March 26, 1999; the Atomic Safety and Licensing Board granted a hearing to the State of Oklahoma. The DP proposes restricted release of the site after placing all radiological and chemical contamination in an on-site, above-grade disposal cell. The NRC determined that an EIS was required before approval of the DP. ATL, a contractor, is performing much of the review, and writing the draft EIS. The EIS is currently controlling the NRC schedule for review of the DP, and is scheduled for issue in 2004.

By letter dated January 5, 2001, SFC requested that NRC review the concept that the majority of waste at the facility should be classified as byproduct, as defined in Atomic Energy Act paragraph 11(e)(2). If NRC were to agree, control of the site would be transferred to DOE under Title II of the Uranium Mill Tailings Radiation Control Act on completion of decommissioning. NRC discussed this issue with DOE; it has no formal opinion and will abide by NRC opinion on the SFC material. A Commission Paper on SFC's request was sent to the Commission on June 4, 2002. In an SRM dated July 25, 2002, the Commission concluded that the front-end waste at SFC could be classified as Section 11e.(2) byproduct material.

The first RAI from the safety review was sent to SFC on December 13, 2001. SFC responded on March 15, 2002, following a Board of Directors meeting at the end of February to discuss funding. The letter provided a schedule for answering specific questions; the majority will be answered in the May-November 2002, time-frame. The first set of responses, dated April 30, 2002, has been received and is under review. Of note, the proposed institutional control



boundary has been significantly expanded from earlier submittals, primarily to the south; it now encompasses nearly 400 acres (compared to about 100 acres previously) including the storm water pond and the treated raffinate storage ponds.

The draft EIS was received from the NRC contractor and distributed to the cooperating agencies for review on July 2, 2002.

SFC instituted a pilot study to evaluate the economics of shipping the raffinate sludges to a mill site for use as alternate feed. The variable of interest is weight percent water; SFC states if that can be reduced from the current ~80% to about 40%, off-site disposal costs will compare favorably with on-site disposal costs.

There are no immediate radiological hazards at the site.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

By SRM 02-0095, the Commission approved classifying the front-end waste at the SFC site as byproduct material and disposing of it in accordance with Appendix A, to 10 CFR 40. In order to do so, SFC must revise the license to possess byproduct material and submit a reclamation plan to comply with the thirteen criteria of Appendix A. Criterion 5, related to ground water protection may be problematic.

There is a significant volume of waste at the site that cannot be classified as byproduct material. Final disposition of this waste must be resolved before approval to decommission is granted.

SFC may be able to economically dispose of the raffinate sludges off site, as 11(e)2 waste at a mill. If so, this would reduce the residual source term by nearly half -- there are about 185 curies of thorium, radium and uranium in the sludges. It would also change the ratio of byproduct to non-byproduct material in the proposed cell. DOE, the State, and the Central Compact must approve the disposal of non-11e(2) material in the cell.

SFC contends that it does not have sufficient funds for any remediation other than on-site disposal. This position is based on SFC's projections of revenue from ConverDyn thru 2004; beyond 2004, funding will be dependent of the profitability of ConverDyn in its uranium conversion business, and other dispersals. The licensee estimate to decommission the site is about \$87 million, of which approximately \$22 million is direct remediation cost, and \$2 million to a fund for long-term site control and monitoring, based on the calculations used for Title II sites; the balance is SFC overhead costs (salaries, taxes, utilities, etc.).

As discussed in Section 2 above, SFC is collecting additional data on ground water movement and contaminant transport. Preliminary results show high concentrations of uranium (~300 pCi/l) along outfall 005, that flows from the NW corner of the process area to the Illinois River. NRC 3-D GIS modelling indicates a potential flow channel from the vicinity of the Sanitary Lagoon and Solvent Extraction area towards that outfall, in addition to previously identified flow paths for contaminant transport to the immediate west of the main processing building and to the west of Pond 2. SFC has conducted additional physical exploration of the 005 area and the apparent channel from the Main Process Building/ Solvent Extraction area south to the Decorative Pond. The area around the process buildings appears, from 1968 data, to have

been cut and filled with alternating layers of clay and rock prior to erection of the buildings. This construct facilitates movement of contaminants from the buildings toward the Decorative Pond.

SFC proposes "monitored natural attenuation" as the remediation alternative for groundwater. This is an EPA approach for remediation of chemical contamination that requires, among others, that the plume be accurately monitored and that mass reduction be demonstrated by means other than dilution. SFC has not demonstrated the requisite monitoring and mass reduction. This issue must be addressed in a reclamation plan.

The State of Oklahoma has been granted a hearing. By agreement among all parties, the hearing is being held in abeyance pending completion of the EIS, currently scheduled for 2004.

SFC senior management met with NRC on May 1, 2002. The primary topic was resolution of the 11(e)2 question.

There is a high level of interest by local environmental groups and local citizens, many of whom are opposed to on-site disposal and license termination.

EPA Region 6 has expressed concern that a calculated dose of 25 mrem/yr may result in exceeding EPA risk limits of 10 e-04 probability of additional induced cancers when combined with the risk from the hazardous chemical materials that will also be disposed of in the on-site cell.

There is potential competition for the limited funds available for decommissioning the site between NRC and the EPA. There is close coordination between the agencies on this issue.

#### 4.0 ASSUMPTIONS

- SFC's proposal for restricted-release is valid, based on licensee plans and limited financial resources.
- The outcome of the hearing will not materially affect the DP.
- SFC will take 3 years to perform decommissioning after NRC approval.
- SFC and the first lien holder (Kerr-McGee) will reach timely agreement on legally enforceable institutional controls required for license termination.
- Standard assumptions.

#### 5.0 ESTIMATED DATE FOR CLOSURE 4/09

**SHIELDALLOY METALLURGICAL CORPORATION (SHIELDALLOY)**  
(Updated July 11, 2002)

## 1.0 SITE IDENTIFICATION

Location: Newfield, NJ  
License No.: SMB-1507  
Docket No.: 04007102  
Licensee Status: Active  
Project Manager: Marie Miller, RI

## 2.0 SITE STATUS SUMMARY

Shieldalloy Metallurgical Corporation (SMC) operates a manufacturing facility located in Newfield, N.J. This facility manufactures or has manufactured specialty steel and super alloy additives, primary aluminum master alloys, metal carbides, powdered metals, and optical surfacing products. One of the raw materials that was used in its manufacturing processes from 1955 to 1998 is classified as "source material" under 10 CFR Part 40. This material, called pyrochlore, is a concentrated niobium ore containing greater than 0.05 percent natural uranium and natural thorium. SMC is licensed by the NRC to ship, receive, possess, use and store source material under SMB-743, which is to expire on October 20, 2002. In August 2001, SMC notified the NRC that they had ceased production activities using source material. Remediation under SMC's existing license began in 2001 of selected onsite buildings that were involved in the primary licensed activities.

During the manufacturing process, the facility generated slag, and baghouse dust. Currently, there is approximately 18,000 m<sup>3</sup> (635,580 ft<sup>3</sup>) of slag and approximately 15,000 m<sup>3</sup> (529,650 ft<sup>3</sup>) of baghouse dust contaminated with natural uranium, thorium, and daughters stored on-site. SMC had pursued finding a buyer for both the slag, which could be used as a fluidizer by steel manufacturers, and for the baghouse dust, which could be substituted for lime in the production of cement. If suitable buyers were found, and the NRC approved the sale, the volume of waste would be greatly reduced, and the licensee would most likely request a unrestricted license termination. On August 27, 2001, the licensee provided notification and intent to decommission. The SMC DP is due by September 2002.

The SMC DCE, Revision 3, dated October 1, 2001, is based on a in- situ decommissioning methodology, which was performed at its Cambridge Ohio facility. The DCE will be reviewed by the staff in concert with its review of the licensee's DP.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

In the past, SMC has found it difficult to sell the slag material. Several attempts to export the material have failed. SMC intended to sell the baghouse dust to a local cement manufacturer, however, no buyer has been found. Regardless of whether the sales occur, SMC has proposed, in its DFP, to dispose of these materials on-site in an engineered cell. The technical issues associated with the design and institutional controls of the cell will be the main focus of the DP review, once the plan is submitted.

The site is also on the National Priorities List under CERCLA, because of past operations involving chromium-contaminated on-site groundwater. Remediation of the groundwater is currently taking place. Public interest in the decommissioning of this site is minimal.

Because of the past bankruptcy, the SMC site had less than adequate financial assurance. The license contained a condition that required the site to update its DFP and provide adequate financial assurance for the decommissioning of the site. SMC submitted a revised plan, dated April 20, 2000, which provides \$2.5 million of funding, based on capping of the waste slag pile in place. The staff will review the adequacy of SMC's DFP in concert with its DP.

#### 4.0 ASSUMPTIONS

- The site would be released under restricted-use conditions, because SMC is proposing on-site stabilization. This assumes that the licensee's institutional controls would be approved by the NRC.
- If the slag and baghouse dust are removed from the site, there would only be small amount of residual radioactivity in some buildings and soils. Unrestricted release of the site would then be an option.
- SMC will elect to begin decommissioning in 2002.

#### 5.0 ESTIMATED DATE FOR CLOSURE 9/10

## UNION CARBIDE CORPORATION

(Updated June 1, 2002)

### 1.0 SITE IDENTIFICATION

Location: Lawrenceburg, TN  
License Nos.: SNM-724, SMB-720  
Docket Nos.: 070-00784, 040-07044  
License Status: Previously Terminated  
Project Manager: Rebecca Tadesse

### 2.0 SITE STATUS SUMMARY

The contaminant at the Union Carbide site is enriched uranium.

