

**POLICY ISSUE**  
**(NEGATIVE CONSENT)**

July 26, 2001

SECY-01-0138

FOR: The Commissioners

FROM: William D. Travers /RA/  
Executive Director for Operations

SUBJECT: REMOVAL OF CABOT CORPORATION'S REVERE SITE FROM THE  
SITE DECOMMISSIONING MANAGEMENT PLAN

PURPOSE:

To inform the Commission that the Cabot Corporation (Cabot) site licensed by the U.S. Nuclear Regulatory Commission (NRC) under 10 CFR Part 40, in Revere, Pennsylvania, meets the radiological criteria for unrestricted use in 10 CFR 20.1402. The staff plans to release the site for unrestricted use and remove the site from the Site Decommissioning Management Plan (SDMP).

BACKGROUND:

The Kawecki Chemical Company - Penn Rare Division (Cabot's predecessor), was first licensed to store uranium (U) and thorium (Th) at the Revere site in October 1969, by NRC's predecessor, the Atomic Energy Commission, under License SMC-920. The license was amended in June 1970, authorizing the licensee (then known as Kawecki Beryllium Industries) to process up to 1800 kilograms (kg) [4000 pounds (lbs)] of ore concentrates containing up to 2 percent natural Th and 1.5 percent natural U. Beginning in July 1970, approximately 23,000 kilogram (kg) (50,000 pounds) of columbium-tantalum ore were processed at the Revere site.

CONTACT: Theodore Smith, NMSS/DWM  
301-415-6721

Although the site was eligible to decommission under the concentration-based guidelines published in the October 1981, Branch Technical Position ("Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operation;" 46 FR 52601; October 23, 1981), Cabot chose to pursue decommissioning the site in accordance with criteria in 10 CFR Part 20 Subpart E, the License Termination Rule (LTR).

The Cabot facility is located in Revere, Bucks County, Pennsylvania, about 60 kilometers (km) [36 miles (mi)] north of Philadelphia and about 26 km (16 mi) southeast of Allentown. Contamination at the site consists of slag materials containing U and Th that were generated from columbium/tantalum processing that occurred in the 1970s. These materials were deposited in four areas on the site: the parking area near the sandblasting building, the former container storage area, the buildings 4 and 5 area, and the old pit area. Cabot conducted characterization of the surface water, ground water, and surface and subsurface radiological conditions at the Revere site in the early- to mid-1990s.

#### DISCUSSION:

Cabot proposed unrestricted release of the Revere site in a series of proposals culminating with a Decommissioning Plan (DP) and Radiological Assessment (RA) dated March 2001 (Revision 1) and an additional information letter dated April 2001. Subsequently, staff reviewed Cabot's DP, RA, and additional information, and performed an independent dose assessment of the site, to determine whether current site conditions are acceptable to release the Cabot Revere site for unrestricted use.

On March 30, 2001, staff provided a copy of the draft safety evaluation report and draft environmental assessment to the Pennsylvania Department of Environmental Protection (PADEP) for review and comment. PADEP and NRC staffs participated in a joint site visit and inspection on April 23, 2001, to review site conditions. In an April 26, 2001 letter to NRC, PADEP agreed with NRC staff's conclusion that the site meets NRC's regulatory requirements for unrestricted release.

However, the letter also indicated that PADEP is concerned about slag material being left adjacent to Rapp Creek, and that it would discuss the matter internally and directly with the licensee. In a subsequent telephone conversation with NRC staff in May 2001, PADEP indicated it is considering whether Pennsylvania state regulations on residual materials are applicable to the slag material near Rapp Creek, which PADEP believes may be an "exceptional value waters." Exceptional value waters are surface waters of high quality (chemical purity and low toxicity) which the state has determined to have exceptional ecological significance. In their June 12, 2001 verification survey report, PADEP stated it will address this issue separately, that this effort is independent of NRC's actions, and confirmed their agreement that the site meet's NRC's regulatory requirements for unrestricted release.

