# Appendix C

# Site Summaries for Current Complex Decommissioning Sites

# AAR Manufacturing, Inc.

## 1.0 Site Identification

| | |
|---|---|
| Location: | Livonia, MI |
| License No.: | STB-362 |
| Docket No.: | 40-0235 |
| License Status: | Terminated |
| Project Manager: | Kristina Banovac |

## 2.0 Site Status Summary

The AAR Manufacturing, Inc. (AAR) site, located in Livonia, Michigan, was formerly owned by Brooks & Perkins, Inc. (B&P), a licensee of the U.S. Atomic Energy Commission (AEC). AEC Source Material License D-547 was issued to B&P on January 17, 1957, and then was superceded by License No. STB-0362 on August 10, 1961. AEC terminated license STB-0362 on May 17, 1971. In 1981, AAR purchased B&P and obtained the property. Thorium contaminated surface and subsurface soil has been identified at several locations on the site. The site was added to the Site Decommissioning Management Plan (SDMP) list in August 1994.

AAR submitted its final remediation plan (RP) on October 14, 1997, and NRC approved the RP on May 22, 1998. In November 1998, AAR completed additional site characterization and identified large volumes of soil that contained thorium in concentrations exceeding the approved cleanup criterion. In September 1999, AAR effectively withdrew its approved RP and proposed using "unimportant quantities of source material" (0.05 percent by weight source material), as defined in 10 CFR 40.13(a), as a decommissioning criterion. After staff consultation with the Commission on this policy issue, NRC informed AAR that the revised remediation approach was not acceptable, by letter dated August 9, 2002. AAR is currently proposing unrestricted use of the eastern portion of the site and restricted use of the western portion of the site. AAR plans to enter into a settlement agreement with the NRC on the restrictions and controls needed for restricted use. The agreement would include using a restrictive covenant that would outline the restrictions on the use of the site, such as prohibiting farming or developing residential properties on the site. The agreement would allow NRC or the local and State government to enforce the controls. The cost of decommissioning is unknown at this time.

## 3.0 Major Technical or Regulatory Issues

AAR is not a licensee. AAR believes it should not be responsible for the cost of site remediation, since it was not directly responsible for the contamination onsite. The staff is currently working with AAR to resolve technical issues associated with its dose assessment. AAR consultants are currently considering the staff's issues with the dose assessment and are determining the impacts on the estimate of soil remediation needed. 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.

## 4.0 Estimated Date For Closure

09/01/08

# ABB Prospects, Inc. (Formerly C.E. Windsor)

## 1.0 Site Identification

| | |
|---|---|
| Location: | Windsor, CT |
| License No.: | 06-00217-06; SNM-1067 |
| Docket No.: | 030-03754; 070-01100 |
| License Status: | Possession Only |
| Project Manager: | Laurie Kauffman |

## 2.0 Site Status Summary

The ABB Prospects, Inc., (formerly Combustion Engineering-Windsor) site consists of soils, and building and equipment surfaces contaminated with uranium and by-product material from operations that occurred from the late 1950s until 2001. A site-wide decommissioning plan (DP) was received by NRC on April 7, 2003, and a revised DP, which includes dose modeling information, was received on October 15, 2003. On June 1, 2004, the license was amended to incorporate the DP. On June 30, 2004, the licensee submitted the site-wide final status survey (FSS) plan. Under the current License 06-00217-06, the licensee removed interior systems, components, ducts, piping, conduits from Building Complexes 2, 5, and 17. Equipment and material are being released from the site using Regulatory Guide 1.86 criteria as permitted by the current license. The present license also permits the licensee to demolish the buildings of Building Complexes 2, 5, and 17 down to grade level only. FSS and sample collection of Building Complexes 2, 5, and 17 began in 2002 and decontamination and demolition of the buildings was completed in July 2005. The waste materials were shipped off site to a licensed disposal facility. Dismantlement of the waste water treatment system and the health physics offices and laboratory are in progress. The FSS reports for the Building 2, 5/6A, and 17 Complexes were submitted to the NRC on October 31, 2005, February 7, 2006, and May 2, 2006, respectively. The NRC completed its acceptance review of each FSS report and determined that the submissions were sufficiently complete for NRC to initiate a detailed technical review. The technical review is scheduled for completion by December 31, 2006. On June 30, 2005, the licensee submitted an application to renew the NRC SNM-1067 License, per the requirements for timely renewal. Also, the licensee wishes to maintain the SNM-1067 license if any residual uranium is detected on surfaces and/or in soils being remediated by the United States Army Corps of Engineers (USACE), who is responsible for remediating certain areas of the site under the Formerly Utilized Sites Remedial Action Program (FUSRAP). NRC staff completed the renewal on January 18, 2006. Once USACE has remediated the FUSRAP areas, ABB Prospects, Inc. must demonstrate to the NRC that the entire site meets the criteria for unrestricted release in accordance with Subpart E of 10 CFR Part 20. The licensee estimates the cost of decommissioning to be approximately $2.6 million, based on the licensee's decommissioning funding plan dated December 2003, for License 06-00217-06.

ABB Prospects, Inc. manufactured nuclear fuels, and at various times, was used to conduct and support research and development. The site's activities started in 1955 with an AEC contract to begin research, development, and manufacturing of nuclear fuel for the United States Navy. These activities included the construction, testing, and operation of a U.S. Naval test reactor.

## 3.0 Major Technical or Regulatory Issues

There are no technical or regulatory issues. The site participates in the U.S. Environmental Protection Agency (EPA) Voluntary corrective Action Program and last met with EPA on March 11, 2005.

## 4.0 Estimated Date For Closure

12/01/2007

# Babcock & Wilcox (Shallow Land Disposal Area)

## 1.0 Site Identification

| | |
|---|---|
| Location: | Vandergrift, PA |
| License No.: | SNM-2001 |
| Docket No.: | 07003085 |
| License Status: | Possession Only |
| Project Manager: | Amir Kouhestani |

## 2.0 Site Status Summary

The Babcock & Wilcox (BWXT) shallow land disposal area (SLDA) site is situated in Parks Township, PA, and 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 uranium, enriched uranium, and DU, and lesser quantities of Am-241, plutonium, and thorium. In 1970, Nuclear Materials and Equipment Company (NUMEC), a former site licensee, ceased the use of SLDA for radioactive waste disposal. In 2000, the site was designated as a FUSRAP site. USACE is responsible for administrating site cleanup. The SLDA site will be decommissioned by USACE consistent with the USACE-NRC memorandum of understanding (MOU), and the NRC radiological criteria for unrestricted use. USACE will issue a Record of Decision (ROD) in place of a DP. In September 2005, NRC responded to the licensee's request to continue with its current license commitments beyond its license expiration date of October 31, 2005.

The SLDA was created for the disposal of uranium-contaminated waste generated by NUMEC, between 1961 and 1970. NUMEC's mission was to convert enriched uranium to naval reactor fuel. NUMEC operated the nearby Apollo nuclear fuel fabrication facility in the late 1950s. The waste from this facility was disposed of in trenches at the SLDA in accordance with the AEC regulation in effect at the time, 10 CFR 20.304.

## 3.0 Major Technical or Regulatory Issues

In the event that USACE does not complete the Congressionally mandated site remediation, NRC staff anticipates that BWXT-SLDA may request license termination, with restrictions on future land use. The Commonwealth of Pennsylvania Department of Environmental Protection (PADEP), the cognizant state agency responsible for radiation protection, has stated that it will not assume responsibility for the site (i.e., become the institutional control authority) if the site is decommissioned with land-use restrictions. Due to quantities of special nuclear materials at the SLDA exceeding the NRC Unity Rule, the site will not be transferred to Commonwealth of Pennsylvania after it becomes an Agreement State. In March 2006, in compliance with the implementing requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), USACE issued a draft Final Feasibility Study (FS) report. The draft FS report discusses USACE's remedial action objectives for the SLDA site and presents an analysis of USACE's proposed remedial alternatives. In the draft FS report, USACE discusses NRC's restricted use criteria for site decommissioning and license termination as the preferred criteria and alternative. In May 2006, NRC staff commented on the draft FS. Also, in May, PADEP commented on the FS proposed remedial alternative involving construction of a disposal cell on site. PADEP stated that construction of an on-site disposal

cell is not allowed under Pennsylvania law. USACE's tentative plan called for a combined submittal of the Final FS and its Proposed Plan (PP) to NRC and PADEP by end of August 2006. NRC has not yet received USACE's final FS/PP report. There is significant public and Congressional interest in the site. No financial assurance issues have been identified at this time.

## 4.0 Estimated Date For Closure

10/01/2009

# Battelle Columbus Laboratories

## 1.0 Site Identification

| | |
|---|---|
| Location: | Columbus, OH |
| License No.: | SNM-00007 |
| Docket No.: | 070-00008 |
| License Status: | Decon |
| Project Manager: | George M. McCann |

## 2.0 Site Status Summary

Battelle Memorial Institute's (BMI's) base license authorized two sites, the King Avenue site, which was located in Columbus, Ohio, and the West Jefferson Nuclear Sciences site, which was located in West Jefferson, Ohio. In 1977, following decommissioning of the Battelle Research Reactor, which was located at the West Jefferson site, the portion of the license authorizing special nuclear material fuels research at the West Jefferson site was converted from operation to possession only. However, the licensee continued to perform research with byproduct material at its Columbus, Ohio site. In December 1993, the NRC issued a letter approving Battelle's DP, which authorized decommissioning activities at the Columbus West Jefferson sites. Decommissioning oversight for the Columbus site was transferred to the State of Ohio, when the State became a NRC Agreement State in 1999.

The entire West Jefferson site comprises a 1,183-acre tract. The Nuclear Sciences Area occupies an 11-acre fenced area in the northern portion of the West Jefferson site. Outside of the fenced area, several active and abandoned filter beds, and part of the site sanitary sewer systems were also included in the project.

BMI is the licensee for the project. The U.S. Department of Energy (DOE), who is funding the cleanup of the site, decided in 2003 to discontinue using BMI as the prime contractor for performing decontamination activities at the West Jefferson site. Instead, DOE chose to use an independent contractor who reports directly to DOE. Remediation and decontamination activities are conducted under the authority of the BMI license, with BMI continuing to be responsible for site cleanup and regulatory consequences of the contractor's activities. The new contractor resumed decommissioning activities in March 2004.

In February 2006, the contractor completed all building demolition, subsurface foundation excavation and remediation, and back-filling operations at the former North Nuclear Sciences Site. FSSs were completed during March 2006. The Oak Ridge Institute for Science and Education (ORISE), under contract to DOE, also completed site verification surveys. On August 3, 2006, the licensee filed a license amendment for the termination of its license. NRC expects to complete its review of BMI's FSSs by mid-October 2006.

## 3.0 Major Technical or Regulatory Issues

In July 2006, BMI decided to install monitoring wells to sample all potentially impacted groundwater. By September 2006, BMI had installed 22 monitoring wells, with 9 wells on the former licensed site and the remainder placed in areas off-site.