The former Union Carbide facility licenses, which authorized the production of graphite-coated fuel particles, were terminated in June 1974. As stated in the DP, UCAR proposes to further investigate and remediate contamination identified in three buildings, the outdoor areas surrounding the buildings, and an incinerator pad and the surrounding soil. The UCAR DP will be approved in two phases. Phase 1, decommissioning activities associated with buildings; Phase 2, decommissioning activities associated with soil.

A DP was submitted by UCAR Carbon Company, Inc. (UCAR) on August 19, 1998. As a result of issues involving jurisdiction, the NRC staff review of the DP was delayed until July 1999. The NRC completed its review of the DP and discussed the results of its review with UCAR in August and December 1999. The DP proposes unrestricted release of the site, based on the 10 CFR Part 20, Subpart E release criteria for soil contamination and the "Guideline for Decommissioning of Facilities," for buildings and structures. In Phase 1, the NRC approved decommissioning activities associated with building remediation on July 27, 2000. In Phase 2, the NRC approved decommissioning activities associated with soil remediation on December 1, 2000.

There are no immediate radiological hazards at the site.

### 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

No financial assurance issues have been identified to date. Public interest about decommissioning activities at the site is minimal. The staff has not identified any major off-site environmental issues that will not be addressed during decommissioning of the facility.

### 4.0 ASSUMPTIONS

- UCAR will propose unrestricted release.
- For current planning purposes, it is assumed that UCAR will not become a licensee.
- Standard assumptions.

### 5.0 ESTIMATED DATE FOR CLOSURE 12/05

**WATERTOWN GSA**  
(Updated July 9, 2002)

## 1.0 SITE IDENTIFICATION

Location: Watertown, MA  
License No.: NA  
Docket No.: NA  
License Status: NA  
Project Manager: Craig Gordon, RI

## 2.0 SITE STATUS SUMMARY

Residual material on the property resulted from licensed activities at the Watertown Arsenal and the site is currently unlicensed. The General Services Administration (GSA) is responsible for performing the required site remediation of contaminated soils and groundwater in areas previously used by the Army for burning uranium scrap and storage of radioactive waste.

The New England District of USACE, under agreement with GSA, assumed management of site decommissioning activities in 1992. USACE submitted to NRC an aggressive schedule relating to additional characterization, remediation, and decommissioning for unrestricted release of the site.

The final characterization survey submitted in 1996 was supplemented by a 2000 Historical Site Assessment. A DCGL report was submitted to NRC in February 2001, and approved in May 2001. The report provides the nuclide concentrations (340 pCi/g) and exposure scenarios to support release of the site for unrestricted use. Data Quality Objectives to support the Sampling and Analysis Plan and Final Status Survey were submitted for NRC review in January 2002.

Since 2000, technical and administrative areas have been closely coordinated between NRC, GSA, USACE, and the Commonwealth Of Massachusetts.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

NRC will not require licensing of the site from GSA if remediation can be completed within USACE's proposed schedule. There are no immediate public health and safety risks from the radiological exposure or hazards associated with intrusion of groundwater contamination because of the low concentrations levels and insolubility of the uranium identified.

Some local public interest has been shown due to the site being adjacent to a residential community. A high water table causes occasional flooding of most property areas. The Watertown Redevelopment Board provides a forum for public interest in the site.

An independent review of the DCGLs was performed by the Massachusetts Department of Environmental Protection and approved on November 27, 2001.

A June 2002, sampling plan to determine the extent of contamination for previously characterized areas was submitted for NRC and Massachusetts review.

#### 4.0 ASSUMPTIONS

Standard assumptions.

5.0 ESTIMATED DATE FOR CLOSURE 12/02

**WESTINGHOUSE ELECTRIC CORPORATION, WALTZ MILL**  
(Updated July 2, 2002)

## 1.0 SITE IDENTIFICATION

Location: Madison, PA  
License No.: SNM-770  
Docket No.: 070-00698  
License Status: Active  
Project Manager: Mark Roberts, RI

## 2.0 SITE STATUS SUMMARY

The Madison, Pa site is currently licensed (SNM-770) primarily to provide testing, calibration, and maintenance services for contaminated reactor servicing equipment and other reactor components. Approximately 50 acres of the 800-acre site are actively used for operations. The core business has increased with the construction of a new building and an addition to an existing building to support the consolidation of operations from facilities in other states that are being closed. Westinghouse intends to occupy the site for at least another 25 years for its reactor servicing activities. There is also a former test reactor on the site that has nearly completed decommissioning.

Radiological contamination in soil and groundwater exist on a portion of the site as a result of the clean-up activities following a 1961 incident at the test reactor, waste segregation activities, and nuclear laundry services. These latter two services are no longer licensed at this site. Significant contamination is also present in retired facilities (hot cells, hot cell support rooms, and a section of the fuel transfer canal) within one of the site buildings. Contaminants are primarily strontium-90 and cesium-137, with lesser quantities of mixed fission, activation products, and trace levels of transuranic radionuclides.

The licensee has remediated much of the interior and exterior contaminated areas. Remediation activities focused on the three hot cells and supporting facilities in conjunction with work on decommissioning the test reactor. Contaminated soil removal has been completed in the primary remediation area. Significant accomplishments have included removal and shipment of the reactor vessel, draining and decontamination of the fuel transfer canal, significant decontamination of the hot cells and support rooms, excavation of three buried retention basins, demolition of the liquid waste retention basin, and excavation and disposal of 250,000 ft<sup>3</sup> of contaminated soil. Groundwater monitoring wells that were removed during soil excavation have been re-established.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

Although a significant amount of decontamination work has been performed in the interior facilities, considerable contamination remains in lower elevations of the reactor building, the fuel transfer canal, and in penetrations in the eight-foot thick floor of the hot cells.

The Viacom TR-2 license was intended to be terminated following decommissioning of the test reactor and the building transferred to the Westinghouse SNM-770 license. Westinghouse and Viacom have not reached an agreement on the transfer.



The SNM-770 facility remains on the SDMP list. The licensee does not intend to request termination of the license, but has gone forward with the remediation project, in part, to address the reasons why the facility was originally placed on the SDMP list. Criteria for removal from the SDMP list needs to be determined.

PADEP has significant interest in the condition of the site, particularly groundwater issues.

#### 4.0 ASSUMPTIONS

- Standard assumptions.

#### 5.0 ESTIMATED DATE FOR CLOSURE 8/03

**WHITTAKER CORPORATION**  
(Updated July 9, 2002)

## 1.0 SITE IDENTIFICATION

Location: Greenville, PA  
License No.: SMA-1018  
Docket No.: 040-7455  
License Status: Active  
Project Manager: Randolph C. Ragland, Jr., RI

## 2.0 SITE STATUS SUMMARY

The site is approximately six acres and is located 3.5 miles south of Greenville, PA. License No. SMA-1018 authorizes possession of licensed material for storage only. Until 1974 Whittaker produced ferro-columbian and ferro-nickel alloys. The columbian ores and nickel scrap used in the operation contained licensable concentrations of source material.

The remediation will encompass the contaminated soil and slag, there are also 20 storage bins on-site containing contaminated materials. Thorium is the most abundant contaminant on-site, however, uranium and radium have also been found on-site.

## 3.0 MAJOR TECHNICAL OR REGULATORY ISSUES

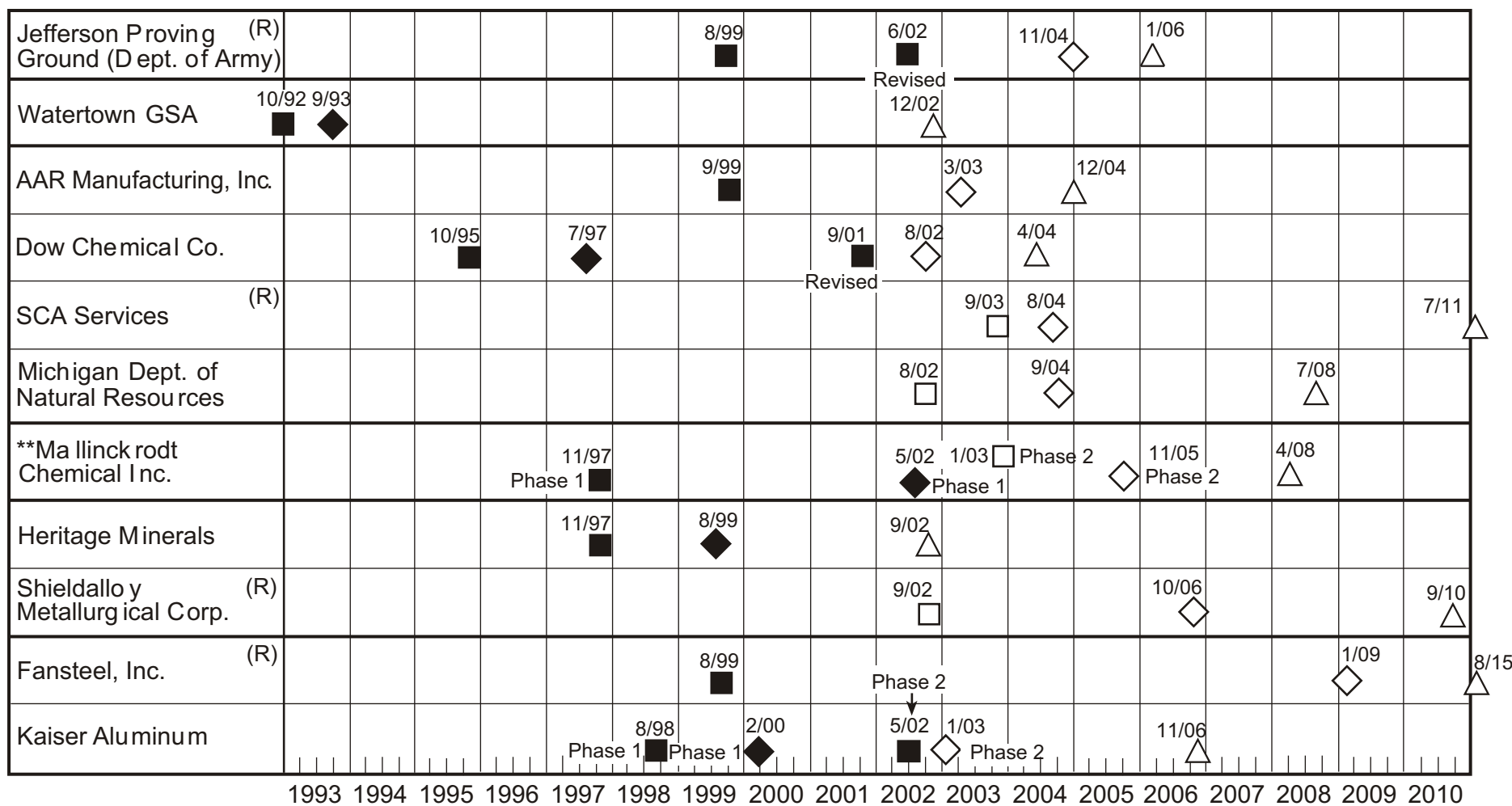
Whittaker completed a site risk assessment and a site characterization, and is scheduled to have a draft DP developed by mid-summer 2002. Because a great deal of remnant slag material will be present following remediation activities, the licensee is considering changing the dose receptor from a resident farmer to a non-farming resident scenario with no vegetable or animal product food pathways. The licensee is estimating that approximately 97% of the receptor dose will be from the direct external pathway.