Cabot proposes no further remediation of the Revere site. In the DP, Cabot determines the source term using a mass-balance, rather than characterization-based approach. In the mass-balance approach, the total amount (and total activity) of radiological material is calculated based on review of production records, inventory reports, inspection reports, site decontamination reports, isotopic analyses of slag samples, and quality assurance records. The average isotopic concentrations are calculated by dividing the total activity of radiologically contaminated slag at the site by the total contaminated volume of material. However, the staff doesn't agree with Cabot's volume estimate used in this calculation, and the staff used its own volume estimate. Specifically, NRC staff questioned the total contaminated volume described

in various site characterization reports and the DP and RA. Cabot's April 2001, letter to NRC provided revised contaminated volume estimates, however, NRC staff still believed a more conservative, smaller volume estimate was warranted. The staff does agree with Cabot's estimate of the total amount of radioactive material at the site being a maximum of 240 megabecquerel (MBq) [0.0065 curies (Ci)] of Th and 590 MBq (0.016 Ci) of U. There is no known off-site contamination from this site. NRC staff concludes that this value is appropriate because of the number and detail of historical documentation of the limited amount of material processed at the site. Staff's analysis using the licensee's estimate of the radioactivity on site and the more conservative volume resulted in a dose estimate of 0.20 millisieverts per year (mSv/yr) [20 millirem per year (mrem/yr)]. It should be noted that the mass-balance approach was previously applied to the Minnesota Mining and Manufacturing Company's Kerrick Site in SECY-00-0172.

In its DP and RA, Cabot's dose assessment for the existing radioactive material is based on a residential gardener scenario, but excludes the aquatic pathway, since the radiological contamination is contained in waste slag, and is not likely to leach into nearby surface waters. NRC staff concludes this exclusion is appropriate.

Cabot's dose assessment also excludes the ground water pathway, since wells in the area are deep, and the radiological contamination is contained in waste slag, which is demonstrably not leaching into the environment. NRC staff concludes this exclusion is appropriate, and is consistent with the site conditions at Revere.

Cabot's dose assessment estimates plant uptake of radionuclides using the readily available uranium (RAU), which is a fraction of the total uranium concentration. Cabot uses the RAU to account for the low leachability of the contaminated slag. NRC staff review concludes that using the RAU to model contaminated slag is acceptable.

In its base-case resident gardener scenario, Cabot assumes there would be a soil cover over the contaminated material (the waste slag). However, Cabot includes a scenario variant that excludes the cover, and meets the LTR criterion. NRC staff concludes that there is insufficient justification for assuming the presence of a cover on the contaminated material (none is currently present), and uses the no-cover variant in its independent analysis.

Based on site-specific information Cabot has provided, review of dose assessments Cabot has performed, and staff independent analysis, the staff concludes that the dose is less than the dose criterion in 10 CFR 20.1402 [0.25 mSv/yr (25 mrem/yr), and the residual radioactivity has been reduced to levels that are as low as is reasonably achievable]. Therefore, the staff concludes that the Cabot Revere site is suitable for release for unrestricted use. NRC staff intends to inform the U.S. Environmental Protection Agency, PADEP, and Cabot of NRC's intent to release the Cabot Revere site for unrestricted use and remove it from the SDMP. Draft letters and the SDMP site delisting Federal Register notice are enclosed (see Attachments 1, 2, 3, and 4). The attached Environmental Assessment (EA) and Safety Evaluation Report (SER), provide a detailed discussion of the licensee's dose assessment, the staff's independent assessment, and the technical basis for the action (see Attachments 5 and 6). A Notice of Availability of the EA and SER was published in the Federal Register on June 12, 2001.

#### COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objections.

RECOMMENDATION:

Although we consider this action to be within the delegated authority of the Director of the Office of Nuclear Material Safety and Safeguards, action will not be taken until the staff requirements memorandum is received. The staff requests action within 10 days of the date of this memorandum.

*/RA/*

William D. Travers  
Executive Director  
for Operations

Docket No. 040-09027  
License No. SMC-1562

Attachments:

1. Draft letter to EPA
2. Draft letter to PADEP
3. Draft letter to Cabot
4. Draft FRN
5. Revere EA
6. Revere SER

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objections.

RECOMMENDATION: Although we consider this action to be within the delegated authority of the Director of the Office of Nuclear Material Safety and Safeguards, action will not be taken until the staff requirements memorandum is received. The staff requests action within 10 days of the date of this memorandum.