The licensee identified a few groundwater monitoring wells, which exceeded the EPA's maximum concentration limits (MCLs) for strontium 90, and gross and beta levels. Staff has determined that a level 2 notification to the EPA is necessary. It is anticipated that a consultation letter to EPA regarding BMI's groundwater will be completed by mid-November 2006.

## 4.0 Estimated Date For Closure

11/06

# Cabot Performance Materials, Inc.

## 1.0 Site Identification

| | |
|---|---|
| Location: | Boyertown, PA |
| License No.: | SMC-1562 |
| Docket No.: | 040-09027 |
| License Status: | Possession-only |
| Project Manager: | Ted Smith |

## 2.0 Site Status Summary

Contamination at the Cabot Performance Materials, Inc. (Cabot) site consists of surface and subsurface uranium and thorium contamination, in the form of slag. Ground water contamination has not been identified at the site. The March 2000 DP, as supplemented in November 2002, proposes unrestricted release of the site in its current condition. NRC staff issued a request for additional information (RAI) in March 2003, for additional information regarding site characterization, source term modeling, and previously unconsidered aspects of meeting the "as low as is reasonably achievable" requirements of the License Termination Rule (LTR) at the site. The licensee provided a proposed conceptual approach to resolving NRC questions in 2004. The conceptual approach includes emplacement of a riprap cover as an engineered barrier.

Slag at the Reading site was generated from the processing of iron and tin ores for tantalum in 1967 and 1968. The slag was disposed in a pile on a hillside at the edge of the site. 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, was placed on the pile. The pile encompasses approximately 5100 cubic meters (180,000 cubic feet). As described by Cabot, the average contamination levels are 45 pCi/g thorium-232 and progeny, and 30 pCi/g uranium-238 and progeny. The residual radioactivity consists of surface and subsurface uranium and thorium contamination, in the form of slag, in the slag pile and in a road and railroad right of way at the toe of the slope. The first DP submittal was in August 1998. For this first DP submittal, 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 concluded with the City's request to withdraw their hearing request. The court vacated the City of Reading's hearing request in October 2000. A town meeting was held in January 2003; issues identified for follow on activities were related to non-radiological aspects of the area, and PADEP is addressing. The City of Reading is interested in two Brownfield's redevelopment projects in the immediate vicinity of the site. Currently, Cabot proposes to leave the material in place, using criteria in the LTR, with a rip-rap erosion barrier. The licensee submitted Rev. 4 of their DP in August 2006. The NRC is reviewing Cabot's DP.

## 3.0 Major Technical or Regulatory Issues

The licensee's revised DP proposes use of an engineered barrier to prevent erosion at the site. No major financial assurance issues are associated with this site. A potential financial assurance concern would arise if off-site disposal were required. Public interest in the decommissioning activities at the site was increasing in late 2002, but has since subsided. The City of Reading is conducting a major revitalization project of the city, which includes reutilization of land areas near the site.

## 4.0 Estimated Date For Closure

10/07

# Curtiss-Wright Cheswick

## 1.0 Site Identification

| | |
|---|---|
| Location: | Cheswick, PA |
| License No.: | SNM-1120 |
| Docket No.: | 070-01143 |
| License Status: | Possession-only |
| Project Manager: | Mark Roberts |

## 2.0 Site Status Summary

The Curtiss-Wright Electro-Mechanical Corporation (formerly Westinghouse Government Services) facility is a multi-building complex situated on 110 acres near Cheswick, PA. The Allegheny River is approximately one mile south of the facility. Past commercial and government fuel fabrication operations with low-enriched and highly enriched uranium have left a legacy of contamination in, on, around, and under some of the site buildings. Buildings 4, 5, 5A, 5B, 5C, and 5F show some fixed contamination in generally inaccessible areas or contamination in drain lines. Fuel fabrication activities ceased in the early 1970s; however, the remaining contamination in many locations is deposited in areas that are inherent to the design and structure of the facility (i.e., exterior load-bearing walls, structural steel supports, drain lines beneath significant equipment, and roof supports). The facility has two other NRC radioactive materials licenses for contaminated motor servicing and radiography. Buildings 4 and 5 are presently being used for manufacturing and support functions for its pump and motor operations. Contaminated debris was uncovered in 1984 in a former baseball field, a 2-acre area south of the main buildings. This area requires further evaluation to characterize the radiological conditions. Remediation at the facility has been ongoing using criteria identified in the license. A comprehensive RP for addressing the remaining contaminated areas of the site is under development, but has not yet been submitted to NRC. In general, remediation work was scheduled so that the activities did not interfere with the manufacturing operations. FSSs for the remediated areas have been performed, but FSS documentation has not been transmitted to NRC.

## 3.0 Major Technical or Regulatory Issues

Although a significant amount of decontamination work has been performed in both interior and exterior areas of the facility, the licensee has not completed a FSS report. Monitoring well data for identification of any groundwater issues is limited. PADEP has interest in the site, particularly in the suspect baseball field area.

## 4.0 Estimated Date For Closure

12/01/2008

# Department of the Army (Ft. McClellan)

## 1.0 Site Identification

| | |
|---|---|
| Location: | Fort McClellan, AL |
| License No.: | 01-02861-05 |
| Docket No.: | 030-17584 |
| License Status: | Active |
| Project Manager: | Orysia Masnyk Bailey |

## 2.0 Site Status Summary

This site was licensed from 1956 until 1973 and from 1980 until the present. Building 3192 housed a hot cell for the fabrication of cesium and cobalt sources and as a result, building surfaces, soil and below ground tanks became contaminated. A license (01-02861-04) was issued for the possession of this residual contamination in Buildings 3182 and 3192 in 1974. Starting in 1980, the licensee performed closeout surveys for most of its authorized places of use under the Broad Scope license. Buildings 3182 and 3192 were remediated under a DP dated March 31, 1995. License No. 01-02861-04 was terminated on October 19, 1998, following an NRC confirmatory survey. Under the Broad Scope license, the Army performed closeout surveys and NRC performed confirmatory surveys of several areas including the burial areas at Iron Mountain and Rattlesnake Gulch, and of Buildings 1081, 2281, 3180, 3181, 3182, 3185, T-810, T-811, T812, T-836, T-837 and Alpha Field. Based on a characterization survey that caused the licensee to suspect the presence of discrete sources, a DP dated March 2, 1999, was submitted for the remediation of the burial mound at Pelham Range. The mound was found to include discrete sources (Co-60) and some Sr-90. The licensee provided a closeout survey. An NRC confirmatory survey was performed in July 2003. NRC and licensee survey results disclosed no contamination significantly above background levels. Except for the Pelham Range, the remainder of the Fort McClellan property has been turned over to the State of Alabama. The staff is not aware of a specific estimate for the cost of decommissioning.

## 3.0 Major Technical or Regulatory Issues

As part of the FSS, the Army performed a fly over survey of the base which resulted in the discovery of an additional burial ground. Elevated readings were seen at the Anniston City Recreational Area (LaGarde Park), a property that the Army donated to the city in 1976. Ground investigation disclosed the presence of soil contaminated with cesium and cobalt. USACE took responsibility for the site. In August 2003, USACE initiated clean up action at this site under CERCLA. Under this cleanup, contaminated soil was identified and removed as funds allowed. USACE returned to the site in 2004 to perform a characterization survey to gather data for a risk analysis regarding the Pelham Range burial area. The license will be terminated when USACE remediates the remaining burial area. The State of Alabama and the EPA are monitoring clean up activities.

## 4.0 Estimated Date For Closure

12/01/2006

# Eglin Air Force Base

## 1.0 Site Identification

| | |
|---|---|
| Location: | Walton County, FL |
| License No.: | 42-23539-01AF |
| Docket No.: | 030-28641 |
| License Status: | Active |
| Project Manager: | Robert Evans |

## 2.0 Site Status Summary

The Air Force submitted a DP to the NRC in May 2002, for a former depleted uranium munitions testing facility at Eglin Air Force Base. Supplemental information was provided to the NRC on November 1, 2002, August 21, 2003, October 27, 2004, and January 13, 2005. The NRC is considering the issuance of an amendment to Materials License 42-23539-01AF which will approve the DP. Test Area C-74L is located in Walton County, Florida, within the north-central portion of Eglin AFB. The test area currently consists of a 4-acre radiologically controlled area, fire control/ballistics building, gun corridor, target area, well house building, drum storage area, and surrounding land. On April 14, 2005, a draft environmental assessment (EA) was submitted to State of Florida for review. In addition, the FSS and confirmatory survey were completed during May 2005. The EA and FONSI were published in the Federal Register on July 11, 2005. The DP was approved by the NRC on January 20, 2006. The licensee is expected to submit the FSS report to the NRC during 2006.

From 1974 to 1978, the area was used for pre-production testing of a gun system which used depleted uranium ammunition. An estimated 16,315 pounds of depleted uranium were expended at the site.

## 3.0 Major Technical or Regulatory Issues

This site does not require a consultation with EPA because the post-remediation survey results are well below the criteria required for a consultation.

## 4.0 Estimated Date For Closure

12/06

# Engelhard Minerals - Great Lakes

## 1.0 Site Identification

| | |
|---|---|
| Location: | Great Lakes, IL |
| License No.: | SMC-01207, SUC-01332 |
| Docket No.: | 040-08306, 040-08680 |
| License Status: | Terminated |
| Project Manager: | Eugenio Bonano |

## 2.0 Site Status Summary

Engelhard Minerals & Chemicals Corporation (Engelhard), which is no longer in business, was licensed to repackage and ship monazite sand from the Great Lakes Naval Training Center to other AEC/NRC licensees. The area was used by the U.S. General Services Administration (GSA), which transferred control to the Defense Logistics Agency. The Engelhard license to ship the material was terminated in 1975. The former licensee was authorized to possess natural thorium (Monazite Sand). The Navy, which is the site owner, assumed responsibility for the Great Lakes site cleanup. A scoping survey conducted in March 2000, indicated radiological concentrations of Th-232 ranging from 0.93 pCi/g to 64.31 pCi/g with an average concentration of approximately 17.0 pCi/g. The monazite sand encompasses an area of approximately 90,000 square yards in a former tank farm area located within the boundaries of the Great Lakes Naval Training Center. Due to the relatively insoluble nature of the thorium, groundwater impact is not a concern. Characterization, cleanup, and FSSs are being done in three phases. In Phase 1, the site formerly known as Tank farm #5, was characterized. The entire tank farm was surveyed and surface soil samples were collected and analyzed for Thorium-232. The remainder of the Tank farm was fenced to restrict access pending further investigation and remediation. In Phase II, an excavated soil pile area was remediated and the contaminated soil was shipped for disposal. The third phase involves additional remediation and a FSS of the north fence area.