## 4.0 ASSUMPTIONS

- The licensee will continue with plans for unrestricted site release.
- Standard assumptions.

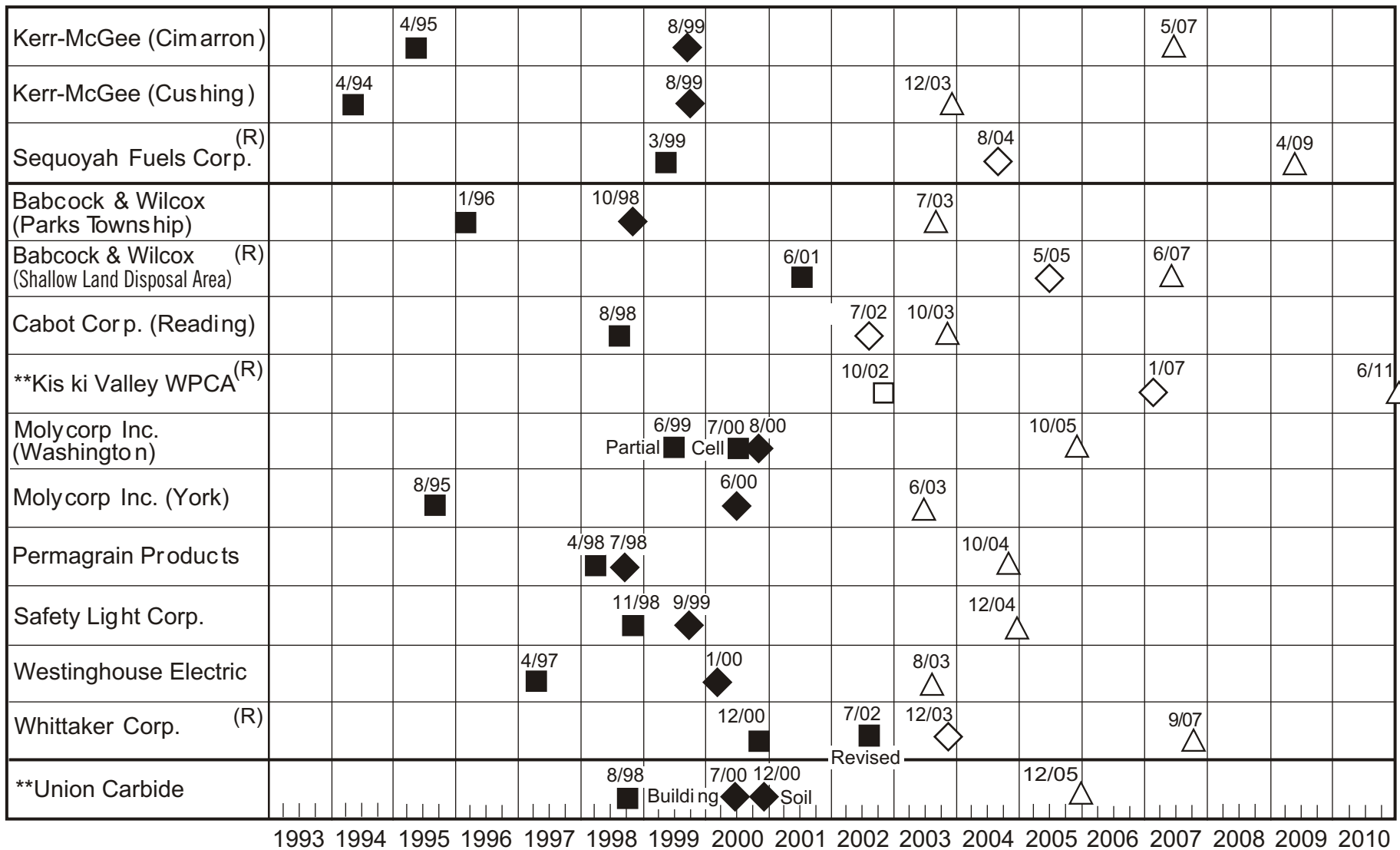
## 5.0 ESTIMATED DATE FOR CLOSURE 9/07

# SCHEDULE FOR TERMINATION OF SDMP AND COMPLEX DECOMMISSIONING SITES



- DP Submitted
  - ◆ DP Approved
  - DP Submittal Anticipated
  - ◇ DP Approval Anticipated
  - (R) Staff Anticipates that Licensee will Request Restricted Release
  - △ Site Removal from SDMP Anticipated
- Anticipated Dates are Staff Estimates

# SCHEDULE FOR TERMINATION OF SDMP AND COMPLEX DECOMMISSIONING SITES



- DP Submitted
- ◆ DP Approved
- △ Site Removal from SDMP Anticipated
- DP Submittal Anticipated
- ◇ DP Approval Anticipated

**ASSUMPTIONS USED TO DEVELOP SDMP AND  
COMPLEX DECOMMISSIONING SITE GANTT CHARTS**

## **ASSUMPTIONS USED TO DEVELOP SDMP AND COMPLEX DECOMMISSIONING SITE GANTT CHARTS**

### GENERIC ASSUMPTIONS:

- Staff will meet with licensees before the submission of the Decommissioning Plan (DP), to ensure that the licensee understands the type and quality of information needed in a DP.
- No major policy decisions will be needed to complete the decommissioning.
- Adequate staff resources will be available to accomplish tasks when scheduled, provided the tasks do not all occur simultaneously.
- NUREG-1727, "NMSS Decommissioning Standard Review Plan" (SRP) provides sufficient guidance to evaluate any site-specific issues raised in the DP.
- If necessary, staff will be adequately trained in the use of the SRP.
- All requests for additional information (RAIs) will be developed using the Division of Waste Management's "streamlined approach to licensing actions," and only one RAI will be generated per licensing action or licensee submission [DP, Final Status Survey Report (FSSR), etc].
- Technical Evaluation Reports will be developed to serve as the basis for all RAIs.
- It will not be necessary for licensees to collect significant additional information to respond to an RAI (i.e., large numbers of additional samples).
- Licensees will be available to meet with the NRC staff in a timely fashion, to ensure that the planned schedule is met.
- Staff will use a multiplication factor of 2.0 to convert level of effort (i.e., actual task time) to "calendar" time in developing Gantt charts (basis: experience and budget load factor).
- DPs will be approved as a license amendment.
- All sites requesting license termination with restrictions on future site use will require the development of an environmental impact statement (EIS), and approval of the DP will include a public hearing.
- All sites requesting license termination without restrictions on future use will only require the development of an environmental assessment/finding of no significant impact, and approval of the DP will not include a public hearing.
- All licensees have sufficient financial assurance to cover the cost of decommissioning.

## SPECIFIC ASSUMPTIONS:

### A. Sites Requesting License Termination under Unrestricted Use

#### Acceptance Reviews:

- DP will be complete when submitted and meet acceptance criteria.
- Licensing Assistant's (LA's) concurrence will be no more than 3 days.
- Staff will use a standardized "acceptance" letter [see Office of Nuclear Material Safety and Safeguards (NMSS) Decommissioning Handbook, Appendix G].
- The Office of the General Counsel (OGC) will not need to concur on acceptance review letters.
- Section Leader/Branch Chief (SC/BC) concurrence will be no more than 5 days.
- Staff will use acceptance review checklists (Appendix A to NUREG-1727) to perform acceptance reviews.
- Acceptance review will include a limited technical review and be completed within 90 days

#### Federal Register Notices (FRN's):

- Staff will always prepare an FRN when a DP is received.
- Staff will use a standard FRN to announce its intent to amend the license to incorporate the DP.
- LA concurrence will be no more than 3 days.
- SC/BC concurrence will be no more than 5 days.
- OGC review not needed for the FRN.
- There will be FRNs will be published within 7 days of being sent to the Publications Branch.