*/RA/*

William D. Travers  
Executive Director  
for Operations

Docket No. 040-09027  
License No. SMC-1562

Attachments:

1. Draft letter to EPA
2. Draft letter to PADEP
3. Draft letter to Cabot
4. Draft FRN
5. Revere EA
6. Revere SER

C:\Program Files\Adobe\Acrobat 4.0\PDF Output\SP01-0138.wpd \*SEE PREVIOUS CONCURRENCE **ML011310155**

<b>OFC</b>	<b>DCB</b>	<b>DCB</b>	<b>PMDA</b>	<b>DCB</b>	<b>DCB</b>	<b>OGC</b>	<b>DWM</b>
<b>NAME</b>	<b>TSmith*</b>	<b>CBurkhalter*</b>	<b>EKraus*</b>	<b>SMoore*(dws)</b>	<b>LCamper*</b>	<b>SLewis*</b>	<b>JGreeves*</b>
<b>DATE</b>	<b>6/5/01</b>	<b>6/13/01</b>	<b>6/6/01</b>	<b>6/14/01</b>	<b>6/14/01</b>	<b>6/19/01</b>	<b>6/26/01</b>

<b>OFC</b>	<b>NMSS</b>	<b>DEDMRS</b>	<b>EDO</b>
<b>NAME</b>	<b>MVirgilio*</b>	<b>CPaperiello</b>	<b>WTravers</b>
<b>DATE</b>	<b>7/6/01</b>	<b>07/26/01</b>	<b>7/26/01</b>

OFFICIAL RECORD COPY

Mr. Stephen D. Luftig, Director  
Office of Emergency and Remediation Response  
U.S. Environmental Protection Agency  
401 M Street, S.W.  
Washington, DC 20460

Dear Mr. Luftig:

This letter is to inform the U.S. Environmental Protection Agency (EPA) that the U.S. Nuclear Regulatory Commission (NRC) is authorizing release of land from NRC license for unrestricted use at the Cabot Corporation, Inc (Cabot) site near Revere, Pennsylvania and removal of the Revere site from License SMC-1562 and the Site Decommissioning Management Plan (SDMP).

The staff is providing this information to EPA in accordance with NRC policy contained in the "Action Plan to Ensure Timely Cleanup of Site Decommissioning Management Plan Sites" (57 FR 13389), which states that NRC will inform EPA about specific decommissioning actions at SDMP sites.

In 1969, the Atomic Energy Commission issued a license to Kawecki Chemical Company - Penn Rare Division (Cabot's predecessor), which authorized the storage of source materials at the Revere, Pennsylvania, site. The license was amended in 1970, authorizing the licensee (then known as Kawecki Beryllium Industries) to process ore concentrates containing natural thorium and uranium in the extraction of columbium and tantalum metals. Processing of source-material-bearing ores ceased in 1978, and the license was subsequently amended to authorize storage-only at the Revere site in 1983. Cabot became the licensee of record in 1987. The Cabot Revere site was placed on the SDMP list in 1990.

Cabot has supplied, and NRC has reviewed, site characterization and dose assessment information. A dose assessment, which incorporates site-specific data recently supplied by Cabot and reviewed by NRC staff, demonstrates that the unrestricted release criteria in 10 CFR 20.1402 have been met. Based on staff's review of the dose assessment, NRC concludes that the Revere site is suitable for release for unrestricted use, and is being removed from License SMC-1562, and the SDMP.

S.D. Luftig

The project manager for the Cabot Revere site is Theodore B. Smith. If you have any questions on this matter, please contact him at (301) 415-6721.

Sincerely,

Larry W. Camper, Chief  
Decommissioning Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 040-09027  
License No. SMC-1562

DRAFT

Mr. David J. Allard, CHP  
Director, Bureau of Radiation Protection  
Pennsylvania Department of Environmental Protection  
Rachel Carson State Office Building  
P.O. Box 2063  
Harrisburg, PA 17105-2063

Dear Mr. Allard:

This letter is to inform the Pennsylvania Department of Environmental Protection (PADEP) that the U.S. Nuclear Regulatory Commission (NRC) is authorizing release of land from NRC license for unrestricted use at the Cabot Corporation, Inc (Cabot) site near Revere, Pennsylvania and removal of the Revere site from License SMC-1562 and the Site Decommissioning Management Plan (SDMP).

In March, 2001, Cabot submitted its revised decommissioning plan (DP) and radiological assessment (RA), in response to additional information requests from both NRC and PADEP. The revised DP and RA incorporated site-specific data that supports a dose assessment which meets the unrestricted release criteria in 10 CFR 20.1402. On April 23, 2001 you participated in the joint site visit and inspection, and in an April 26, 2001 letter and subsequent telephone conversation agreed that the site meets NRC regulatory requirements for radiological unrestricted release.