## 3.0 Major Technical or Regulatory Issues

This is an unlicensed facility. The Navy has assumed responsibility for the clean-up of this formerly licensed site. The Navy has been working cooperatively with the NRC and has agreed to employ NRC regulations and guidance documents, such as MARSSIM and NUREG -1757, to clean-up the site. On July 7, 2005, NRC inspectors identified additional thorium-232 contamination outside of the site boundaries east of the affected areas near a stream. The Navy has placed a cordon around this area. On July 12, 2005, NRC met with members of the Navy's Radiological Affairs Support Organization (RASO), and personnel from the Great Lakes Environmental Department to discuss the need to further characterize the site, establish new site boundaries, and develop new work plans (remediation and final status survey) for the site. Establishing a new site-specific Derived Concentration Guideline Level (DCGL) was discussed,

including the submittal of new timelines to the NRC for the completion of the project. Based on the identification of the offsite contamination, the Navy will not be able to release the site for unrestricted use by December 2005, as was earlier planned. The Navy has stopped all decommissioning activities until further notice.

## 4.0 Estimated Date For Closure

TBD

# FMRI (Fansteel), Inc.

## 1.0 Site Identification

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

## 2.0 Site Status Summary

The Muskogee site originally comprised about 52 hectares (110 acres) on the Arkansas River (Mile 395). It is about 4 kilometers (2.5 miles) from the center of the City of Muskogee, between the river on the east, Highway US-62 on the south, and the Muskogee Turnpike on the west. In 1996, 14 hectares (35 acres) know as the Northwest Property was released from the license.

The Muskogee facility, owned and operated by Fansteel Inc., produced tantalum and columbium metals from 1957 until it ceased operations in 1990. The raw materials used for tantalum and columbium production contained uranium and thorium as naturally occurring trace constituents. These radioactive species were present in the process raw materials at an approximate concentration of 0.1 percent uranium oxide and 0.25 percent thorium oxide. This concentration is sufficient to cause the ores and slags to be classified as source materials and issued a license by the AEC in 1967. The radioactive residues from the process were placed in several sludge ponds north of the process building. Other liquid waste went to several ponds in the southern part of the site.

Radioactive contaminants at the site include natural uranium, natural thorium, and decay products. Chemical contamination are also present in the form of metals including tantulum, niobium, chromium, antimony, tin, barium, arsenic; ammonia fluoride and methyl isobutyl ketone. In 1993, the licensee performed a characterization survey to determine existing conditions site wide. Radiological survey activities were conducted over the interior and exterior of the site structures and the open land areas of the site. Buildings and equipment associated with the ore-processing activities include the Chemical "C" Building, the Chemical "A" Building, and the R&D Building. The Chemical "C" Building is contaminated throughout by radioactive ore residues. Isolated areas of radioactive contamination were also identified in some of the other site buildings. Characterization surveys also identified the highest concentrations of radiological contaminants in Pond Nos. 2 and 3. Survey data indicate that the Th-232 and U-238 are present with their radioactive progeny in secular equilibrium. The U-235 decay series is also present, because U-235 constitutes 0.7 percent by weight (approximately 2.3 percent by radioactivity) of naturally occurring uranium.

NRC granted Fansteel a license amendment dated March 25, 1997, to complete the reprocessing of ore residues (WIP), calcium fluoride residues, and wastewater treatment residues containing uranium and thorium, in various site impoundments. Fansteel also planned to place the residue of these operations into an on-site disposal cell in accordance with 10 CFR 20.1403; this cell never received NRC approval.

In November, 2001, Fansteel suspended all operations at the Muskogee site, and in January, 2002, filed for bankruptcy protection under Chapter 11. Subsequently, NRC drew on the financial assurance instruments and that money is now in a standby trust. The license expired in September, 2002. A request for renewal was denied because the licensee stated it had ceased operations and intended to remediate the site for unrestricted use. Conditions of the license related to material control remain in effect in accordance with 10 CFR 40.42(c).

In July, 2003, Fansteel submitted: i) its DP; ii) a request for exemption from financial assurance requirements; and iii) a request for authorization to transfer the site license to a subsidiary to be formed as part of the bankruptcy reorganization plan. In this DP, the licensee revised the cost estimate for decommissioning to approximately $42 million from that in the bankruptcy filing of $57 million. On November 17, 2003, the bankruptcy court approved Fansteel's corporate reorganization plan to divide the company into two parts, with the second part going to the commercial creditors. FMRI Inc. (FMRI), a new subsidiary of Reorganized Fansteel, would become the licensee for the Muskogee site.

On December 4, 2003, NRC approved the DP, the request for exemption to financial assurance requirements, and the license transfer authorization, subject to the bankruptcy reorganization plan becoming effective. The approved DP outlines a phased approach to remedial activities that focuses on the most risk-significant areas and accomplishes those activities first. The approval also authorized FMRI to draw up to $2 million from the standby trust for remediation activities if it has insufficient funds from Fansteel to continue the work. This agreement was subsequently revised to authorize FMRI to draw additional monies from the fund for waste disposal as part of Phase 1 activities. The reorganization plan and NRC's approvals became effective on January 23, 2004.

Phase 1 of the DP states that the WIP in Ponds 2 and 3 will be removed from the site and sent to the White Mesa facility operated by International Uranium Corp. (IUC). Phase 1 was scheduled to commence in September, 2004. FMRI did not commence remediation activities until about June, 2005. In order for IUC to receive the material it must have a license amendment approved by the State of Utah. IUC submitted the application on April 8, 2005. On June 13, 2006, Utah issued the amendment authorizing receipt of FMRI material. In May, 2005 FMRI began a process of air drying and bagging the WIP in Pond 3 in preparation for shipment to IUC.

## 3.0 Major Technical or Regulatory Issues

Fansteel has provided a total of about $4.5 million in financial assurance. To date, FMRI has spent $2 million from the trust fund to assist in paying for the start of remediation activities. The original cost estimate for off-site disposal of all wastes greater than 10pCi/g total was $57 million. The revised cost estimate in the DP is about $30 million for solid waste, based on dose criteria of 10 CFR 20.1402 using an industrial land use scenario with no drinking water pathway. Fansteel estimated approximately $10 million additional for commitments for ground water remediation. Fansteel stated it is not able to provide additional financial assurance because of the bankruptcy proceeding. Instead, it signed unsecured promissory notes for the estimated costs. As of May, 2006, FMRI has made four withdrawals from the Trust, for a total of about $2.2 million, and one deposit from an insurance settlement of about $764 thousand. The remaining value of the fund is about $3 million.

FMRI did not commence remediation by September 1, 2004, as required by license condition, but did commence excavation of Pond 3 in June, 2005. On April 13, 2005, NRC issued a Notice of Violation (NOV) (EA-04-188) for failure to commence remediation as required by Condition 26 of SMB-911. NRC determined not to pursue the apparent violation, but to focus on FMRI meeting its completion date.

FMRI did not provide updates to annual financial projections (Table 15-12 of the DP) as required by its license. On July 26, 2005, NRC issued a NOV for failure to submit information as required by its license. FMRI responded that Fansteel, its parent, did not provide the information (FMRI is not an operating company and has no other revenue source). NRC did not consider FMRI's responses to be adequate and FRMI agreed to submit a request for license amendment to resolve the issue. NRC rejected FMRI's request because it did not meet the intent of the original condition nor NRC's information needs. FMRI requested a meeting with NRC to discuss a course of action to resolve the on-going violation.

In June, 2006 FMRI's excavation contractor stopped work in Pond 3 because of perceived difficulties in excavation near the center of the pond. Also, the time limit on the existing transportation contract expired before authorization to ship to IUC was granted; FMRI is negotiating a new contract. FMRI has supersacks sitting on the ground per a temporary exemption to a license condition specifying storage conditions. Because it cannot ship the material before the exemption expires in September, 2006, FMRI must request further licensing action on this matter.

There is high public interest from the State of Oklahoma, the Cherokee Nation, and the Port of Muskogee.

## 4.0 Estimated Date For Closure

12/12/2023

# Homer Laughlin

## 1.0 Site Identification

| | |
|---|---|
| Location: | Newell, WV |
| License No.: | SUB-00081 |
| Docket No.: | 040-01957 |
| License Status: | Terminated |
| Project Manager: | John Nicholson |

## 2.0 Site Status Summary

The Homer Laughlin China Company (Homer Laughlin) is a 37-Acre facility located on the banks of the Ohio River, in Newell, West Virginia. The town is located in West Virginia's Northern Panhandle, approximately 40 miles Northwest of Pittsburgh, PA. The facility is an active business, manufacturing retail and commercial dinnerware. It encompasses several buildings on 37 acres and employs over 1100 individuals.

Homer Laughlin is a formerly-licensed site. Homer Laughlin was licensed by the AEC for possession of 100,000 pounds of source material used as a glazing agent (up to 20% uranium) in the production of ceramic tableware. The license was terminated in 1972 based upon a letter from Homer Laughlin stating that all remaining licensed materials had been returned to their supplier. A review of the terminated license file determined that no record of licensee closeout survey or NRC confirmatory survey was performed. In 1994, approximately 500 pounds of depleted uranium oxide (U3O8) sand was discovered on the property. A contractor was hired to survey areas where licensed materials were used and stored and provide a radiological characterization of material in the facility. Several areas of fixed and removable contamination exceeding NRC limits for unrestricted use were identified during the characterization survey. NRC issued a Confirmatory Action Letter to HLC requiring a commitment to package and dispose of the bulk source material, limit access to contaminated areas, and submit a DP. After NRC approved the DP in January 1995, Homer Laughlin initiated facility decommissioning. Homer Laughlin did not complete decommissioning in production areas because they were unable to remove fixed contamination from surfaces of equipment and structures which exceeded NRC unrestricted release guidelines using conventional techniques. At various times during the period 1996-2004, Homer Laughlin provided additional information to NRC to refine their computer-based risk analysis, to demonstrate that the facility meets the 25 mrem/yr unrestricted release limit of the LTR. In March, 2005, NRC accepted Homer Laughlin's revised risk assessment, pending the verification of certain assumptions made in the analysis (contaminated surface area, no contamination above background on kiln floor, secular equilibrium of U-238, no other alpha emitters considered). Although the facility likely meets the LTR, the waste material from decontamination activities remains on site, packaged and in storage.

## 3.0 Major Technical or Regulatory Issues

Waste material from site decommissioning activities has been packaged and is being stored in a posted, and infrequently-used area of the plant. Homer Laughlin is currently performing characterization of the material. An initial random sampling characterization was conducted in the first quarter of 2006, and a complete characterization is expected to be completed by the

end of 2006. Cost estimates for waste disposal will be solicited from waste vendors when characterization is completed.

## 4.0 Estimated Date For Closure

TBD

# Jefferson Proving Ground

## 1.0 Site Identification

| | |
|---|---|
| Location: | Rock Island, IN |
| License No.: | SUB-1435 |
| Docket No.: | 040-08838 |
| License Status: | Possession-only |
| Project Manager: | Tom McLaughlin |

## 2.0 Site Status Summary

Contamination on site consists of depleted uranium (DU) in the soil. Additionally, there is a concern for future groundwater contamination. The site has been closed for the testing of all ordnance including DU rounds since 1995. The monitoring of DU in soil, groundwater, surface water, and sediment continues on a semi-annual basis. The U.S. Army submitted a revised DP in June 2002. The Army has submitted a request for an alternate decommissioning schedule in order to collect data needed for decommissioning the site under restricted release. The Army wants to keep its possession-only license for a 5-year period at which time it will submit a revised DP. There are no immediate radiological hazards at the site. Unexploded ordnance (UXO) at the site represents a significant non-radiological hazard. The staff does not have an estimate of the cost of decommissioning.