#### Develop DP Review Plan:

- SC review/approval only.

#### DP Evaluation:

- No unresolvable or policy-challenging issues will be raised as a result of the review of the DP.

#### Final Radiological Status Surveys:

- In general, confirmatory surveys will not be conducted at the end of licensee remediation activities. Instead, the Regions will perform in-process, side-by-side confirmatory surveys and rely on the licensee's quality assurance (QA) program.
- No additional cleanup will be required and no significant additional information will need to be collected to support the FSSR.

#### Removal of site from the Site Decommissioning Management Plan (SDMP):

- The Commission will approve the staff's recommendation to remove the site from the SDMP.
- States, U.S. Environmental Protection Agency (EPA), or others will not challenge the staff's decision to remove the site from the SDMP and terminate the license.

## B. Sites Requesting License Termination under Restricted Use

### Acceptance Reviews:

- DP will be complete when submitted and will meet acceptance criteria.
- LA concurrence will be no more than 3 days.
- Staff will use a standardized “acceptance” letter (see NMSS Decommissioning Handbook, Appendix G).
- OGC will not need to concur on acceptance review letters.
- SC/BC concurrence will be no more than 5 days.
- Staff will use acceptance review checklists (Appendix A to NUREG-1727) to perform acceptance reviews.
- Acceptance review will include a limited technical review and be completed within 90 days

### Federal Register Notices:

- Staff will always prepare an FRN when a DP is received.
- Staff will use a standard FRN to announce its intent to amend the license to incorporate the DP.
- LA concurrence will be no more than 3 days.
- SC/BC concurrence will be no more than 5 days.
- OGC review will not be needed for FRN.
- FRNs will be published within 7 days of being sent to the Publications Branch.

### Phased Review

- Following the successful acceptance review, the detailed technical review will be conducted in two phases
- Phase 1 will consist only of a review of the institutional control and financial assurance provisions of the DP.
- Phase 1 can be completed successfully in 9 months with a single request for additional information (RAI).
- Phase 2 will address all other aspects of compliance with the License Termination Rule.
- The environmental impact statement will not be initiated until Phase 2.

### 10 CFR 20.1405 Letters:

- Staff will use a standard 10 CFR 20.1405 letter to solicit input from interested parties.
- LA concurrence will be no more than 3 days.
- SC/BC concurrence will be no more than 5 days.
- OGC will not need to review 10 CFR 20.1405 letter(s).

### Develop DP Review Plan:

- SC review/approval only.

### DP Evaluation (including EIS development):

- One scoping meeting will be held to support the development of the EIS.
- Environmental and Performance Assessment Branch (EPAB) will have the lead for developing the EIS and will be supported by Decommissioning Branch (DCB) and a contractor.



- EPAB team will prepare FRN - "Intent to Develop EIS."
- DCB staff will prepare the draft Safety Evaluation Report during the development of the draft EIS (DEIS).
- One RAI will be required in support of each of the DEIS and FEIS.
- No unresolvable or policy-challenging issues will be raised as a result of the review of the DEIS.
- All comments on the DEIS will be submitted within the prescribed comment period.
- The Commission will approve/concur on the staff's Record of Decision.
- The DP will be approved after the public hearing.

Final Radiological Status Surveys:

- In general, neither the Regions nor ORISE will conduct confirmatory surveys at the end of licensee remediation activities. Instead, the Regions will perform in-process, side-by-side confirmatory surveys and rely on the licensee's QA program.
- No additional cleanup will be required and no significant additional information will need to be collected to support the FSSR.

Removal of site from the SDMP:

- The Commission will approve the staff's recommendation to remove the site from the SDMP.
- States, EPA, or others will not challenge the staff's decision to remove the site from the SDMP and terminate the license.

**STATUS SUMMARIES  
FOR  
REACTORS UNDERGOING DECOMMISSIONING**

## **BIG ROCK POINT**

Licensee: Consumers Energy Company  
Reactor Type: 67 Mw(e) BWR  
Containment Type: Dry, Spherical  
Vendor: GE  
Power Level: Permanently shutdown  
CP Issuance Date: 5/31/1960  
OL Issuance Date: 5/1/1964  
OL Expiration Date: N/A  
Shutdown Date: 8/30/97

### CURRENT DECOMMISSIONING STATUS

The plant shut down on August 30, 1997. Fuel was transferred to the spent fuel pool by September 20, 1997. The licensee submitted certification of permanent cessation of operations on June 26, 1997, and certification of permanent fuel removal on September 23, 1997. The licensee submitted their decommissioning plan (DP) on February 27, 1995. The DP was considered to be the post shutdown decommissioning activities report (PSDAR) and has subsequently been updated. The PSDAR public meeting was held on November 13, 1997. The licensee selected the DECON option. Under the current schedule, the Part 50 license would be terminated in 2007. The current decommissioning cost estimate is approximately \$314 million (2000 dollars). The estimated date of transfer of project management responsibility from the Office of Nuclear Reactor Regulation (NRR) to the Office of Nuclear Materials Safety and Safeguards (NMSS) is fiscal year (FY) 2003.

### CURRENT ISSUES

The licensee is planning to use a generally-licensed onsite dry cask transportable system compatible with Big Rock and Palisades fuel. The licensee expects to transfer fuel to the independent spent fuel storage installation (ISFSI) beginning September 2002. A request to bury demolition debris in a State of Michigan Landfill in accordance with 10 CFR 20.2002 was approved on February 2, 2002.

August 2002

## DRESDEN - Unit 1

Licensee: Exelon Generation Company  
Reactor Type: BWR  
Containment Type: Spherical  
Vendor: GE  
Power Level: Permanently shutdown  
CP Issuance Date: 5/4/1956  
OL Issuance Date: 9/28/1959  
OL Expiration Date: N/A  
Shutdown Date: 10/78

### CURRENT DECOMMISSIONING STATUS

The plant shut down in October 1978 and is currently in SAFSTOR. The decommissioning plan was approved in September 1993. No significant dismantlement activities are underway. Asbestos removal, isolation of Unit 1 from Units 2 and 3, and general radiation cleanup activities are complete or in progress. The licensee will dismantle Unit 1 at the same time as the other two units onsite, which is expected no earlier than 2011. The licensee submitted an updated PSDAR on June 1, 1998. The PSDAR public meeting was held on July 23, 1998. The current decommissioning cost estimate is \$362 million (1996 dollars). The current amount in the decommissioning trust fund is \$92.9 million. The licensee expects to collect the remainder by 2011. The estimated date of transfer of project management responsibility from NRR to NMSS is FY 2003.

### CURRENT ISSUES

The licensee is using the Holtec HISTAR 100 dual purpose cask and the HISTORM concrete overpack to store spent fuel. Casks have been loaded with Unit 1 spent fuel from the Unit 2 spent fuel pool, along with Unit 2 spent fuel, to address the Unit 2 spent fuel storage issue. In January 2002, the licensee completed transferring fuel from the Unit 1 spent fuel pool to dry storage.

August 2002

## HADDAM NECK - CONNECTICUT YANKEE

Licensee: Connecticut Yankee Atomic Power Company  
Reactor Type: PWR  
Vendor: Westinghouse  
Power Level: Permanently shutdown  
Provisional OL: 6/30/67  
Full Term OL: 12/27/74  
OL Expiration date: N/A  
Shutdown Date: 7/22/96

### CURRENT DECOMMISSIONING STATUS

Steam generators, RCPs and the pressurizer have been removed from containment and reactor internals segmentation is complete. Preparations are underway for reactor vessel removal from containment in late 2002. The turbine building is being dismantled. There are 1016 spent fuel assemblies and 18 canisters of greater than Class C (GTCC) waste stored in the spent fuel pool. The licensee plans to begin operation of an ISFSI in 2003. The estimated date of transfer of project management responsibility from NRR to NMSS is FY 2003.

### CURRENT ISSUES

The staff's review of the License Termination Plan (LTP) submitted in July 2000, continues. The LTP is being challenged by the Citizens Awareness Network. Pre-hearing conferences were held and the Atomic Safety and Licensing Board Panel (ASLBP) ruled on the admissibility of contentions in 2001.

The licensee has held discussions with the intervenors and appears to have resolved all but one or two contentions. The hearing will not be scheduled until the staff issues its evaluation of the licensee's LTP. The revised LTP will be submitted by August 23, 2002, and the staff will issue its safety evaluation no later than November 30, 2002. The staff expects that the safety evaluation may be issued in early October 2002, if the revised LTP has no problems.

The licensee recently obtained approval from the town government for construction of the planned ISFSI. A local public-interest group (NORAD) has filed suit against the town concerning the validity of the approval. The case is being heard in Federal Court. The Spent Fuel Project Office (SFPO) completed reviewing a NAC application to use its dry storage cask at Haddam Neck. The licensee began ISFSI construction and will begin fuel transfers in early 2003. The NRC review of the licensee's proposed ISFSI security plan is ongoing.

The licensee recently announced that plans with AES Corporation to use part of the site for a natural gas-fired electric plant are on hold, citing economic conditions unfavorable to AES.

August 2002

## HUMBOLDT BAY

Licensee: Pacific Gas & Electric Co.  
Reactor Type: 65 MW(e) BWR  
Containment Type: Pressure suppression  
Vendor: GE/Bechtel  
Power Level: Permanently shutdown  
Date of CP: 11/9/60  
Date of OL: 08/28/62  
OL Expiration: N/A  
Shutdown Date: 07/76

### CURRENT DECOMMISSIONING STATUS

The plant was shutdown in July 1976. The plant is in SAFSTOR. The decommissioning plan was approved in July 1988. The licensee is evaluating the feasibility of early dismantlement with license termination in 2005. The 250-ft ventilation stack, which was in close proximity to the spent fuel pool, has been dismantled and replaced with a 50-ft vent stack that is less vulnerable to seismic induced damage. In September 1997, the licensee successfully repaired groundwater leaks into the reactor building caisson. The grout injection effort reduced inleakage from about 7000 gallons/day to less than 15 gallons/day. An updated PSDAR was submitted on February 27, 1998. The current decommissioning cost estimate is \$ 218 million (license termination in 2015 ) or \$201million (license termination in 2005). There is currently \$202.5 million in the decommissioning trust fund. The estimated date of transfer of project management responsibility from NRR to NMSS is FY 2003.

### CURRENT ISSUES

The plant is presently removing asbestos as a trial activity in establishing their decommissioning work and cost control practices. The licensee selected-Holtec International as its ISFSI and dry-shielded canister vendor utilizing the Hi-Star system and a below grade storage ISFSI. The plant is in compliance with the Fall 2001 security Confirmatory Action Letter issued by the U.S. Nuclear Regulatory Commission (NRC). About \$15M has been spent on decommissioning related work and studies thus far. No funding issues have been identified. Local interveners may want spent fuel to remain in ISFSI once fuel is transferred. The ISFSI application is expected to be submitted in June 2003, with approval 2 years later and an additional year to build. They expect to remove fuel in 2007. Major decommissioning hinges on fuel removal from the fuel pool. LTP submittal is expected in 2007. There are no major issues with the community at this time. The plant is constructing a security alarm station (SAS) and associated systems. A pre-existing off-gas building which is blast proof will be used for the SAS structure.

August 2002

## INDIAN POINT - Unit 1

Licensee: Entergy Nuclear Indian Point 2, LLC  
Operation: Entergy Nuclear Operations, Inc (ENO)  
Reactor Type: 257 Mw(e) PWR  
Containment Type: Dry Volumetric Pre-Stressed  
Vendor: B & W  
Power Level: Permanently shutdown  
CP Issuance Date: 5/56  
OL Issuance Date: 3/26/1962  
OL Expiration Date: N/A  
Shutdown Date: 10/74

### CURRENT DECOMMISSIONING STATUS

The plant was shutdown in October 1974, because its emergency core cooling did not meet regulatory requirements. Some decommissioning work associated with spent fuel storage was performed from 1974 through 1978. The order approving SAFSTOR was issued in January 1996. The PSDAR public meeting was held on January 20, 1999. Currently there is no significant dismantlement underway. The licensee plans to decommission Unit 1 with Unit 2, which is currently in operation.

IP1 is owned and licensed by Entergy Nuclear Indian Point 2, LLC. (Entergy Nuclear Indian Point IP-2) and operated by Entergy Nuclear Operations, Inc. (ENO). The license was transferred from Consolidated Edison Company to Entergy Nuclear Inc. in December 2001. Consolidated Edison transferred to Entergy all of the accumulated decommissioning trust funds for IP2 such that the total amount transferred for IP1 and IP2 is no less than \$430 million. The licensee does not plan to begin active decontamination and decommissioning until 2013, when the IP2 license expires. The estimated date of transfer from NRR project management to NMSS project management has not been determined yet.

### CURRENT ISSUES

The licensee has submitted a license amendment request to better coordinate Indian Point 1 and 2 programs. The change would integrate Indian Point 1 procedures within Unit 2 programs and facilitate Unit 2's transition to improved standard technical specifications.

The Indian Point complex has been the focus of intense public attention from concerned citizens as well as local, state, and national officials since the terrorist acts of September 11, 2001.

August 2002

## LACROSSE

Licensee: Dairyland Power Corporation  
Reactor Type: 50 Mw(e) BWR  
Containment Type: Light cylinder with hemispherical dome and semi-ellipsoidal bottom  
Vendor: Allis-Chalmers  
Power Level: Permanently shutdown  
CP Issuance Date: 3/29/1963  
OL Issuance Date: 7/3/1967  
OL Expiration Date: N/A  
Shutdown Date: 04/30/87

### CURRENT DECOMMISSIONING STATUS

The plant was shut down on April 30, 1987. The SAFSTOR DP was approved August 7, 1991. The DP is considered the PSDAR. The PSDAR public meeting was held on May 13, 1998. Limited and gradual dismantlement is currently underway. The current decommissioning cost estimate is \$98.7 million for dismantlement. The current amount in the decommissioning trust fund is \$ 66.9 million. The licensee expects to collect an additional \$2.2 million per year through the year 2010. The estimated date of transfer of project management responsibility from NRR to NMSS is FY 2003.

### CURRENT ISSUES

The licensee has hired a contractor to evaluate private fuel storage and on-site independent spent fuel storage installation alternatives. This is expected to be a 22-week effort to determine the future direction for LaCrosse.

August 2002



## MAINE YANKEE

Licensee: Maine Yankee Atomic Power Company (MYAPC)  
Reactor Type: PWR  
Containment Type: Steel lined, reinforced concrete  
Vendor: CE  
Power Level: Permanently shutdown 860 MWe  
OL Issuance Date: 6/29/1973  
Shutdown Date: 12/06/96

### CURRENT DECOMMISSIONING STATUS

The plant was shutdown on December 6, 1996. Certification of permanent cessation of operations was submitted on August 7, 1997. The PSDAR was submitted on August 27, 1997. The LTP was submitted on January 13, 2000. Based in part on hearing requests by the State of Maine and Friends of the Coast Opposing Nuclear Pollution (FOC), the licensee committed to develop a revised LTP and submitted the revised LTP on June 1 and August 13, 2001. The licensee selected DECON as decommissioning option. A \$250 million decommissioning and decontamination contract was awarded to Stone & Webster Engineering Corporation (SWEC) on August 4, 1998. The plant was de-powered on December 30, 1998 to a "cold, dark plant" status for turnover to SWEC. On May 4, 2000, MYAPC terminated its contract with SWEC due to SWEC's financial difficulties and impending bankruptcy. The three steam generators and the pressurizer were shipped to GTS Duratek in Memphis, Tennessee, in June and July 2000, for processing and disposal. The current decommissioning cost estimate is \$547 million of which \$357 million applies to decommissioning, \$154 million applies to spent fuel management, and \$36 million applies to site restoration. The estimated date of transfer of project management responsibility from NRR to NMSS is FY 2003.

On September 13, 2000, MYAPC announced that it was revising its plan for disposing of concrete from demolished buildings at the Maine Yankee site. MYAPC decided to dispose of above-grade concrete from demolished buildings by shipping the concrete to off-site disposal facilities rather than place it in the building foundations as it had initially proposed. The portion of the above-grade concrete that is radiologically contaminated will be shipped by rail to the Envirocare facility in Utah.

Beginning in July 2000, MYAPC began acting as its own general contractor, after terminating the decommissioning contract due to SWEC's impending bankruptcy. On January 26, 2001, MYAPC announced that it would manage the decommissioning through completion as its own general contractor.

The State of Maine and FOC filed separate petitions on June 16, 2000, to intervene in response to the license amendment associated with the Maine Yankee LTP. On July 20, 2000, the Atomic Safety and Licensing Board determined that the proceeding should be held in abeyance until MYAPC filed a revised LTP. MYAPC filed the revised LTP on June 1 and August 13, 2001. MYAPC, the State, and FOC reached a settlement on August 31, 2001; the proceeding was terminated on October 2, 2001. The staff conducted a public meeting in Wiscasset in March 2002, to discuss the LTP.

### CURRENT ISSUES

The licensee will use the NAC International Universal Multi-Purpose Canister System (UMS) dry cask spent fuel storage system. The licensee began spent fuel transfer (1432 fuel assemblies in 60 casks) from the spent fuel pool to the onsite ISFSI in August 2002.

August 2002

## MILLSTONE - Unit 1

Licensee: Northeast Nuclear Energy (NNECO)  
Reactor Type: 652 MW(e) BWR  
Vendor: GE  
Power Level: Permanently shutdown  
CP Issuance Date: 5/19/66  
OL Issuance Date: 10/07/70 (Provisional Operating License)  
10/31/86 (Full Term Operating License)  
Shutdown Date: 11/04/95

### CURRENT DECOMMISSIONING STATUS

Unit 1 was shutdown on November 4, 1995, and defueled on November 19, 1995. Certifications per 10CFR 50.82(a) were submitted July 21, 1998. The licensee's current plan is to leave the plant in SAFSTOR with minimal DECON until the Unit 2 operating license expires. The licensee submitted their PSDAR on June 14, 1999. NRR conducted public meetings in Waterford, CT, on February 9, and August 25, 1999. The PSDAR estimated the total decommissioning cost, including and ISFSI, to be \$692 million. A more recent analysis estimates the cost to be \$701 million in mid-year 1999 dollars (including fuel management/storage and site restoration). The decommissioning trust fund amount is \$304 million as of December 1999, with an additional \$36 million being collected each year. The licensee has not yet made any decision on constructing and operating an ISFSI. The estimated date of transfer from NRR project management to NMSS project management has not been determined yet.

### CURRENT ISSUES

On March 9, 2001, the NRC issued an Order approving the transfer of the Operating License for Millstone, Units 1, 2 and 3 from Northeast Nuclear Energy Company (NNECO) to Dominion Nuclear Connecticut, Inc. The closing of the sale and transfer was completed on March 31, 2001.