Based on staff's independent review of the dose assessment, NRC concludes that the Revere site is suitable for release for unrestricted use, and is being removed from License SMC-1562, and the SDMP.



D.J. Allard

The project manager for the Cabot Revere site is Theodore B. Smith. If you have any questions on this matter, please contact him at (301) 415-6721.

Sincerely,

Larry W. Camper, Chief  
Decommissioning Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 040-09027  
License No. SMC-1562

cc:  
Mr. Robert Maiers, PE  
Pennsylvania Department of Environmental Protection  
Ms. Ivna Shanbaky,  
Pennsylvania Department of Environmental Protection

Mr. Timothy Knapp  
Radiation Safety Officer  
Cabot Performance Materials  
Cabot Corporation  
P.O. Box 1608  
County Line Road  
Boyertown, Pennsylvania 19512-1608

Dear Mr. Knapp:

This letter is to inform the Cabot Corporation (Cabot) that the U.S. Nuclear Regulatory Commission (NRC) is authorizing release of land for unrestricted use at the Cabot site near Revere, Pennsylvania.

Cabot submitted dose assessments, in November 1997, and March 2001, to demonstrate that remediation at the site was not necessary, and that the calculated dose was below the limits in 10 CFR 20.1402 for unrestricted use of the site. Based on staff's independent review of Cabot's dose assessment, NRC concludes that the site is suitable for release for unrestricted use. Therefore, the Cabot Decommissioning Plan for the Revere site is approved, the site is removed from License SMC-1562, and the Site Decommissioning Management Plan. A copy of the amended license, with the Revere site removed, is enclosed.

The project manager for the Cabot Revere site is Theodore B. Smith. If you have any questions on this matter, please contact him at (301) 415-6721.

Sincerely,

Larry W. Camper, Chief  
Decommissioning Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 040-09027  
License No. SMC-1562

cc:  
Robert Maiers, PADEP  
Ivna Shanbaky, PADEP

Enclosure:  
Cabot License SMC-1562, Amendment 8

MATERIALS LICENSE

Amendment No. 8

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and the applicable parts of Title 10, Code of Federal Regulations, Chapter I, Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 39, 40, 51, 70, and 71, and in reliance on statements and representations heretofore made by the licensee, a licensee is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee		
1. Cabot Corporation		3. License Number SMC-1562
2. County Line Road Boyertown, PA 19512		4. Expiration Date June 30, 2006
		5. Docket or Reference 40-9027*
6. Byproduct, Source, and/or Special Nuclear Material	7. Chemical and/or Physical Form	8. Maximum Amount that Licensee May Possess at Any One Time Under This License

A. Natural uranium and thorium

A. Any

A. 100 tons as elemental uranium and thorium

9. Authorized Use: In accordance with the statements, representations, and conditions specified in the licensee's application dated September 15, 1977, and supplements dated June 18, 1982, and May 13, 1987, the following use is authorized:

A. Possession only of contaminated material in the slag disposal area at the Reading, Pennsylvania, site. Further waste disposal at this site is specifically prohibited.

CONDITIONS

10. Authorized Place of Use: The licensee's facility at Tulpehocken Street, Reading, Pennsylvania.

11. Remediation of the slag disposal area is not authorized.

12. The licensee will prepare and retain waste manifests for the waste generated from the decommissioning of the Reading facility for the purpose of final disposal. The licensee is authorized to transfer these wastes in accordance with 10 CFR §40.51(b)(5) for storage at the Cabot facility in Boyertown, Pennsylvania, under license SMB-920.

\*Prior to 12/93, reference Docket No. 40-6940.