The site has been closed for the testing of all ordnance including depleted uranium rounds since 1995. The license was amended on May 8, 1996, resulting in the area south of the firing line being released for unrestricted use. The area north of the firing line contains about 70,000 kg of DU along with a large amount of UXO. The Army submitted a revised DP and an Environmental Report on June 27, 2002, which were accepted for technical review on October 1, 2002. During a limited technical review, the NRC staff concluded that site-specific data were needed in order to validate any off-site transport model. On February 4, 2003, the U.S. Army submitted a letter to NRC requesting an alternate schedule under 10 CFR 40.42(g)(2) that would create a 5-year renewable possession-only license for an indefinite time period. Subsequently, the Army has withdrawn its request for a 5-year renewable possession-only license for an indefinite time period and is collecting data leading towards decommissioning.

## 3.0 Major Technical or Regulatory Issues

The presence of UXO, the associated risk, and cost for cleanup of this material, as well as potential contamination of groundwater, are complicating remediation. The Army has signed a memorandum of agreement with the Department of the Interior and the Department of Defense (Air Force) for long-term institutional control of the site. In January 2000, Safe 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. The hearing has been extended to include the proposed amendment. No financial assurance issues have been identified at this time.

## 4.0 Estimated Date For Closure

09/30/2010

# Kaiser Aluminum

## 1.0 Site Identification

| | |
|---|---|
| Location: | Tulsa, OK |
| License No.: | STB-472 |
| Docket No.: | 40-02377 |
| License Status: | Terminated |
| Project Manager: | John Buckley |

## 2.0 Site Status Summary

The Kaiser Aluminum and Chemical Corporation (Kaiser) facility is located at 7311 East 41st Street in Tulsa, OK. The known affected area covers approximately 9 acres.

On March 7, 1958, NRC issued Source Material License No. C-4012 to Standard Magnesium Corporation (Standard Magnesium), a Division of Kaiser Chemical Company, for possession of magnesium-thorium alloy. Standard Magnesium purchased magnesium-thorium scrap metal for reclaiming purposes. The end product from Standard Magnesium's manufacturing process was magnesium anodes used for cathodic protection on items such as tanks and pipelines. NRC License No. STB-472 superceded License No. C-4012 on November 22, 1961. On June 5, 1968, License No. STB-472 was amended to include the possession of uranium. There is no evidence to indicate that uranium was ever received or processed on site. On March 16, 1971, License STB-472 was terminated. On November 17, 1993, NRC surveyed the Kaiser facility to assess the potential for residual contamination at the site. Contamination was found on the surface, indicating that waste magnesium-thorium slag was disposed of in the past. Off-site residual thorium contamination was first identified in June 1994. The off-site thorium contamination is due to slag dumping in areas to the east and south of the current Kaiser boundary, on property which belonged to Standard Magnesium during licensed operations. The NRC added Kaiser to the SDMP on August 19, 1994. Kaiser began decommissioning the site after approval of its DP in June 2003, and completed decommissioning in September 2006. It is estimated that NRC will approve Kaiser's remediation activities at the Tulsa site in October 2006.

## 3.0 Major Technical or Regulatory Issues

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 no be addressed during remediation of the facility.

## 4.0 Estimated Date For Closure

10/30/2006

# Kerr-McGee - Cimarron

## 1.0 Site Identification

| | |
|---|---|
| Location: | Oklahoma City, OK |
| License No.: | SNM-928 |
| Docket No.: | 70-0925 |
| License Status: | Active |
| Project Manager: | Ken Kalman |

## 2.0 Site Status Summary

The 840 acre Cimarron site in Crescent, Oklahoma is situated along the southern bank of the Cimarron River approximately 30 miles north of Oklahoma City. Most of the site has been decommissioned and released for unrestricted use. Uranium contamination in excess of release criteria is in the groundwater at Burial Area 1 and around Well 1319. Technetium (Tc)-99 exceeding release criteria is in the groundwater in the vicinity of Waste Pond 1 and 2. Concentrations of Tc-99 within applicable release criteria have also been found in Burial Area 1. The site is also licensed for onsite disposal of up to 500,000 cubic feet of Option 2 [of the 1981 Branch Technical Position (BTP)] contaminated soil in Subarea N. NRC staff reviewed Cimarron's Subarea N Report (submitted in January 2002) and performed its independent confirmatory survey in June 2002. Due to a recent occurrence of groundwater exceeding the 180 pCi/l release limit in a nearby portion of Subarea K, NRC is delaying release of Subarea N until the groundwater issue is resolved. There are no immediate radiological hazards at the site. The licensee estimates the cost of decommissioning to be approximately $3.6 million. No financial assurance issues have been identified at this time.

The Kerr-McGee Corporation (KMC) operated two plants at the Cimarron facility between 1965 and 1975, each under its own separate AEC license. License SNM-928 was issued under 10 CFR Part 70 for the uranium fuel fabrication facility, and License SNM-1174 was issued for the mixed oxide fuel fabrication (MOFF) facility. Subsequently, in 1988, Cimarron Corporation (Cimarron), a wholly-owned subsidiary of KMC, became responsible for the Cimarron facility. NRC terminated SNM-1174 by letter dated February 5, 1993. Although License SNM-1174 was terminated, the MOFF plant building exterior surfaces and grounds were retained under License SNM-928. Cimarron began decommissioning in 1977 and has completed most of the decommissioning activities needed for NRC to release the Cimarron site for unrestricted use and to terminate License SNM-928. The primary remaining activity to be completed is groundwater remediation. Cimarron is considering several alternatives for groundwater remediation including natural attenuation, excavation, and the use of institutional controls. The final choice will be dependent on coordination among Cimarron, Oklahoma Department of Environmental Quality, and NRC. Cimarron anticipates submitting its proposal to NRC in October 2006. In 2006, Kerr McGee Chemicals Worldwide LLC was changed to Tronox Worldwide LLC, a wholly owned subsidiary of Tronox Inc. Cimarron Corporation is still the licensee for the site.

## 3.0 Major Technical or Regulatory Issues

One significant regulatory issue that was resolved was whether NRC will allow Cimarron to remediate the groundwater under SDMP criteria or if Cimarron's choice of remediation

technique will require the use of criteria from the LTR. NRC determined that Cimarron's preferred technologies of "pump and treat" or excavation could be implemented using the SDMP criteria. Depending on the groundwater remediation technique that Cimarron proposes, ODEQ may raise concerns regarding the disposal of soils or effluent discharges.

## 4.0 Estimated Date For Closure

05/01/2010

# Mallinckrodt Chemical Inc.

## 1.0 Site Identification

| | |
|---|---|
| Location: | St, Louis, MO |
| License No.: | STB-401 |
| Docket No.: | 40-6563 |
| License Status: | Possession-Only |
| Project Manager: | Amir Kouhestani |

## 2.0 Site Status Summary

Contaminants at the Mallinckrodt Chemical, Inc., (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. Although total uranium was detected in the filtered samples at elevated concentration, it was concluded that these detections do not present a groundwater ingestion hazard since the perched groundwater in the upper zone is not a drinking water source. Decommissioning at the Mallinckrodt site will take place in two phases. Phase 1 addresses the decommissioning of the buildings and equipment to the extent that whatever remains on site will be released for unrestricted use. Phase 1 was completed in December 2004. Phase II will complete the decommissioning of the building slabs and foundations, paved surfaces, and all subsurface license related materials to the extent that they can be released for unrestricted use. Mallinckrodt submitted the Phase 1 DP on November 20, 1997. NRC approved the Phase 1 DP on May 3, 2002. Remediation at the site began in July 2002. Mallinckrodt submitted its Phase II DP on May 15, 2003. The staff is now reviewing the DP. Mallinckrodt is requesting to remediate the site to meet the unrestricted release criteria of 10 CFR Part 20, Subpart E. The estimated cost of decommissioning as presented in the Phase II DP is approximately $21 million.

Mallinckrodt has been operating at the St. Louis Plant since 1867 producing various products including metallic oxides and salts, ammonia, and organic chemicals. From 1942 to 1957, Mallinckrodt was under contract with the Manhattan Engineering Project and the Atomic Energy Commission (MED-AEC) to process uranium ore to produce uranium for development of atomic weapons. The St. Louis Plant, comprised of over 50 buildings on approximately 43 acres, is subdivided into smaller areas, called plants, based on the similarity of operations being performed. In 1961, Mallinckrodt was issued License STB-401 to extract columbium and tantalum (C-T) from natural ores and tin slags. From 1961 to 1974, Mallinckrodt purchased feed materials for C-T processing. Processing occurred from 1975 to 1985. The ores and processing byproduct materials contained uranium and thorium isotopes. C-T processing was shutdown from 1985 through early 1987, when Mallinckrodt began a two month pilot production run. During the pilot production run approximately 20,000 pounds of tin slag were processed. In July 1993, NRC amended Mallinckrodt's license to a possession only license for decommissioning and license termination. Approximately 6 Ci of natural uranium and 19 Ci of natural thorium isotopes were contained in the ores and tin slags processed under License STB-401.

Radiological contamination at the site resulted from MED-AEC and C-T processing activities. MED-AEC contamination is being removed by the USACE under FUSRAP. USACE developed a preferred cleanup method for the MED-AEC contamination, based on the data and findings presented in five documents: (1) Remedial Investigation Report; (2) Baseline Risk Assessment;

(3) Initial Screening of Alternatives; and (4) Feasibility Study & Proposed Plan, and (5) Record of Decision. There are no financial assurance issues identified at this time. Public interest in the site is high, however, concern over decommissioning activities is low. The staff has not identified any major off-site environmental issues that will not be addressed during remediation of the facility.

## 3.0 Major Technical or Regulatory Issues

Remediation of MED-AEC radiological constituents is currently being performed under the FUSRAP by USACE. USACE and Mallinckrodt have yet to agree on who has remediation responsibility for several areas within the facility. Applicable license site boundaries with respect to NRC licensed material and FUSRAP material has been examined. Staff, in reviewing Phase II DP, is also assessing any impact that extent of site boundaries determination may have on facility's dose modeling. The State of Missouri is concerned about chemical contamination on site. The State, under its EPA delegated authority, has issued Mallinckrodt a RCRA permit for their eventual site chemical cleanup. Boundary issues, subsurface contamination responsibilities, and post remediation groundwater monitoring issues have been identified by these parties. Staff is in the process of evaluating and bringing to closure licensee's responses to staff RAIs for the Phase II DP.

## 4.0 Estimated Date For Closure

07/01/2008

# Molycorp

## 1.0 Site Identification

| | |
|---|---|
| Location: | Washington, PA |
| License No.: | SMB-1393 |
| Docket No.: | 040-08778 |
| License Status: | Possession-only |
| 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 produced a ferroniobium 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 m3 (60,000 - 150,000 yd3). 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 environmental report (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 a revised DP in two parts: Part I of the DP would address cleanup of the contaminated portion of the site and comply with the SDMP criteria; and Part II would address disposal of material from the York and Washington sites 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 January 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. Molycorp now has torn down all of its buildings and has sent non-radioactive contaminated materials off-site and radioactive materials to Waste Control Specialists (WCS). All buildings and foundations have been removed from the site. The licensee has conducted a new site characterization to determine the amount and extent of contamination and a path forward for decommissioning the surface and subsurface soils. The license estimates the cost of decommissioning to be approximately $30.3 million.

Public concern in the Canton Township, City of Washington area, is low. Congressional interest also mirrors that found in the local community. The NRC has conducted two local public meetings to keep interested parties informed, the second of which was attended by over 300 people. On March 20, 2001, DWM staff participated in an “open house” style public meeting in Washington, PA, hosted by the Agency for Toxic Substances & Disease Registry (ATSDR). Other agencies participating included PADEP and the Pennsylvania Department of

Health. The Commonwealth of Pennsylvania may become the regulatory authority for this site before the completion of the decommissioning.

## 3.0 Major Technical or Regulatory Issues

Public concern in the Canton Township, City of Washington area, is low. Congressional interest also mirrors that found in the local communities.

## 4.0 Estimated Date For Closure

06/01/08

# NWI Breckenridge

## 1.0 Site Identification

| | |
|---|---|
| Location: | Breckenridge, MI |
| License No.: | SMB-0833 |
| Docket No.: | 040-06264 |
| License Status: | Terminated |
| Project Manager: | Peter J. Lee |

## 2.0 Site Status Summary

Between 1967 and 1970, Michigan Chemical Corporation (MCC) managed the site and used it for the disposal of process wastes from a yttrium recovery operation. These disposal activities were authorized under AEC License SMB-0833, and were performed in accordance with 10 CFR 20.304. The buried waste material is a solid waste byproduct, known as filtercake, which originated from a rare-earth metal (yttrium) extraction process. Disposal records reported that the filtercake was typically a dense, clay-like material that contained elevated levels of naturally occurring uranium and thorium. After site operations ceased, AEC License SMB- 0833 was terminated. In addition to the buried wastes, thorium and uranium contaminated surface and subsurface soil has been identified at several locations in open land areas on the site. Several radiological evaluations have been performed in recent years. The most recent of these evaluations took place in November 2001, and led to completion of a characterization report which was submitted to the NRC in March, 2002. The average concentrations were determined to be about 240 picocuries per gram (pCi/g) of thorium-232 and 150 pCi/g of uranium-238.

The site is currently being remediated in accordance with a bankruptcy agreement, by the contractor Environ International Corporation (ENVIRON). SCIENTECH has worked on the remedial project since 1997, and has been retained as ENVIRON's subcontractor. ENVIRON submitted a RP in March 2004. NRC approved the RP in August 2004.

## 3.0 Major Technical or Regulatory Issues

Based on the remedial work plan prepared by SCIENTECH, there are seven confirmed waste areas (CWA) and two potential waste areas on the site. In October 2004, the SCIENTECH completed excavation of waste at CWA-2 and CWA-7. During the excavation of CWA-2 and CWA-7, the cover soils were found contaminated and additional veins of the waste were discovered. As a result of the unexpected increase in the waste volume, the Custodial Trust has insufficient funds to complete the remediation at this time. ENVIRON shut down the operation and transported all the excavated waste material for offsite disposal on November 19, 2004. ENVIRON has basically spent $0.75 million previously approved by the Bankruptcy Settlement Agreement.

To request additional funds to complete remediation of the site, ENVIRON is required to determine the volume of the waste remaining. ENVIRON agreed to prepare a work plan that will detail the procedures to be followed for the further characterizing the site and reevaluation of the derived concentration guideline levels for the site.

ENVIRON submitted the revised dose assessment on April 25, 2006 and supplemental site characterization plan on September 19, 2006, to quantify the accurate waste volume. The plan is currently under review by the staff.

## 4.0 Estimated Date For Closure

TBD

# Pathfinder

## 1.0 Site Identification

| | |
|---|---|
| Location: | Sioux Falls, SD |
| License No.: | 22-08799-02 |
| Docket No.: | 030-05004 |
| License Status: | Possession-only |
| Project Manager: | Chad Glenn |

## 2.0 Site Status Summary

The Pathfinder Atomic plant was designed to generate 66 MW of electric energy and operated from August, 1966 to September, 1967. The nuclear fuel was shipped off-site in 1970 and the plant was placed in SAFSTOR in 1971. In September 1972, Pathfinder's 10 CFR Part 50 operating license was terminated and the current 10 CFR Part 30 byproduct license was issued. The reactor and fuel storage facilities were decommissioned in 1991 under Reg. Guide 1.86. In November 1992, NRC amended the license to authorize the unrestricted release of the reactor building, fuel storage building, and waste storage building; to demolish the reactor building; and to authorize the possession of fixed activation products at the Pathfinder site. During its brief operating period, a relatively small amount of radioactive contamination was found in the steam turbine and auxiliaries. These systems are collectively referred to as the Balance of Plant (BOP) systems to distinguish it from primary power plant systems such as the reactor and its auxiliaries. The BOP was later decontaminated and disconnected from the reactor plant steam source. The BOP did not receive any additional radioactivity from any source after this period. The residual radioactivity contained within the BOP is a byproduct of materials activated during operation. The BOP was then integrated into a fossil-fueled peaking plant with gas/oil package boilers supplying steam to operate the existing turbine. The Pathfinder plant that utilized the original nuclear plant's BOP continued to operate on peaking duty until July 13, 2000, when the cooling tower collapsed in a storm. For economic reasons, the decision was made to cease operations of the peaking plant. In February 2003, Xcel Energy notified NRC that it had permanently ceased operating activities at the Pathfinder generating plant. In February 2004, Xcel Energy submitted a DP and license amendment request to authorize decommissioning activities at Pathfinder. On May 27, 2005, NRC approved the DP. The removal of the radioactive byproduct material within the steam, feed-water, and condensate portions of the BOP is the subject of the Pathfinder decommissioning. According to the licensee, the contamination consists of Co-60 (40 millicuries) and Zn-65 (1 millicurie). This material is in the form of fixed activation products in the BOP. Xcel Energy will remediate the contaminated areas to permit unrestricted use of the Pathfinder site.

## 3.0 Major Technical or Regulatory Issues

None.

## 4.0 Estimated Date For Closure

05/27/2007

# Quehanna (Formerly Permagrain Products, Inc.)

## 1.0 Site Identification

| | |
|---|---|
| Location: | Harrisburg, PA |
| License No.: | 37-17860-02 |
| Docket No.: | 030-29288 |
| License Status: | Possession-only |
| Project Manager: | James Kottan |

## 2.0 Site Status Summary

The Commonwealth of Pennsylvania owns the site and had leased it to Permagrain Products, Inc. (PPI) for the operation of a Co-60 irradiator. After PPI declared bankruptcy in 2002, the license was transferred to the Commonwealth of Pennsylvania. Sr-90 is the main contaminant of concern at the facility, and was used in the manufacture of thermoelectric generators. Sr-90 contamination is found in buildings as well as in surface and subsurface soil. Contaminated groundwater is not present at the site. The decommissioning, which started in July 1998 is being performed by Energy Solutions (formerly Scientech). Areas which do not meet NRC criteria for unrestricted use were identified as the six hot cells, their respective isolation rooms, two ventilation systems, an overhead crane system, a number of ancillary rooms, and the wastewater treatment building. Decontamination and demolition of the cell structures was completed in 2004. Decontamination of the service area floor is complete. FSS was initiated and was completed in December 2004. The licensee's FSS Report along with a request to terminate the license was submitted in February 2005. An NRC confirmatory survey of the facility was conducted in May 2005. The confirmatory survey identified numerous areas of contamination in excess of the NRC approved limits for unrestricted release. Based on these survey results, the licensee performed additional surveys and concluded that some type of migration of radioactive material is taking place in the concrete at the facility. On March 13, 2006 NRC received a revised DP from PADEP proposing to complete site closure under 10CFR20, Subpart E. The total cost of decommissioning to date has been approximately $25 million. The licensee expects that an additional $2 to 3 million will be needed to complete decommissioning.

## 3.0 Major Technical or Regulatory Issues

None.

## 4.0 Estimated Date For Closure

05/01/2007

# Royersford Wastewater Treatment Facility

## 1.0 Site Identification

| | |
|---|---|
| Location: | Royersford, PA |
| License No.: | Non-Licensee |
| Docket No.: | NA |
| License Status: | Unlicensed |
| Project Manager: | Betsy Ullrich |

## 2.0 Site Status Summary

The Royersford Wastewater Treatment Facility (RWTF) receives waste water that contains radionuclides from wastewater generated by a nuclear laundry, UniTech Services Group (UniTech), formerly known as Interstate Nuclear Services (INS). These discharges began in the late 1980's. Elevated levels of radioactivity and radiation have been detected at the RWTF since 1986, in the secondary digestor sludge and the resulting solid products from the dewatering of the secondary digestor sludge. The main contaminants are Co-60 and Cs-137. Unitech has been in compliance with NRC regulations for disposal to the sanitary sewerage system with typical concentrations of radionuclides in the UniTech wastewater of less than 10% of the regulatory limits for disposal to the sanitary sewer. The total amount of radionuclides released each year, other than tritium and carbon-14, ranges from 66 mCi to 492 mCi. In 2003, UniTech completed installing a pipe from their facility to the Schuylkill River, and obtained a National Pollutants Discharge Elimination System permit for discharge. RWTF has finished cleaning out the lines from UniTech, and cleaned the settling tanks, primary digestor, secondary digestor, etc. The only remaining radioactivity is in the reedbeds. RWTF is looking into options for the disposal of the reedbed sludge. To date, no estimate for the cost of decommissioning has been developed.

## 3.0 Major Technical or Regulatory Issues

The RWTF secondary digester sludge is a liquid containing 3%-6% solids. Samples of secondary digestor sludge have Co-60 concentrations typically in the range of 9,000-60,000 picocuries per liter (pCi/l), although individual samples have contained as much as 115,000 pCi/l. Cs-137 concentrations are in the range of 1,500-5,000 pCi/l. The disposition of the secondary digestor sludge by mechanical dewatering is performed once or twice each year. The resulting filtercake contains about 20% solids and has been disposed of at a municipal waste landfill. Filtercake samples contain in the range of 22-950 pCi/g for Co-60 and 8-112 pCi/g for Cs-137. Radiation levels measured typically are 80-100 microR/hr near contact with the filtercake. In 1990, the RWTF began using an onsite reedbed for biological dewatering of secondary digestor sludge. Resulting reedbed sludge is located on site in a 6-foot-high walled reedbed, with the height of the sludge rising as additional material is added. Reedbed sludge is a marsh-like material, containing up to 40% solids. Reedbed sludge samples contained from 77-950 pCi/g of Co-60 and 20-90 pCi/g of Cs-137. Radiation levels near the surface of the onsite reedbed have increased over time to the range of 800-1000 microR/hr. The reedbed reached its capacity in 2003, and the dried sludge needs to be removed and disposed. Two main issues are anticipated for closure of the reedbeds: (a) potential radiation doses to workers involved in removal of the reedbed sludge; and (b) disposal of the reedbed sludge. Potential dose can be estimated using the licensee's pathway analysis assumption that removal

of the sludge would require 10 working days and the average dose rate in the reedbeds. During the year 2000, the average dose rate was 0.345 millirem /hr in the reedbeds; therefore, a person working in the reedbeds for 80 hours could receive 28 millirem, from external sources, during sludge removal. (The inhalation pathway is a factor of approximately 10,000 smaller, based on the INS pathway analysis.) Disposal of the reedbed sludge may be more complicated than past disposals of filtercake from mechanical dewatering of sludge to the municipal landfill. In 2000, the Commonwealth of Pennsylvania passed legislation that requires all landfills to have radiation monitors to survey incoming material, to ensure that no radioactive materials are disposed of in the State. The radiation levels from the reedbed sludge will likely be detected by such monitors. The radiation levels from filtercake may also be detected by radiation monitors, but no such disposals have been made since the legislation was passed. Disposal of dried sludge may not meet the requirements of low level waste sites, if the sludge contains substances that are considered hazardous materials (this is likely). It is not known at this time if the Commonwealth of Pennsylvania will continue to allow sludge from the RWTF to be transferred to a municipal landfill. NRC conducted field sampling at the site on January 10, 2006. Sample results were shared with the facility and with PADEP. NRC is considering a request by PADEP to complete a dose assessment for the reed-bed material. Public interest in the RWTF contaminated sludge is sporadic and is usually associated with issues at the landfill receiving the sludge.

## 4.0 Estimated Date For Closure

TBD

# Safety Light Corporation

## 1.0 Site Identification

| | |
|---|---|
| Location: | Bloomsburg, PA |
| License No.: | 37-00030-02; 37-00030-08 |
| Docket No.: | 030-05980; 030-05982 |
| License Status: | Active |
| Project Manager: | Robert Prince |

## 2.0 Site Status Summary

Safety Light Corporation (SLC) is an active site licensed to manufacture tritium exit signs, and for to perform site characterization and decommissioning activities. Contamination at the site is from the manufacturing operations of self-luminous watch and instrument dials and other items involving Ra-226, Cs-137, Sr-90, and Am-241. Radioactive waste was disposed on-site in three primary locations: silos, lagoons, and a waste dump. Primary soil contaminates include 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. In October and December 2000, SLC submitted a DP to NRC which called for a “task by task” approach to decommissioning because of limited funding availability. The DP presents decommissioning activities which will make the site suitable for unrestricted release. This approach was approved by NRC in December 2001, and on August 15, 2002, NRC amended the SLC license to approve the work plan for processing and sorting waste that was removed from two underground silos in the fall of 1999. NRC staff continues to coordinate activities with EPA and PADEP regarding remediation of the SLC site. An EPA Administrative Order of Consent with SLC for the sorting, characterization, and re-packaging of the drums of mixed waste and radioactive waste that were removed from the onsite silos, became effective on February 3, 2003. Under the EPA Emergency Removal Action, three shipments of radioactive material to an offsite disposal facility were completed by November 15, 2004. Disposal costs are expected to exceed the licensee's decommissioning funds, so EPA is expected to propose a unilateral Order and use EPA emergency removal funds to complete disposal of the underground silo waste. On September 23, 2004, EPA proposed adding SLC to the National Priority List (NPL). SLC was added to the NPL in an April 27, 2005 rulemaking (70 FR 21644). Remedial investigation studies for groundwater, buildings and soil were initiated in October 2004, January 2006 and May 2006, respectively. EPA has initiated preliminary work activities at the SLC site. These activities include preparations to dismantle various buildings and efforts to ship offsite the remaining radioactive waste containers that consist of previously packaged silo waste. The licensee estimates the cost of decommissioning to be approximately $29 million. An NRC analysis of the licensee’s Decommissioning Cost Estimate concluded that the decommissioning cost for unrestricted release of the site by the licensee was estimated to be between $94 and $120 million and to be $50 million to $78 million for restricted release.

## 3.0 Major Technical or Regulatory Issues

Lack of financial assurance remains the key issue; effective remediation work cannot be performed because of limited funding. The licensee submitted a request for license renewal, which was received on April 29, 2004. On December 10, 2004, the application to renew SLC licenses 37-00030-02 and 37-00030-08 was denied by the NRC. In addition, an Order was issued instructing SLC to initiate procedures to terminate their licenses pursuant to 10 CFR

30.36. On January 13, 2005, the Atomic Safety Licensing Board (ASLB) heard a motion by SLC to set aside the immediate effectiveness of the Order suspending the license. A settlement agreement with NRC, SLC and Pennsylvania PADEP was approved by the ASLB on June 29, 2005. The ASLB decision became a final Agency decision on August 8, 2005. The renewed license requires SLC to develop a plan for the orderly shutdown of licensed activities and make prescribed monthly payments into the decommissioning trust fund during the license renewal period. The renewed license will expire on December 31, 2007.

## 4.0 Estimated Date For Closure

12/31/2007

# Salmon River

## 1.0 Site Identification

| | |
|---|---|
| Location: | North Fork, ID |
| License No.: | R-0230 and P-4001 |
| Docket No.: | 040-03400 |
| License Status: | Terminated |
| Project Manager: | Rafael Rodriguez |

## 2.0 Site Status Summary

The former Salmon River Uranium Development (SRUD) mill site consists of a 21.5-acre privately-owned land surrounded by United States Department of Agriculture Forest Service lands. Located along the Salmon River, 5 miles west of North Fork, ID, the site includes an abandoned mine, a large structure previously used for milling and chemical operations, and a tailings pond. The site was licensed from 1958 through 1959 by the AEC. Although both uranium and thorium ore were mechanically and chemically processed at the site, it is suspected that operations with source material at SRUD were very minor and only experimental in nature. There is also hazardous contamination in the mill (primarily, sulfuric acid) resulting from the operations at the facility between 1978-1979. Contamination is found inside the buildings, the tailings pond, and is believed to extend to an area of 2 acres around the mill. The site was identified as part of the terminated license review project conducted by the Oak Ridge National Laboratory (ORNL) during the 1990s. On May 2001, NRC visited the former SRUD site and identified thorium contamination in the form of partially processed ore. Laboratory results confirmed that the material onsite was "source material" (i.e., >0.05 wt% Th). On July 2001, the property owners were notified regarding the results of the site inspection. During 2004 and 2005, staff worked with the site owners, Idaho Department of Environmental Quality (IDEQ), and EPA to establish a path forward to address remediation of the site. On December 2005, NRC requested EPA's assistance in the remediation of the property, in part because of the existing hazardous contamination at the site. NRC and EPA conducted a site visit in June 2006, to assess the existing radiological and non-radiological contamination at the site. Currently, EPA is analyzing the samples and data collected during the site visit. A report documenting the results and stating whether the site warrants action by EPA is expected in 2006.

## 3.0 Major Technical or Regulatory Issues

Financial assurance and the existence of source material and hazardous waste on the property are the key issues. The existence of hazardous waste has triggered coordination with EPA. In August 2005, the site owner indicated that he is considering living on the property at some future time, and that he does not have the resources to decommission the site. Based on these facts staff options are very limited, in part due to the remote location of the property. NRC staff will continue working with EPA and IDEQ to address remediation activities.

## 4.0 Estimated Date For Closure

05/12/2012

# S.C. Holdings

## 1.0 Site Identification

| | |
|---|---|
| Location: | Kawkawlin, MI |
| License No.: | SUC-1565 |
| Docket No.: | 40-09022 |
| License Status: | Active |
| Project Manager: | David Nelson |

## 2.0 Site Status Summary

The S.C. Holdings, Inc. (S.C. Holdings) site in Bay County, Michigan, is part of the former Hartley & Hartley Landfill. The site covers about 235 acres and part of the site is contaminated with thorium. The contamination 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 and in two small piles covered with clay. In July 1984, NRC and the State of Michigan concluded that the thorium contamination exceeded the Option 1 level of the 1981 BTP. S.C. Holdings is licensed to possess 40 metric tons of thorium and 5 metric tons of uranium. 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 of Michigan superfund law. 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. A DP dated November 2003 was submitted, and on March 13, 2006 the license was amended to incorporate the DP. The licensee is requesting unrestricted release of the site. There are no immediate radiological hazards at the site. The staff has not identified any major off-site environmental issued that will not be addressed during decommissioning of the facility. The estimated cost of decommissioning the site is $1.9 million.

## 3.0 Major Technical or Regulatory Issues

The licensee under took cap repair measures at the site to isolate and prevent the migration of the non-radiological hazardous wastes. 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. Remediation of the site will require coordination with the Michigan Department of Environmental Quality (MDEQ), which regulates hazardous chemicals. 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. The licensee has selected unrestricted release. 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.

No financial assurance issues have been identified to date.

## 4.0 Estimated Date For Closure

11/01/2006

# Shieldalloy Metallurgical Corporation

## 1.0 Site Identification

| | |
|---|---|
| Location: | Newfield, NJ |
| License No.: | SMB-1507 |
| Docket No.: | 04007102 |
| License Status: | Possession-only |
| Project Manager: | Ken Kalman |

## 2.0 Site Status Summary

The Shieldalloy Metallurgical Corporation (SMC) site is located in Newfield, New Jersey. Contamination is in the form of facility-generated slag and baghouse dust. The major contaminants are natural uranium and natural thorium. The site is also on the NPL under CERCLA, because of past operations involving chromium-contaminated onsite groundwater. In August 2001, SMC notified NRC that it had ceased production activities using source material. On August 27, 2001, the licensee provided notification and intent to decommission. The license is in timely renewal, and was amended on November 4, 2002, to authorize only decommissioning activities that were previously permitted. The licensee submitted a revised license renewal application on May 1, 2003. The licensee estimates the cost of decommissioning to be approximately 1.8 million dollars.

The SMC 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 was licensed by the NRC to ship, receive, possess, use and store source material under SMB-743. During the manufacturing process, the facility generated slag, and baghouse dust. Currently, there is approximately 18,000 m3 (635,580 ft3) of slag and approximately 15,000 m3 (529,650 ft3) of baghouse dust contaminated with natural uranium, thorium, and daughters stored on-site. Should SMC find 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, the volume of waste would be greatly reduced, and the licensee would most likely request license termination for unrestricted use. SMC submitted a DP on August 30, 2002, which was rejected by NRC staff, because of deficiencies. SMC submitted a revised DP in October 2005, which the NRC rejected in January 2006. The staff met with SMC in March 2006 to discuss the deficiencies in the DP and develop a path forward for submittal of an acceptable DP. The NRC staff and New Jersey Department of Environmental Protection (NJDEP) staff visited the site in April 2006 to discuss erosion control design. Pursuant to comments received at these interactions, SMC submitted a supplement to its DP in June 2006. The NRC staff completed its acceptance review of the supplement in September 2006 and determined that there is sufficient information to proceed with its technical review.

## 3.0 Major Technical or Regulatory Issues

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 to dispose of these materials on-site in an engineered cell. Although the LTC approach is in the early stages of planning, the State of New Jersey has expressed concerns with the use of NRC's LTC license for the SMC site. Their concerns are: 1) the proposed approach would create an unlicensed low-level radioactive waste disposal facility; 2) that there has not been a meaningful opportunity for community discussion; and 3) the radioactive material should be disposed of and not left for future generations. SMC has less than adequate financial assurance for decommissioning.

## 4.0 Estimated Date For Closure

09/01/2010

# Stepan Chemical Company

## 1.0 Site Identification

| | |
|---|---|
| Location: | Maywood, NJ |
| License No.: | STC-1333 |
| Docket No.: | 40-8610 |
| License Status: | Possession-Only |
| Project Manager: | Amir Kouhestani |

## 2.0 Site Status Summary

The Stepan Chemical Company (Stepan) site is located in the Borrough of Maywood, NJ. Principal radioactive contaminants at the site are process wastes from the thorium extracted from the monazite sands using a chemical separation process. The residual alkaline thorium phosphate tailings are stored in three licensed underground storage areas. The license is in timely renewal. The cleanup of the licensed burials is part of a ROD prepared by USACE for soils and buildings at the FUSRAP Maywood superfund site (August 2003). Site cleanup will be guided by the USACE-NRC MOU (July 2001). In November 2004, Stepan and the United States reached a settlement on their respective obligations to remediate the site. In December 2004, Stepan informed the NRC of their views on how the site remediation will be addressed. In September 2005, the NRC and NJDEP conducted a coordinated safety inspection of the site. The MOU and the ROD commit USACE to clean up the licensed burials to meet at least the NRC standards required under 10 CFR 20.1402; Radiological criteria for unrestricted use, or a more stringent criteria.

Since Stepan's acquisition of the Maywood Chemical Works (MCW) in 1959, Stepan has been manufacturing specialty chemicals and other products at the Maywood facility. In late 1960s, Stepan conducted some site cleanup on the originial MCW plant site property on both east and west sides of the State Route 17. In accordance with the NRC regulations at the time (NRC subsequently rescinded the regulation), the waste materials were relocated to three burial areas on property currently owned by Stepan.

## 3.0 Major Technical or Regulatory Issues

The decommissioning schedule is in major part contingent upon implementation of the November 2004 settlement between the United States and the Stepan Company, the FUSRAP Appropriations, and USACE's greater FUSRAP Maywood Superfund project schedule and funding priorities. The November 2004 settlement between Stepan and the United States provides for the decommissioning financial obligations of the parties. The staff has not identified any major offsite environmental issues that will not be addressed during decommissioning of the facility. On September 29, 2005, NRC conducted a site safety inspection accompanied by the NRC project manager and an NJDEP representative. Since April 2005, USACE has initiated CERCLA site remediation in a non-licensed area of the site. On October 20, 2005, Stepan wrote to NRC and advised of their and USACE's site remediation scheduled activities. Staff is working with the licensee and USACE in order to initiate the license abeyance process consistent with the NRC-USACE MOU. Staff evaluated a December 2005, USACE request for an NRC 10 CFR 20.2002 authorization to release very low activities residuals offsite at a RCRA Subtitle C waste disposal facility in Grandview, Idaho. In April 2006,

NRC determined that USACE is not eligible for a 20.2002 authorization since USACE is not an NRC licensee or an applicant. However, the NRC noted that Stepan may request such an authorization since the license is not yet in abeyance. The NRC, licensee, and USACE further examined this option and concluded NRC does not have the statutory authority to grant such a request by the licensee. During an August 2006, management meeting between NRC and USACE, other alternatives were discussed. USACE continues to ship waste from the Maywood site and has implemented alternative approaches to its 20.2002 request to NRC.

## 4.0 Estimated Date For Closure

09/01/2009

# Superbolt (Formerly Superior Steel)

## 1.0 Site Identification

| | |
|---|---|
| Location: | Carnegie, PA |
| License No.: | Non licensed facility |
| Docket No.: | Non licensed facility |
| License Status: | Unlicensed |
| Project Manager: | Robert Prince |

## 2.0 Site Status Summary

Superbolt is the current owner of the facility. The site was owned and operated by the Superior Steel Company, during the period from 1952 to 1957. During this period Superior Steel performed contract work for the AEC. Superior Steel's license expired in 1958. The site consists of five interconnected warehouse buildings (designated as Building 23) with uranium contaminated building surfaces. Uranium contamination is also present in a sub-floor trench located within two of the warehouse buildings and extending approximately 50 feet outside the building structure. Historical surveys indicated the presence of ground water intrusion in portions of a sub-floor trench. However, no indication of ground water contamination beyond the trench boundary has been detected. Uranium contamination was also detected outside and adjacent to the building. Currently no DP exists for the site. The site owner does not have a cost estimate for decommissioning.

## 3.0 Major Technical or Regulatory Issues

Funding of remediation work is the primary concern. Superbolt is a small company with limited financial resources. Net cash flow has been limited over the last several years. Late summer 2004, the industrial complex where the Superbolt facilities are located sustained extensive flood damage. This situation has aggravated Superbolt's financial situation and has resulted in uninsured recovery expenses in excess of one million dollars. Recovery efforts are still ongoing. Superbolt officials have held discussions with DOE representatives to evaluate the original basis for excluding the Superbolt facility from FUSRAP. In early 2006, DOE requested that USACE re-evaluate the Superbolt facility for inclusion under the FUSRAP program. In late August 2006, USACE representatives conducted an onsite visit and are currently developing a performance assessment (PA). The PA will address recommendations concerning whether or not the site should be included in the FUSRAP program. Superbolt expects to retain ownership of the facilities and has no plans at this time to sell the property.

## 4.0 Estimated Date For Closure

TBD

# UNC Naval Products

## 1.0 Site Identification

| | |
|---|---|
| Location: | New Haven, CT |
| License No.: | SNM-368 |
| Docket No.: | 070-00371 |
| License Status: | Terminated |
| Project Manager: | Laurie Kauffman |

## 2.0 Site Status Summary

This site had been used by United Nuclear Corporation (UNC) to fabricate nuclear fuel components for the U.S. Government, was decommissioned in 1976, and removed from NRC License SNM-368 on April 22, 1976. Independent measurements conducted by NRC in May 1996, and September 1996 indicated residual enriched uranium exceeding 30 pCi/g in soil or sediments in two buildings, and in a connected inactive sewer system. In June 1998, the licensee agreed to characterize and remediate the facility in accordance with Option 1 delineated in the NRC BTP for Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations. The licensee submitted a characterization plan and DP in August 1999, and conducted sampling activities in 2003.

The UNC facility was operated by Olin Matheson Chemical Corporation from April 1956 to May 1961 and UNC from June 1961 to April 1976. The licensee's were authorized to use radioactive materials for manufacturing fuel for the naval reactor program at the site. In 1974, UNC announced the closing of the facility and transferred the inventory from this site to the Montville, CT location on their NRC license. FSSs of the New Haven facility were performed and the report submitted on February 26, 1976. NRC performed confirmatory surveys in March and October, 1976. On April 22, 1976, NRC amended SNM-368 to remove the New Haven, CT facility from the license. On June 8, 1994, license SNM-368 was terminated and the NRC released the facility for unrestricted use.

## 3.0 Major Technical or Regulatory Issues

The radioactive material on-site is not readily available and the dose consequence to the public is very low. After a review of existing contracts, DOE accepted financial responsibility for site cleanup. Site radiological activities have to be contracted through a competitive contract process that has caused some delays. UNC is not an NRC licensee and is not the current owner of the site and therefore is not required to comply with the Decommissioning Timeliness Rule, however, UNC, has agreed to undertake the remediation. The State of Connecticut and the City of New Haven have some interest in the site, as it is part of a redevelopment area and recently, the City of New Haven became the site owner through a foreclosure action. The sewer authority has cooperated with NRC and UNC in collection of sewer samples. UNC will need to obtain an access agreement with the City of New Haven before additional remediation work can be completed.

## 4.0 Estimated Date For Closure

10/07

# West Valley

## 1.0 Site Identification

| | |
|---|---|
| Location: | West Valley, NY |
| License No.: | CSF-1 |
| Docket No.: | 0500201, POOM-032 |
| License Status: | In abeyance |
| Project Manager: | Chad Glenn |

## 2.0 Site Status Summary

The West Valley site is located on the Western New York Nuclear Service Center (Center) and comprises 3,300 acres of land established for siting a former reprocessing facility. The New York State Energy Research and Development Authority (NYSERDA) holds title to this land. In its regulatory responsibilities under the Atomic Energy Act, the AEC, and subsequently NRC, licensed (CSF-1) the site from 1966 to 1981. The Center contains a former nuclear fuel reprocessing facility that operated from 1966 to 1972, and produced approximately 600,000 gallons of liquid high level waste (HLW). The Center also contains contaminated structures and two radioactive waste disposal areas: (1) a 15-acre New York State-licensed disposal area (SDA) that operated as a commercial LLW disposal facility from 1963 to 1975; and (2) a 5-acre NRC-licensed disposal area (NDA) that received radioactive wastes from the reprocessing plant and associated facilities from 1966 through 1986. In addition to the reprocessing facility and disposal areas, the Center includes a HLW tank farm, waste lagoons, above-ground radioactive waste storage areas, with soil and groundwater contamination near these facilities. In 1980, Congress enacted the West Valley Demonstration Project (WVDP) Act. Under the Act, DOE assumed exclusive possession of the 200-acre portion of the Center which includes the former reprocessing facility, the NDA, the HLW tanks, waste lagoons, and above-ground waste storage areas. The WVDP Act authorized DOE to: solidify, transport and dispose of HLW that exists at the site; dispose of LLW and transuranic waste produced by the WVDP; and decontaminate and decommission facilities used for the WVDP in accordance with requirements prescribed by NRC. In 1981, NRC put the license in abeyance to allow DOE to carry out the WVDP Act. In 2002, DOE completed the solidification of liquid HLW which was placed into 275 stainless steel canisters. The HLW canisters are expected to be stored onsite until shipped for disposal to the federal repository. In 2002, the Commission issued its final policy statement on decommissioning criteria for the WVDP. The policy statement prescribed the LTR as the decommissioning criteria for the WVDP, reflecting the fact that the applicable goal for the entire NRC-licensed site is compliance with the requirements of the LTR. DOE and NYSERDA are developing a Decommissioning and Long-term Stewardship environmental impact statement (EIS). NRC is a cooperating agency for this EIS in accordance with its responsibilities under the WVDP Act. NRC intends to use this EIS to fulfill its National Environmental Policy Act (NEPA) responsibilities for applying the LTR to the WVDP and to assist in its determination of whether the preferred alternative meets the LTR. In September 2005, NRC and other cooperating agencies initiated a review of a preliminary (pre-decisional) draft of this EIS. In April 2006, NRC and other cooperating agencies forwarded comments to DOE on this preliminary draft EIS. DOE's current schedule forecasts public release of the draft EIS in 2007, and release of the final EIS in 2008. DOE also plans to submit a DP for NRC review in 2007.

## 3.0 Major Technical or Regulatory Issues

- Long-term site stewardship
- Waste Incidental to Reprocessing
- Effects of erosion on disposal areas
- Groundwater contamination
- Payment of HLW disposal fees

## 4.0 Estimated Date For Closure

TBD

# Westinghouse Electric Company (Churchill Facility)

## 1.0 Site Identification

| | |
|---|---|
| Location: | Pittsburgh, PA |
| License No.: | SNM-1460 |
| Docket No.: | 07001503 |
| License Status: | Active |
| Project Manager: | Dave Everhart |

## 2.0 Site Status Summary

Licensee uses byproduct and SNM radioactive materials for research and development related to commercial nuclear power reactors. The Facility is situated on 148 acres, and consists of ten major buildings (70,000 square feet)with office space and laboratories.

License No. SNM-1460 was issued on 1955, pursuant to 10 CFR Part 70, and has been amended periodically since that time. This license authorized the licensee to use any byproduct material with atomic numbers from 1 through 96, plus Californium-252, sealed and unsealed for purposes of conducting research and development activities on laboratory bench tops and in hoods. Westinghouse submitted a DP in May 2005. The staff is currently reviewing the DP.

## 3.0 Major Technical or Regulatory Issues

None.

## 4.0 Estimated Date For Closure

TBD

# Westinghouse Electric Company (Hematite Facility)

## 1.0 Site Identification

| | |
|---|---|
| Location: | Festus Township, Jefferson County, MO |
| License No.: | SNM-33 |
| Docket No.: | 07000036 |
| License Status: | Active |
| Project Manager: | Amy Snyder |

## 2.0 Site Status Summary

The property consists of approximately 228 acres. The operating facility consists of two main plant buildings, an administration and several support buildings, and a parking area. Plant operations included low-enriched uranium fuel fabrication, processing and treating uranium compounds, including all forms of uranium from depleted to enriched uranium, and thorium fuel. Contamination at the site consists of uranium and thorium in the soil and groundwater. The Westinghouse Electric Company, LLC (WEC) has provided phased-notification of cessation of operational activities. On September 11, 2001, WEC provided notification of cessation of all principal activities and submitted an application for license amendment to change the scope of authorized license activities to those associated with decommissioning activities. WEC has performed, within its permitted license activities, certain equipment decontamination and dismantlement and has shipped equipment and material to its South Carolina facility. NRC has determined that one EA is required to avoid segmentation under NEPA. Decommissioning is estimated to cost approximately $40.5 million.

Throughout its history, Hematite facility's primary function has been to manufacture uranium metal and uranium compounds from natural and enriched uranium for use as nuclear fuel. From its inception in 1956 through 1974, the facility was used primarily in support of Government contracts that required production of highly enriched uranium products. From 1974 through the plant closure in 2001, the focus changed from government contracts to commercial fuel production plant. Over the lifetime of the facility there have been six owners. Mallinckrodt, United Nuclear and Gulf United Nuclear owned the plant for the government focused phase of operations. Combustion Engineering, ABB and Westinghouse owned the plant during the commercial phase of operations.

## 3.0 Major Technical or Regulatory Issues

WEC submitted its comprehensive DP on October 5, 2005. WEC requested that NRC approve an alternate schedule. NRC notified WEC that it will not accept the DP for a detailed technical review at this time due to technical reasons. The licensee resubmitted the DP in June 2006. Based on the review of the DP, the following key technical issues were identified: Site characterization of the burial pits and groundwater is insufficient; technical basis documents that support the FSS design are not detailed enough or need to be developed; justification for dose modeling scenario and parameters needs to be provided; the cost estimate is not detailed enough for a detailed evaluation; and there is a general lack of information necessary for staff to complete its EA. WEC met with NRC staff on January18, 2006, in a pre-licensing meeting, to discuss proposed criticality amendment and request for security exemptions related to burial pit remediation. Although, only one EA and one DP will be produced, Westinghouse still has

plans to address NRC regulatory requirements concurrent with those required under EPA's CERCLA process. This coordination of remedial investigation and remedial action under CERCLA versus NRC's LTR decommissioning and site cleanup criteria could potentially be challenging. There are active local, State, and Congressional interests in how the site will be decommissioned. WEC has sued previous owners and the US government for cost recovery for decommissioning. Westinghouse has entered into an agreement with the State of Missouri to give the State specific authority in the decommissioning of the site. NRC has submitted comments to the State of Missouri opposing the consent agreement because it does not recognize NRC authority over radioactive cleanup.

## 4.0 Estimated Date For Closure

03/01/2012

# Westinghouse Electric Company (Waltz Mill)

## 1.0 Site Identification

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

## 2.0 Site Status Summary

The WEC Waltz Mill site is currently licensed primarily to provide testing, calibration, and maintenance services for contaminated reactor servicing equipment and other reactor components. Radiological contamination in soil and groundwater existed on a portion of the site as a result of the clean-up activities following a 1961 incident at the TR-2 test reactor, waste segregation activities, and nuclear laundry services. Significant contamination was 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 Sr-90 and Cs-137, with lesser quantities of mixed fission, activation products, and trace levels of transuranic radionuclides. Due to a series of corporate mergers, the licensee for the TR-2 test reactor is CBS, Inc. WEC submitted a RP in April 1997. NRC approved the RP in January 2000. The licensee has remediated much of the interior and exterior contaminated areas. Contaminated soil removal has been completed in the primary exterior contaminated area, although small pockets of contaminated soil and a major contaminated process drain line remain on the site. WEC and CBS have over $40 million in financial assurance agreements in place for completion of site decommissioning.

## 3.0 Major Technical or Regulatory Issues

The licensee does not intend to request termination of the license. The licensee and CBS went forward with the remediation project, in part, to address the reasons why the facility was originally placed on the SDMP list. The TR-2 license was intended to be terminated after decommissioning of the test reactor and transfer of the building to the WEC SNM-770 license. WEC and CBS have not reached an agreement on the transfer because of a disagreement on the completion status of remediation activities. This and related issues are currently being resolved under arbitration. PADEP has interest in the condition of the site, particularly groundwater issues. No financial assurance issues have been identified at this time.

## 4.0 Estimated Date For Closure

10/07

# Whittaker Corporation

## 1.0 Site Identification

| | |
|---|---|
| Location: | Greenville, PA |
| License No.: | SMA-1018 |
| Docket No.: | 040-7455 |
| License Status: | Possession-only |
| Project Manager: | James Kottan |

## 2.0 Site Status Summary

The Whittaker Corporation (Whittaker) site is located within an industrial park, approximately 6 km south of Greenville, PA. The site comprises a 5.9 acre strip of land located between the Greenville Metals Plant and the Shenango River. The site is divided into four sections. Section 1 includes the southern end of the site and consists of a mixture of slag and gravel which sits above a tributary leading to the Shenango River. Metal scraps are observed within the slag and gravel mixture and the northern end of the section. No large pieces of slag or elevated readings have been observed in Section 1. Sections 2 and 4 are located in the center of the site. This area is comprised predominately of slag material. Two visually distinct types of slag are present. One slag is blue-green and the other is black. The blue-green slag has a glassy texture and the black slag is porous and rocklike. The black slag contains the radioactive material. Section 3 comprises the northern end of the site. A large part of Section 3 is covered by a concrete slab. Three sided bins containing slag material and piles of slag mixed with other debris are on top of the concrete pad. The bins contain low-level waste source materials and non-toxic industrial waste some of which is also contained in rusting drums. The eastern portion of the Section 3 is densely vegetated. Facility topography (prior to the initiation of decommissioning) had been built up through the repeated disposal of slag, scrap metal, debris, and foundry sand. The slag piles had reached elevations of twenty feet or more above the adjoining river flood plain. The slag piles in Section 2 have been excavated and screened to remove the radioactive material, which was shipped for disposal.

Mercer Alloys Corporation was founded in 1955 for the purpose of reclaiming valuable scrap metals from old jet engines and aircraft. The operations were later expanded to include processing ferro-columbium, ferro-nickel, and ferro-molybdenum alloys from ores, as well as accepting other forms of scrap metal. Some of the raw materials and feedstock used in these processes contained licensable quantities of natural thorium or uranium. The AEC issued License SUB-864, to Mercer Alloys in February 1966, for the possession of 250 pounds of uranium. The company was purchased by Whittaker Corporation in 1967, and the license was allowed to expire in February 1969, because no radioactive materials had been procured or used. However, the licensee began receiving columbium ore containing source material (thorium-232) in October 1969, prompting them to apply for a new license. AEC issued License SMA-1018, to Mercer Alloys (Whittaker) on December 15, 1969, for the possession of 16,000 pounds of source material. Processing of the columbium ores resulted in concentrating thorium, and some of the processed scrap metals contained natural and depleted uranium. Both of these contaminants were concentrated and retained in the resulting waste slag. Processing operations utilizing licensable materials ceased in 1974, and Whittaker sold the metal alloys division to Exomet, Inc. However, Whittaker maintained ownership and responsibility for the source material. In 1975, Whittaker initiated decontamination of the

equipment and plant areas. Contaminated equipment, rubble, and slag resulting from these cleanup efforts were added to existing slag and waste piles located in the site's eastern section. The portion of the property housing the plant was released for unrestricted use in 1975. An additional plant building was decommissioned in 1983 and released for unrestricted use in 1985. This plant side of the property remains an active business, now operated by Greenville Metals, and is not associated with Whittaker or the remaining licensed area. The plant is separated from the slag and waste site by metal fencing. Thorium-and-uranium bearing wastes, raw materials, feed-metal scrap, and contaminated building materials that were generated from the facility decontamination activities are contained in the licensed and controlled waste and slag storage areas. In 2004, the site initiated decommissioning activities, starting in Section 2, where the highest activity slag was believed to be located.

## 3.0 Major Technical or Regulatory Issues

During excavation of Section 2, additional subsurface contamination was identified that extends beyond the fence separating the property from the Greenville Metals site. The material is below ground level, and may not be accessed from the uncontrolled side of the fence. There are no adverse safety consequences to the public or to workers at the Greenville Metals site due to this material. Its discovery, however, will require Whittaker to characterize how far onto the property the material extends. In addition to the subsurface material, in May 2006, surface pieces of contaminated slag were discovered on the Greenville Metals property, as well as subsurface slag in previously-unidentified locations. Pieces that could be carried by hand were removed and relocated to the Whittaker site. The plant owners were notified of the presence of the material and instructed to not remove it. The material does not represent a health or safety risk to the public. It does not meet the activity levels requiring posting or control. The Greenville Metals site is surrounded by a fence, which provides de facto control over the material. Whittaker and Greenville are developing an agreement to allow Whittaker to remediate any slag from this site. On the Whittaker property, contamination was identified at depths that are deeper than had been expected based on characterization data. The slag pile was expected to reach between 15 - 20 feet below grade. In one location, contamination reaches approximately 25 feet. The material is being excavated and removed in the same manner as the previously-removed material.

## 4.0 Estimated Date For Closure

01/31/2008