As part of preparation for the sale, NNECO conducted a spent fuel inventory reconciliation and determined in December 2000 that the location of two spent fuel rods was unknown. In 1972 a once burned fuel assembly was disassembled to allow testing by GE. Two of the fuel rods were not put back in the assembly but were put in a special fuel rod box. Records dated 1979 and 1980 show the rods stored in the Northwest corner of the spent fuel pool. Records after 1980 do not show the fuel rods in the fuel pool. No record for transport of the fuel rods offsite has been found. A dedicated licensee investigative team conducted an investigation – at a cost of approximately \$9 million – to determine the location of the two fuel rods. The investigation determined that the rods are: (a) in an undetermined location in the Unit 1 spent fuel pool; (b) at General Electric Company's (GE's) Vallecitos nuclear fuel facility; or (c) at one or both of the low-level radioactive waste (LLRW) disposal facilities in Barnwell, South Carolina (Barnwell) or the Hanford reservation in Richland, Washington (Hanford). An NRC special inspection team concurred in the licensee's conclusion that the LLRW facility at Barnwell had the most significant opportunity to receive the rods, with an opportunity also existing to some small degree for the inadvertent shipment of the fuel rods to Hanford. A Notice of Violation with a proposed civil penalty of \$288,000 was issued on June 25, 2002.

August 2002

## NUCLEAR SHIP SAVANNAH

Licensee: U.S. Maritime Administration  
Reactor Type: 80 MW(t) PWR  
Containment Type: Steel Vessel  
Vendor: B&W  
Power Level: Permanently shutdown  
OL Issuance Date: 8/5/1965  
OL Expiration Date: N/A  
Shutdown Date: 11/70

### CURRENT DECOMMISSIONING STATUS

The reactor is currently in SAFSTOR. All fuel has been removed from the ship. The NS Savannah is moored in the Maritime Administration Reserve Fleet in the James River, Virginia. As needed, the NS Savannah is towed into dry dock for hull maintenance. The U.S. Government is guaranteeing decommissioning funding which is estimated at \$76M. Because the reactor is portable, the location of decommissioning has not been determined. There are no plans to transfer NRR project management to NMSS project management.

### CURRENT ISSUES

The licensee is exploring the possibility of FY 2002 supplemental funding for total decommissioning and disposal of the NS Savannah.

August 2002

## RANCHO SECO

Licensee: Sacramento Municipal Utility District  
Reactor Type: 2772 MW(t) PWR  
Containment Type: Large Dry  
Vendor: B&W  
Power Level: Permanently shutdown  
CP Issuance Date:  
OL Issuance Date: 8/16/1974  
OL Expiration Date: N/A  
Shutdown Date: 06/89

### CURRENT DECOMMISSIONING STATUS

The plant was shutdown in June 1989. The SAFSTOR decommissioning plan was approved in March 1995. The licensee revised its decommissioning plan in 1997 to use an incremental dismantlement approach. In November 1999, the licensee informed the NRC of its decision to begin full dismantlement of the facility. The licensee has completed dismantlement of the secondary side equipment in the turbine building. Wastes generated during decommissioning are being shipped to Envirocare. The current schedule is to complete the license termination survey by 2008. The licensee is now dismantling equipment in the auxiliary building. The current decommissioning cost estimate is \$433 million (1999 dollars). The licensee has spent \$118 million. The current amount in the decommissioning trust fund is approximately \$128 million and is considered adequate to complete decommissioning. The licensee will be collecting money through the license expiration date of 2008.

### CURRENT ISSUES

On October 4, 1991, the licensee submitted a site-specific Part 72 ISFSI application using the VECTRA NUHOMS-MP187 dual purpose cask design. The ISFSI pad is completed and horizontal storage modules delivered. The transportation and storage aspects of the dual purpose cask have been approved. A local public meeting to discuss the licensee's current dismantlement plans was held on June 20, 2000. In July 2000, the licensee received its spent fuel shipping cask. On March 12 to 15 and April 2 to 3, 2001, the NRC conducted a team inspection at Rancho Seco to evaluate the pre-operational test activities for the ISFSI. On April 3 to 13 and 19, 2001, the NRC conducted an inspection of the loading of the first canister into the ISFSI. In general all activities were performed satisfactorily. The licensee expects to complete loading and transfer of all the storage casks in August 2002.

August 2002

## SAN ONOFRE - Unit 1

Licensee: Southern California Edison (SCE)  
Reactor Type: 436 Mw(e) PWR  
Containment Type: Spherical  
Vendor: Westinghouse  
Power Level: Permanently shutdown  
CP Issuance Date: 3/2/1964  
OL Issuance Date: 3/27/1967  
OL Expiration Date: N/A  
Shutdown Date: 11/92

### CURRENT DECOMMISSIONING STATUS

The plant was shut down in November 1992. The licensee submitted an updated PSDAR on December 15, 1998. The PSDAR public meeting was held on February 25, 1999. The facility transitioned from SAFSTOR in 1999 and is now in active decommissioning (DECON). Significant dismantlement is currently underway. The licensee has completed demolition of the EDG building as part of their effort to make room for an onsite ISFSI. The administration building has been removed. The control room has been relocated and Unit 1 has established its SFP island concept with the rest of the Unit 1 facility cold and dark. Operating personnel are dedicated to Unit One. The estimated date of transfer of project management responsibility from NRR to NMSS is FY 2003.

### CURRENT ISSUES

The utility is presently constructing an onsite ISFSI that will serve all three units. Unit 1 fuel is in all three fuel pools; the licensee plans to move Unit 1 fuel next year. All GTCC reactor internal waste has been removed from the reactor pressure vessel (RPV) and is in the fuel pool. The containment roof concrete has been removed. Roof structural work is ongoing. Large component removal from the containment will begin later this year. Discussions are ongoing to determine who will take the lead for National Environmental Policy Act (NEPA) Permit development to allow the RPV to transit the Camp Pendleton Marine Corps base. The Marine Corps wants NRC to take the lead. The licensee does not anticipate a problem in complying with the upcoming order for heightened security provisions. There is a security boundary and security practices in place that meet or exceed the Fall 2001, Confirmatory Action Letter issued by NRC. SONGS-1 has had very good dose control thus far in their decommissioning. They are considering leaving their RPV on site until the other two units decommission. There are no decommissioning funding issues. SCE is constructing their dry storage casks under the supervision of TN West.

August 2002

## SAXTON

Licensees: GPU Nuclear and Saxton Nuclear Experimental Corp.  
Reactor Type: 28 Mw(th) PWR  
Containment Type: Steel vessel  
Power Level: Permanently shutdown  
CP Issuance Date: 2/11/1960  
OL Issuance Date: 11/15/1961  
OL Expiration Date: N/A  
Shutdown Date: 05/72

### CURRENT DECOMMISSIONING STATUS

The plant was shutdown in May 1972, and in February 1975, was placed in SAFSTOR until 1986, when phased dismantlement began with removal of support buildings, contaminated soil, and some material in the containment. The licensees submitted a decommissioning plan in 1996, which became the PSDAR. The licensee submitted a LTP in February 1999, which was returned without review to the licensees because it contained insufficient information to perform a detailed review. The LTP was resubmitted in February 2000, and has passed an acceptance review. The NRC staff approved an amendment request in 1998 to allow dismantlement under 10 CFR 50.59. The licensee has started dismantlement activities. The reactor vessel with internals, steam generator, and pressurizer have been shipped to Barnwell for disposal. The current decommissioning cost estimate is \$57 million in 2001 dollars. The remaining decommissioning activities are estimated to cost \$10 million. The Saxton owners have provided parent company guarantees of \$20 million. The licensees' funding status for decommissioning will be reviewed with the LTP. In March 2001, NRC approved the merger of GPU, Inc. and First Energy Corp. All spent fuel has been removed from site. There is no current plan to transfer project management from NRR to NMSS.

### CURRENT ISSUES

The licensee has delayed the estimated completion date of decommissioning activities from late 2001 until late 2002. The delay is caused by the discovery that contamination had spread behind the concrete shielding that lines parts of the containment vessel. The licensee is in the process of removing all of the concrete from the containment to ensure that contamination is addressed. Because of the high water table at the site, the area around the containment was de-watered and the containment was anchored to bedrock to prevent the containment from becoming buoyant as weight is removed. The NRC staff continues to evaluate the LTP.

August 2002

## THREE MILE ISLAND - Unit 2

Licensee: GPU Nuclear  
Reactor Type: 792 Mw(e) PWR  
Containment Type: Dry Volumetric Pre-stressed  
Vendor: B&W  
Power Level: Permanently shutdown  
CP Issuance Date: 11/4/1969  
OL Issuance Date: 2/8/1978  
OL Expiration Date: N/A  
Shutdown Date: 03/79

### CURRENT DECOMMISSIONING STATUS

The operational accident occurred in March 1979. The plant defueling was completed in April 1990. Post Defueling Monitored Storage (PDMS) was approved in 1993. There is no significant dismantlement underway. The plant shares equipment with the operating TMI - Unit 1. TMI-1 was sold to Amergen in 1999. GPU Nuclear will retain the license for TMI-2 and contract to Amergen for maintenance and surveillance activities. Both units are expected to be decommissioned in 2014. GPU has formed a Saxton-TMI-2 Oversight Committee. The current radiological decommissioning cost estimate is \$469 million and \$34 million for non-radiological funds. The current amount in the decommissioning trust fund is \$366 million accumulated per 10 CFR 50.75 (b)(c). The spent fuel was removed except for some debris in the nuclear steam supply system. The fuel debris removed is currently in storage at Idaho National Engineering Laboratory. DOE has taken title and possession of the fuel debris. The estimated date of transfer of project management responsibility from NRR to NMSS is FY 2003.

### CURRENT ISSUES

The staff is reviewing one license amendment request that would transfer most of the technical specification requirements of TMI-2 to those of TMI-1.

August 2002

## TROJAN

Licensee: Portland General Electric  
Reactor Type: 1095 Mw(e) PWR  
Containment Type: Dry Volumetric Pre-stressed  
Vendor: Westinghouse  
Power Level: Permanently shutdown  
CP Issuance Date: 2/8/1971  
OL Issuance Date: 11/21/1975  
OL Expiration Date: N/A  
Shutdown Date: 11/9/92

### CURRENT DECOMMISSIONING STATUS

The plant was shutdown in November 1992. The DECON decommissioning plan was approved in April 1996. The plant is currently undergoing dismantlement under 10 CFR 50.59. The steam generators and reactor vessel have been shipped to Hanford LLW site. The decommissioning cost was estimated to be approximately \$240 million (1997 dollars). The licensee was granted a site-specific Part 72 license for an onsite ISFSI in March 1999. The licensee submitted a proposed LTP in August of 1999. A public meeting on the LTP was held in St. Helens, Oregon on December 7, 1999. License Amendment 206 was issued in February 2001, approving the LTP.

### CURRENT ISSUES

The staff has met with the licensee to discuss unresolved inspection items related to the licensee's implementation of the approved LTP. Specifically, the staff had concerns regarding downgrading the classification of survey units that had been approved in the LTP at a higher initial classification. The staff performed extensive confirmatory surveys to evaluate these areas, and is presently evaluating the data.

The licensee notified the Commission that it expects to begin spent fuel transfer to the ISFSI in November 2002.

August 2002



## VALLECITOS BOILING WATER REACTOR

Licensee: General Electric (GE)  
Reactor Type: 50 MW(t) BWR  
Containment Type: Steel, cylindrical 48' dia, 100' height, hemispherical ends  
Vendor: GE  
Power Level: Permanently shutdown  
CP Issuance Date: 5/14/1956  
OL Issuance Date: 5/14/1956  
OL Expiration Date: N/A

### CURRENT DECOMMISSIONING STATUS

The plant is currently in SAFSTOR. The decommissioning cost was estimated to be \$10.7 million. GE has a self-guarantee instrument. The spent fuel has been removed from the site. There are no plans to transfer NRR project management to NMSS project management.

### CURRENT ISSUES

There are no current issues.

August 2002

## YANKEE ROWE

Licensee: Yankee Atomic  
Reactor Type: 167 Mw(e) PWR  
Containment Type: Steel Sphere - Uninsulated  
Vendor: Westinghouse  
Power Level: Permanently shutdown  
CP Issuance Date:  
OL Issuance Date: 12/24/1963  
OL Expiration Date: July 9, 2000  
Shutdown Date: 10/01/91

### CURRENT DECOMMISSIONING STATUS

The plant was permanently shutdown on October 1, 1991. The DECON decommissioning plan was approved in February 1995 and the plant is undergoing dismantlement under 10 CFR 50.59. The steam generators were shipped to Barnwell. The reactor vessel was shipped on April 27, 1997 to Barnwell by truck and rail, in one piece with no internals, and arrived on May 8, 1997. The licensee has removed all of the primary system, secondary side components and switch yard from the site. As of fall 1999, the plant is about 80% dismantled. The containment and other major structures remain. The spent fuel pool building is the only remaining "vital" area and has the appropriate safety related programs, such as safeguards, in place. The spent fuel pool has been segregated from the remaining decontamination and dismantlement activities by providing it with independent and redundant electrical and cooling systems, and multiple sources of cooling water.

A License Termination Plan was submitted on May 15, 1997. Local citizens' groups had filed petitions for leave to intervene on the License Termination Plan. However, the licensee on May 26, 1999, filed a motion to the Commission and ASLB to withdraw the license termination plan amendment request and for termination of the hearing. Under current regulations, the licensee need not submit a new termination plan until 2052.

### CURRENT ISSUES

The licensee has determined that a decommissioning operations contract is not economically feasible, and will continue to manage the project. The licensee has completed construction of an on-site ISFSI under a general license. The fuel handling crane capacity has been increased and the crane made single-failure proof so that combined use storage/shipping casks could be safely handled. The licensee has applied, through a cask contractor, for a Part 71 license for a combined use cask. The NRC inspection of the licensee dry run for fuel move to the ISFSI was conducted in May. Actual fuel movement began in June 2002.

August 2002

## ZION - Units 1 & 2

Licensee: Exelon Generation Company, LLC  
Reactor Type: 3250 MW(t), 3250 MW(t) PWRs  
Containment Type: Large dry  
Vendor: Westinghouse  
Power Level: Permanently shutdown  
CP Issuance Date:  
OL Issuance Date: 10/19/1973, 11/14/1973  
OL Expiration Date: N/A  
Shutdown Date: 02/13/98

### CURRENT DECOMMISSIONING STATUS

Zion Nuclear Power Station (ZNPS) Units 1 and 2 was permanently shut down on February 13, 1998. The fuel was transferred to the spent fuel pool (SFP), and the licensee submitted the certification of fuel transfer on March 9, 1998. There was a public meeting on June 1, 1998 to inform the public of the shutdown plans. The licensee has converted the turbine-generators into synchronous condensers, and they have isolated the SFP within a fuel building "nuclear island," and placed the plant in SAFSTOR, where it will remain until fuel transfer to DOE in about 2013. Decommissioning costs have been estimated at about \$560 million. The licensee will continue to collect a per kw-hr fee for decommissioning ZNPS at an annual rate of approximately \$9.1million until 2013. The estimated date of transfer of project management responsibility from NRR to NMSS is FY 2003.

The de-fueled safety analysis report was submitted in 1998. The permanently de-fueled Technical Specifications (PDTS) were issued on December 30, 1999, with implementation by January 17, 2000. The licensee submitted the PSDAR, site specific cost estimate, and fuel management plan on February 14, 2000. The staff held a public meeting to discuss the PSDAR on April 26, 2000.

On January 12, 2001, Exelon Generation Company, LLC became the holder of the Zion facility operating licenses formerly held by Commonwealth Edison Company (ComEd) due to the restructuring following the merger between Unicom Corporation and PECO Energy Company.

The continuing inspection program is being conducted jointly with the State of Illinois Department of Nuclear Safety, which has qualified several of its inspection personnel to perform decommissioning reactor inspections. This program is performed pursuant to a 1999 revision to a previous inter-Agency Memorandum of Understanding that is unique in the U. S. Inspection activities in 2001 are expected to continue to focus on management controls, decommissioning support, fuel safety, and radiation safety.

### CURRENT ISSUES

The staff is currently processing one licensing action that would eliminate the requirement for at least one person qualified to stand watch to be present in the control room when nuclear fuel is stored in the spent fuel pool. In addition to local surveillance of SFP conditions each shift, the plant pager system will be modified to alert operating personnel when abnormal SFP conditions are present. The staff review is ongoing.

August 2002

**PLANT STATUS SUMMARIES  
FOR  
FERMI UNIT 1 AND PEACH BOTTOM UNIT 1**

**FERMI - Unit 1**  
(Updated May 21, 2002)

**Site Identification**

Location: Monroe, Michigan  
License No.: 50-16  
Docket No.: DPR-9  
Licensing Status: Active/Decommissioning  
Project Manager: S. Brown

**Site Status Summary**

The licensee's initial stage of decommissioning is complete, bulk sodium has been removed from the site. Facility is in a SAFSTOR condition. Spent fuel was removed from the site. The licensee is currently performing occupational safety enhancement activities, concentrating in non-radioactive areas, such as asbestos removal. The licensee began cleanup of trace sodium in late 1999. The facility will be dismantled under the provisions of 10 CFR 50.59. The post shutdown decommissioning activities report (PSDAR) public meeting was held on April 22, 1998. Current decommissioning cost estimate is \$28-31 million (1998 dollars). Current amount in trust fund is \$32 million. The licensee plans to submit its license termination plan (LTP) in 2003.

Involved Parties:

Lynn Goodman  
Detroit Edison Company

**Major Technical or Regulatory Issues**

None

**Assumptions**

Standard

**Estimated Date for Closure**            3/05

**PEACH BOTTOM - Unit 1**  
(Updated May 21, 2002)

**Site Identification**

Location: Delta, Pennsylvania  
License No.: 50-171  
Docket No.: DPR-12  
Licensing Status: Active/Decommissioning  
Project Manager: S. Brown

**Site Status Summary**

The Facility is in a SAFSTOR condition. Spent fuel was removed from the site. The PSDAR meeting was held on June 29, 1998. Final decommissioning not expected until 2015 when Units 2 and 3 are scheduled to shut down. Current decommissioning cost estimate is \$48.9 million (1998 dollars). Utility has been collecting \$723,360/yr, but will increase the amount to \$1,343,808/yr through 2015 to accumulate sufficient funding. The current trust fund amount is \$11.3 million as of December 31, 1998.

Involved Parties:

Jerry Philbaum  
EXELON

**Major Technical or Regulatory Issues**

None

**Assumptions**

The licensee will maintain its facility in SAFSTOR until 2010 and submits its LTP in 2012.

**Estimated Date for Closure**            12/15

**SCHEDULE FOR REACTOR  
DECOMMISSIONING ACTIVITIES**

Schedule For Reactor Decommissioning Activities

	Power Plant	PSDAR** Submitted	LTP Submitted	LTP Approved	Transfer to NMSS (FY)
1	Big Rock Point	2/95	TBD	TBD	2003*
2	Dresden - Unit 1	6/98	TBD	TBD	2003*
3	Haddam Neck - CY	8/97	7/00	11/02*	2003*
4	Humboldt Bay	2/98	2007*	TBD	2003*
5	Indian Point - Unit 1	1/96	TBD	TBD	TBD
6	Lacrosse	5/91	TBD	TBD	2003*
7	Maine Yankee	9/97	1/00	1/03*	2003*
8	Millstone - Unit 1	6/99	TBD	TBD	TBD
9	Nuclear Ship Savannah	TBD	TBD	TBD	No Plans
10	Rancho Seco	12/94	TBD	TBD	2003*
11	San Onofre - Unit 1	12/98	TBD	TBD	2003*
12	Saxton	1996	2/00	FY 2003*	No Plans
13	Three Mile Island - Unit 2	2/79	TBD	TBD	2003*
14	Trojan	1/96	8/99	2/01	2003*
15	Vallecitos	7/66	TBD	TBD	No Plans
16	Yankee Rowe	11/94	6/02*	4/03*	2003*
17	Zion - Units 1 & 2	2/00	TBD	TBD	2003*

\* estimated date

\*\* PSDAR or Decommissioning Plan (DP) equivalent

NOTE: Licensees submitted DPs (or equivalent) prior to 1996, and PSDARs from 1996 on.



**PLANT STATUS SUMMARIES FOR RESEARCH AND TEST REACTORS**

### Research and Test Reactors Decommissioning Status

	Reactor	Reactor Type	Thermal Power	Location	Status	Fuel Onsite
1	CBS Corporation	Tank	20 MW	Waltz Mill, PA	DECON Approved	No
2	NASA Plum Brook	Pool	60 MW	Sandusky, OH	DECON Approved	No
3	University of Buffalo	Pulsar	2 MW	Buffalo, NY	Possession Only	Yes
4	University of Virginia	Pool	2 MW	Charlottesville, VA	DECON Approved	No
5	General Electric Co.	Tank	50 MW	Sunol, CA	Possession Only	No
6	General Atomics	Mark I Triga	250 KW	San Diego, CA	DECON Approved	Yes
7	Cornell University	Zero Power	100 KW	Ithica, NY	Possession Only	No
8	Iowa State University	Argonaut	10 KW	Ames, IA	DECON Approved	No
9	University of Washington	Argonaut	100 KW	Seattle, WA	DECON Approved	No
10	University of Illinois	Triga	1.5 MW	Urbana, IL	DECON Approved	Yes
11	Georgia Tech	Tank	5 MW	Atlanta, GA	DECON Approved	No
12	General Atomics	Mark F Triga	1.5 MW	San Diego, CA	DECON Approved	Yes
13	General Electric Co.	GE EVESR	17 MW	Alameda, CA	Possession Only	No
14	NASA Mockup	Pool Type	100 KW	Sandusky, OH	DECON Approved	No
15	Manhattan College	Pool Type	0.1 W	Bronx, NY	DECON Approved	Yes
16	University of Virginia	CAVALIER	100 W	Charlottesville, VA	DECON Approved	No

**TITLE II SITE DECOMMISSIONING STATUS**

## TITLE II SITE DECOMMISSIONING STATUS

### CONVENTIONAL MILLS

Site	DP Approved	Status	License Termination
ANC Gas Hills, WY	10/88	Revised plan submitted 11/95 but not accepted, to be revised. State to complete cover of second pile and soil cleanup. Licensee bankrupt.	2005
ARCO Bluewater Milan, NM	8/89 work complete	About 1000 acres with 3 tailings cells under general license to DOE.	9/97
Atlas Moab, UT	11/89	New plan & bkg values were to be submitted, licensee bankrupt, trustee did some work. License terminated and site transferred to DOE for decommissioning & reclamation.	10/01
Exxon Highlands, WY	yes	Awaiting cell settlement (ground water evaporation pond on top). Final survey report - 5/91	2005
Homestake Grants, NM	revised plan 3/95	Final status survey report approved 1998. Ground water corrective action with evaporation pond on 2 <sup>nd</sup> tailings pile - Superfund site. Alternate Concentration Limits (ACL) request anticipated.	2013
Kennecott Sweetwater, WY	8/99	Standby status. Ground water corrective action with evaporation ponds on tailings pile.	
Pathfinder Lucky Mc Gas Hills, WY	revised plan 6/96	Final status survey report approved. Continuing evaporation pond reclamation. ACL request under review.	2004
Pathfinder Shirley Basin, WY	revised plan 12/97	ACL request under review.	2006?
Petrotomics Shirley Basin, WY	work complete	Final status survey approved 5/01. Ground water sulfate issue.	2003

Site	DP Approved	Status	License Termination
Plateau Res. Shootaring, UT		Only operated 3 months in 1982. Interim cover in place. On standby status.	
Rio Algom Ambrosia Lake, NM		Stand-by. Decommissioning plan submitted October 2000. NRC awaiting plan revisions. ACL request under review.	
Rio Algom Lisbon, NM	12/94	Tailings pile reclaimed but settling. Ground water corrective action program. ACL request received 5/02.	
Kennecott L-Bar, NM	work complete	Cleanup and reclamation complete and verified.	2002
TVA Edgemont, SD	work complete	License terminated, disposal area under general license to DOE.	6/96
Umetco East Gas Hills, WY	revised soil plan 4/01	Received approval of ACL for ground water 3/02. Final status survey report due August 2002. Cover of third pile to be completed in 2004.	2005
EFN White Mesa, UT		In operation.	
UNC Church Rock, NM	3/91	Surface cleanup completed and report submitted 11/93 Tailings pile cover erosion protection to be inspected in 2002 Ground water issues, ACL request anticipated	
Bear Creek, WY	work complete		2002
WNI Split Rock, WY	1997	Final status survey approved 5/00. Ground water issue proposed to be resolved by institutional controls.	

## IN SITU LEACH

<b>Site</b>	<b>DP Approved</b>	<b>Status</b>	<b>License Termination</b>
Cameco Crow Butte, NE		Operating	
HRI Crownpoint, NM		Hearings have delayed construction of the facility.	
PRI Highlands, WY		Operating	
COGEMA Irigaray/ Ch. Ranch, WY	12/01	Surface reclamation and ground water restoration underway at both sites.	2006
PRI Ruth & North Butte, WY		Research facilities on standby at Ruth; North Butte not developed.	
Rio Algom Smith Ranch, WY		Operating	

**OTHER**

<b>Site</b>	<b>DP Approved</b>	<b>Status</b>	<b>License Termination</b>
U.S.E. Green Mt. ion exchange WY	6/01	To submit final status survey report in June 2002	2002
Envirocare (11e.(2) byp. disposal cell) Clive, UT		Operating	

**MAJOR DECOMMISSIONING DOCUMENTS**



## Major Decommissioning Documents

Document	Status
SECY-01-099, "Rulemaking Plan and Advanced Notice of Proposed Rulemaking: Entombment for Power Reactors"	Issued June 2001
NUREG-1757, Vol. 1, "Consolidated NMSS Decommissioning Guidance"	Draft Issued January 2002
SECY-01-100, "Policy Issues Related to Safeguards, Insurance, and Emergency Preparedness at Decommissioning Plants"	Issued June 2001
NRC Regulatory Guide (1.191), "Fire Protection Program for Nuclear Power Plants During Decommissioning and Permanent Shutdown"	Issued May 2001
SECY-02-0133, "Control of Solid Materials: Options and Recommendations for Proceeding"	July 2002
Final Rule: Partial Site Release of a Reactor Facility Prior to Approval of the LTP	Scheduled For Issuance in August 2002
NRC Regulatory Guide, DG-1085, "Standard Format and Content for Decommissioning Cost Estimates for Nuclear Power Reactors"	Draft Issued September 2001
NRC Standard Review Plan, NUREG-1713, Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors"	Draft Issued September 2001
NUREG-1748, "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs"	Draft Issued September 2001
NUREG-0586, Supplement 1, "Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities"	Issued October 2001
NUREG-1725, "Human Interactions with Reused Soil: An Information Search"	Published January 2002
NUREG/CR-6755, "Technical Basis for Calculating Radiation Doses for the Building Occupancy Scenario Using the Probabilistic RESRAD-BUILD 3.0 Code"	Published February 2002
NUREG/CR-6758, "Radionuclide-Chelating Agent Complexes in Low-Level Radioactive Decontamination Waste; Stability, Absorption, and Transport Potential"	Published February 2002

NUREG/CR-6632, "Solubility and Leaching of Radionuclides in Site Decommissioning Management Plan (SDMP) Slags"	Published February 2002
NUREG/CR-6757, "Large Scale Molecular Dynamics Simulations of Metal Sorption onto the Basal Surfaces of Clay Minerals"	Published February 2002
NUREG/CR-6766, "Release of Radionuclides and Chelating Agents from Full-System Decontamination Ion-Exchange Resins"	Published March 2002
Report of the National Research Council - The Disposition Dilemma: Controlling the Release of Solid Materials from Nuclear Regulatory Commission-Licensed Facilities	Published March 2002
NUREG/CR-6767, "Evaluation of Hydrologic Uncertainty Assessments for Decommissioning Sites Using Complex and Simplified Models"	Published April 2002
NUREG/CR-6780, "Effects of Adsorption Constant Uncertainty on Contaminant Plume Migration: One- and Two- Dimensional Numerical Studies"	Published June 2002
NUREG-1569, Rev.1, "Standard Review Plan for In Situ Leach Uranium Extraction License Applications"	Draft Report for Comment, January 2002
NUREG-1620, Rev. 1, "Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act"	Draft Report for Comment, January 2002
NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility"	Published March 2002
Inspection Procedure 87654, "Uranium Mill, In-situ Leach Uranium Recovery, and 11e.(2) Byproduct Material Disposal Site Decommissioning Inspection"	Revised March 2002