

## **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.



Public interest about the site is high, although public concern about the site is low. Mallinckrodt continues to keep the public informed about decommissioning activities at the site. There has been a Community Advisory Panel, made up of Mallinckrodt employees and the public, in place for five years.

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

- An EIS will not be required because Mallinckrodt is expected to propose unrestricted release of the facility.
- Standard assumptions.

5.0 ESTIMATED DATES FOR CLOSURE   Phase 1 - 1/06  
License Termination - 4/08

## 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