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number SMC-1562

Docket or Reference  
Number 40-9027

Amendment No. 8

13. Access to the site will be controlled during decontamination and decommissioning activities; access to areas where radioactive waste is stored will be controlled at all times.
14. The licensee's ALARA review committee shall meet at least annually to review and make recommendations concerning radiation exposure, effluents, and contamination survey data. The committee membership shall include, as a minimum, the Radiation Safety Officer (RSO), and a representative of plant production supervision. The findings of this committee shall be documented in a report provided to the plant manager and higher levels of management as appropriate.
15. The RSO for this license is Timothy M. Knapp. The minimal technical qualifications for the position of RSO shall be a bachelor's degree in the biological or physical sciences, completion of a basic radiation safety course, and 2 years of experience in the handling of radioactive materials.
16. Deleted.
17. Deleted.
18. Release of equipment, facilities, or packages from the plant site or the uncontrolled areas onsite shall be in accordance with the attached "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated April 1993.
19. The licensee shall conduct at least quarterly at the Reading slag dump a monitoring program that consists of the following:
- Inspection for erosion.
  - Sampling groundwater at the base of the embankment and analyzing for, at a minimum, gross alpha and conductivity.
  - Measurement of direct radiation levels at 1 meter above the ground at all boundaries of the dump site.
- The licensee shall maintain a record of all monitoring results obtained in accordance with this license condition.
20. At the end of plant life, the licensee shall decontaminate the facilities and grounds so that they can be released for unrestricted use.

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number SMC-1562

Docket or Reference  
Number 40-9027

Amendment No. 8

21. The Reading site main processing building and surrounding areas, as delineated in Figure 1.4 on page 6 of the "Final Decommissioning Project Report for the Main Processing Building and Surrounding Area, Reading, Pennsylvania," dated May 1995 and amended by letter dated June 2, 1995, is released for unrestricted use.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Dated: \_\_\_\_\_

\_\_\_\_\_  
Larry W. Camper, Chief  
Decommissioning Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards



MEMORANDUM TO: Michael T. Lesar, Chief  
Rules and Directives Branch  
Division of Administrative Services  
Office of Administration

FROM: Larry W. Camper, Chief  
Decommissioning Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

SUBJECT: REMOVAL OF THE CABOT CORPORATION, INC., SITE IN REVERE,  
PENNSYLVANIA FROM THE CABOT LICENSE AND THE SITE  
DECOMMISSIONING MANAGEMENT PLAN

Attached please find one signed original of the subject Federal Register notice for your transmittal to the Office of the Federal Register, for publication. Also, attached are five copies of the signed notice and a 3.5" diskette with the notice in WordPerfect.

Docket No.: 040-9027  
License No.: SMC-1562

Enclosures:

1. One signed original FRN
2. Five copies of signed FRN
3. 3.5" diskette of FRN

CONTACT: Theodore Smith, NMSS/DWM  
301-415-6721

[7590-01-P]

U.S. NUCLEAR REGULATORY COMMISSION

DOCKET NO. 40-9027

LICENSE NO. SMC-1562

REMOVAL OF THE CABOT CORPORATION, INC.,  
SITE IN REVERE, PENNSYLVANIA FROM THE CABOT LICENSE  
AND THE SITE DECOMMISSIONING MANAGEMENT PLAN

AGENCY: U.S. Nuclear Regulatory Commission

ACTION: Notice of license amendment

This notice is to inform the public that the United States Nuclear Regulatory Commission (the Commission) is amending Source Material License SMC-1562 issued to Cabot Corporation, Inc. (Cabot, formerly Kawecki Chemical Company - Penn Rare Division, and Kawecki Berylco Industries) to remove the Revere, Pennsylvania, site. Cabot processed pyrochlore-bearing ores to extract columbium and tantalum metals for use in high-strength alloys and electronic component manufacture. The ore processing generated waste slag contaminated with natural uranium and thorium. The Commission is releasing the Cabot site in Revere, Pennsylvania, for unrestricted use, is removing the site from the Site Decommissioning Management Plan (SDMP), and is removing the site from License SMC-1562. In 1990, the Commission developed the SDMP program for sites that warranted special attention to ensure timely decommissioning. This list included the Cabot Revere site. Cabot has supplied, and the

Commission has reviewed, site characterization and dose assessment information. Based on the Commission's review, the Commission concludes that the unrestricted release dose criteria in 10 CFR 20.1402 have been met. Therefore the Commission concludes that the site is suitable for release for unrestricted use, and the Revere site is being removed from the SDMP and License SMC-1562.

This termination will be reopened only if additional contamination is found indicating a significant threat to the health and safety of the public and the environment, or if the licensee had provided false information.

Dated at Rockville, Maryland, this            day of July 2001.

FOR THE NUCLEAR REGULATORY COMMISSION

Larry W. Camper, Chief  
Decommissioning Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards