

January 17, 1997

FOR: The Commissioners

FROM: Hugh L. Thompson, Jr. /s/  
Acting Executive Director for Operations

SUBJECT: REMOVAL OF THE BABCOCK & WILCOX APOLLO SITE FROM THE SITE DECOMMISSIONING MANAGEMENT PLAN

## PURPOSE:

To inform the Commission that remedial actions have been completed at the Babcock & Wilcox (B&W) Apollo site located in Apollo, Pennsylvania, and that the staff plans to release the site for unrestricted use and remove the site from the Site Decommissioning Management Plan (SDMP).

## SUMMARY:

In SECY-90-121, the original SDMP, and in subsequent revisions to the SDMP (SECY-91-096, SECY-92-200, SECY-93-179, SECY-94-213, and SECY-95-209), the staff identified approximately 50 problematic sites where remedial actions were warranted because of the presence of residual radioactive material in excess of the U.S. Nuclear Regulatory Commission's current unrestricted use criteria. One of these sites was the Apollo facility. The site was first licensed by the Nuclear Material and Equipment Corporation (NUMEC) in July 1957, to work with source material (thorium and uranium), and then special nuclear material, in December of 1957. The primary activity at the site was the conversion of uranium hexafluoride (UF<sub>6</sub>) into uranium dioxide (UO<sub>2</sub>). Operations at the site ceased in 1983 and decommissioning activities were completed in 1995. There has been considerable Congressional and public interest in the decommissioning of the Apollo site.

CONTACT: Heather Astwood, NMSS  
415-5819

Based on the results of NRC's inspections, Oak Ridge Institute for Science and Education's (ORISE's) Confirmatory Surveys, B&W's Termination Surveys, and B&W's groundwater monitoring program results, the staff concludes that decommissioning activities are complete and the site is suitable to be released for unrestricted use.

## DISCUSSION:

The Apollo facility was used for the manufacture of nuclear fuel under NRC License SNM-145, which was issued in December of 1957. The primary activity at the site was the conversion of UF<sub>6</sub> into UO<sub>2</sub>.

The site is located on Warren Avenue in Apollo, Armstrong County, Pennsylvania, about 40 km (25 miles) east-northeast of Pittsburgh along the Kiskiminetas River. The Apollo site consisted of three areas: (1) the Main Facility containing the process buildings, laundry building, and parking lot, which were located between Warren Avenue and the river; (2) another industrial facility located next to the Main Facility, but not owned nor operated by B&W; and (3) the Apollo office building, which was located outside the restricted area, on the opposite side of Warren Avenue. The site was located in a residential neighborhood with some privately owned houses within several hundred yards of the facility.

Atlantic Richfield Company (ARCO) was the operator of the site from 1967 to 1971. In 1971, ARCO sold its shares of NUMEC stock to B&W, who then operated the site from 1971 to the present. Low-level waste containing thorium and uranium was shipped for disposal at a number of locations, including the neighboring Parks Township Shallow Land Disposal Area, which is also listed on the SDMP and being assessed for remediation. Decommissioning of inactive portions of the facility began in 1978 and continued through 1995. The Apollo site was included on the SDMP because of the large quantity of building and soil contamination present on-site. All operations at the site ceased in 1983, and on August 30, 1991, B&W submitted a specific decommissioning plan to complete the final activities necessary to remediate the entire site to NRC requirements for unrestricted use. In a letter dated April 15, 1992, B&W requested that NRC terminate this license. The staff reviewed the decommissioning submittal and developed an Environmental Assessment (EA) to consider the impacts to the environment from the remediation of the site. The EA was published in the Federal Register on June 25, 1992, along with the staff's Finding of No Significant Impact and an opportunity for a hearing (57 FR 28539).

A request for a hearing was filed by petitioners on July 27, 1992, which cited 20 areas of concern about the amendment request. They submitted a supplement dated October 9, 1992, requesting an immediate cessation of site clean-up activities. Memorandum and Order LBP-92-31, dated November 12, 1992, denied the petitioners' request to cease clean-up activities. During the remainder of the proceedings, there were several requests for information from the presiding officer and several additional submittals by the participants. Then, in Memorandum and Order LBP-93-4, dated February 5, 1993, the judge denied the hearing request and terminated the proceedings.

Because of the proximity to a residential area, this site was, and continues to be, the subject of a great deal of public concern related to past operations that could have resulted in doses to workers and the public, off-site contamination through emissions from the plant, off-site disposal of waste, the adequacy of decommissioning activities, and future use of the property. The public was involved throughout the decommissioning process. The NRC Chairman visited the site in October 1991, and because of the level of public interest in the activities at the site, mandated that all NRC inspection exit meetings be open to the public.

A majority of the material processed by the Apollo plant was for use by the Department of Energy (DOE) and its predecessors; therefore, B&W requested

DOE assistance in covering the costs of decommissioning. In September 1991, DOE provided \$30 million from the 1990 Defense Appropriations Bill funding for the decommissioning of the Apollo site. In November 1991, Federal legislation was enacted that required \$1 million of the \$30 million total to be used for independent public oversight of decommissioning activities. Consequently, \$29 million was provided to B&W for decommissioning activities, and \$1 million was administered through the Pennsylvania Department of Environmental Protection (PADEP), and provided to the Environmental Compliance Organization and the Center for Hazardous Material Research, for independent oversight of decommissioning activities, including radiological and chemical sampling.

Decommissioning activities at the site continued, and in 1995 the Apollo office building, the last major remaining structure on the site, was dismantled. The Apollo office building had been used for office space since the mid-1950s. Portions of the building had been used for an analytical laboratory and to develop and manufacture calibration sources in the 1960s and early 1970s. Both laboratory operations had been terminated by 1972. NRC contracted with ORISE to perform several radiological surveys, in 1993. Both B&W and the NRC regional inspector performed additional surveys. By letter dated September 7, 1994, NRC staff released the building for unrestricted use and removed it from License SNM-145. The building was then dismantled and returned to a green area.

B&W has completed decommissioning activities at the remainder of the site, which included: dismantlement of the main building; the removal or replacement of three sewer lines; remediation and reconstruction of the riverbank; and remediation of other contaminated areas. B&W removed over 22,000 m<sup>3</sup> (800,000 ft<sup>3</sup>) of contaminated soil and building rubble and disposed of it at Envirocare, in Utah, and Barnwell, in South Carolina. B&W submitted radiological survey data for each phase of remediation which staff reviewed. NRC and ORISE performed several confirmatory radiological surveys during the period from 1992 to 1995. These surveys consisted of document and data reviews, gamma surface scans, exposure rate measurements, and soil, sediment, water, and miscellaneous sampling. The final surveys showed that the site meets NRC's criteria (30 pCi/g enriched uranium in soil) for unrestricted use.

#### CONCLUSIONS:

Based on the results of NRC's inspections, ORISE's Confirmatory Surveys, B&W's Termination Surveys, and groundwater monitoring program results, the staff concludes that decommissioning activities are complete. Consistent with the NRC procedures that implement the SDMP Action Plan (57 FR 13389), the staff will inform the U.S. Environmental Protection Agency (EPA) of NRC's intent to release the Apollo site. In addition, in accordance with the recently issued Memorandum of Understanding with PADEP, staff also intends to inform PADEP of NRC's intent to release the site. The staff will also proceed to formally notify B&W that remediation of the site is complete and that the site is suitable for unrestricted use and will not be subject to additional remediation. Attached are draft letters to be sent to B&W, EPA, and PADEP (Attachments 1, 2, and 3, respectively) as well as the draft Federal Register notice (Attachment 4).

#### COORDINATION:

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

#### RECOMMENDATION:

That the Commission note that the staff will initiate these actions with the letter to EPA within 10 business days, unless otherwise directed by the Commission.

Hugh L. Thompson, Jr.  
Acting Executive Director for Operations

Attachments: [1. Letter to Babcock and Wilcox](#)  
[2. Letter to EPA](#)  
[3. Letter to PADEP](#)  
[4. Federal Register notice](#)

---

ATTACHMENT 1

**DRAFT**

Mr. D. K. Sgarlata, Manager  
Health & Safety and Licensing  
Babcock & Wilcox Company  
R.D. 1, Box 355  
Vandergrift, Pennsylvania 15690

SUBJECT: TERMINATION OF LICENSE SNM-145 FOR THE BABCOCK & WILCOX, APOLLO, PENNSYLVANIA, SITE

Dear Mr. Sgarlata:

This letter is to notify you that License No. SNM-145 has been terminated and the Babcock & Wilcox (B&W) Apollo, Pennsylvania, site has been released

for unrestricted use. This site will be removed from the Site Decommissioning Management Plan.

Based on the staff's review, the decommissioning actions for the B&W Apollo site are complete. This review included the results of the U.S. Nuclear Regulatory Commission's inspections, Oak Ridge Institute for Science and Education's (ORISE's) confirmatory surveys, B&W's termination surveys, and B&W's groundwater monitoring program results. Letters to B&W, dated July 3, 1996, and August 15, 1996, contain descriptions of the review of the groundwater monitoring program and the final survey results, respectively.

B&W decommissioning activities included: dismantlement of the main building; the removal or replacement of three sewer lines; remediation and reconstruction of the riverbank; and remediation of other contaminated areas. B&W submitted radiological survey data for each phase of remediation, which staff reviewed. ORISE performed several confirmatory radiological surveys during the period from 1992 to 1995. These surveys consisted of document and data reviews, gamma surface scans, exposure rate measurements, and soil, sediment, water, and miscellaneous sampling. The final surveys showed that the site met NRC's criteria for unrestricted use. In addition, the Region I confirmatory survey did not find any licensed residual contamination higher than release limits and confirms that the site meets the residual radioactivity criteria for unrestricted use.

NRC does not plan to take any further actions regarding this site and will not require any additional decommissioning in response to future NRC criteria or standards, unless additional contamination is found, indicating a significant threat to public health.

If you have any questions about this letter, please contact me at (301) 415-7234, or Heather Astwood at (301) 415-5819.

Sincerely,  
John W. N. Hickey, Chief  
Low-Level Waste and Decommissioning Projects Branch  
Division of Waste Management  
Office of Nuclear Material Safety and Safeguards

License No.: SNM-145

Docket No.: 70-135

cc: John Matyiva, PADEP

---

ATTACHMENT 2

**DRAFT**

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

SUBJECT: TERMINATION OF LICENSE SNM-145 FOR THE BABCOCK & WILCOX, APOLLO, PENNSYLVANIA, SITE

Dear Mr. Luftig:

This letter is to inform the U.S. Environmental Protection Agency (EPA) that the U.S. Nuclear Regulatory Commission is preparing to terminate License No. SNM-145 for the Babcock & Wilcox (B&W) Apollo, Pennsylvania, site and release the site for unrestricted use.

The staff is providing this information to EPA in accordance with the NRC policy published in its "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 Site Decommissioning Management Plan (SDMP) sites. NRC intends to remove this site from the SDMP and terminate its license.

Based on the staff's review, the decommissioning actions for the B&W Apollo site are complete. This review included the results of NRC's inspections, Oak Ridge Institute for Science and Education's (ORISE's) confirmatory surveys, B&W's termination surveys, and B&W's groundwater monitoring program results. Letters to B&W, dated July 3, 1996, and August 15, 1996, contain descriptions of the review of the groundwater monitoring program and the final survey results, respectively.

B&W decommissioning activities included: dismantlement of the main building; the removal or replacement of three sewer lines; remediation and reconstruction of the riverbank; and remediation of other contaminated areas. B&W submitted radiological survey data for each phase of remediation, which staff reviewed. ORISE performed several confirmatory radiological surveys during the period from 1992 to 1995. These surveys consisted of document and data reviews, gamma surface scans, exposure rate measurements, and soil, sediment, water, and miscellaneous sampling. The final surveys showed that the site met NRC's criteria for unrestricted use. In addition, the Region I confirmatory survey did not find any licensed residual contamination higher than release limits and confirms that the site meets the residual radioactivity criteria for unrestricted use.

NRC does not plan to take any further actions regarding this site and will not require any additional decommissioning in response to future NRC criteria or standards, unless additional contamination is found, indicating a significant threat to public health.

If you have any questions about this letter, please contact me at (301) 415-7234, or Heather Astwood at (301) 415-5819.

Sincerely,  
John W. N. Hickey, Chief  
Low-Level Waste and Decommissioning Projects Branch  
Division of Waste Management  
Office of Nuclear Material Safety and Safeguards

License No.: SNM-145  
Docket No.: 70-135

cc: John Matyiva, PADEP

---

ATTACHMENT 3

**DRAFT**

Mr. John J. Matyiva  
Regional Manager  
Environmental Cleanup  
PA Department of Environmental Protection  
400 Waterford Drive  
Pittsburgh, PA 15222-4745

SUBJECT: TERMINATION OF LICENSE SNM-145 FOR THE BABCOCK & WILCOX, APOLLO, PENNSYLVANIA, SITE

Dear Mr. Matyiva:

This letter is to inform the Pennsylvania Department of Environmental Protection (PADEP) that the U.S. Nuclear Regulatory Commission is preparing to terminate License No. SNM-145 for the Babcock & Wilcox (B&W) Apollo, Pennsylvania, site and release the site for unrestricted use.

The staff is providing this information to PADEP in accordance with the NRC policy published in its "Action Plan to Ensure Timely Cleanup of Site Decommissioning Management Plan Sites" (57 FR 13389), and the Memorandum of Understanding between NRC and PADEP which states that NRC will inform PADEP about specific decommissioning actions at Site Decommissioning Management Plan (SDMP) sites in Pennsylvania. NRC intends to remove this site from the SDMP and terminate its license.

Based on the staff's review, the decommissioning actions for the B&W Apollo site are complete. This review included the results of NRC's inspections, Oak Ridge Institute for Science and Education's (ORISE's) confirmatory surveys, B&W's termination surveys, and B&W's groundwater monitoring program results. Letters to B&W, dated July 3, 1996, and August 15, 1996, contain descriptions of the review of the groundwater monitoring program and the final survey results, respectively.

B&W decommissioning activities included: dismantlement of the main building; the removal or replacement of three sewer lines; remediation and reconstruction of the riverbank; and remediation of other contaminated areas. B&W submitted radiological survey data for each phase of remediation, which staff reviewed. ORISE performed several confirmatory radiological surveys during the period from 1992 to 1995. These surveys consisted of document and data reviews, gamma surface scans, exposure rate measurements, and soil, sediment, water, and miscellaneous sampling. The final surveys showed that the site met NRC's criteria for unrestricted use. In addition, the Region I confirmatory survey did not find any licensed residual contamination higher than release limits and confirms that the site meets the residual radioactivity criteria for unrestricted use.

NRC does not plan to take any further actions regarding this site and will not require any additional decommissioning in response to future NRC criteria or standards, unless additional contamination is found, indicating a significant threat to public health.

If you have any questions about this letter, please contact me at (301) 415-7234, or Heather Astwood at (301) 415-5819.

Sincerely,  
John W. N. Hickey, Chief  
Low-Level Waste and Decommissioning Projects Branch  
Division of Waste Management  
Office of Nuclear Material Safety and Safeguards

License No.: SNM-145  
Docket No.: 70-135

---

ATTACHMENT 4

## NUCLEAR REGULATORY COMMISSION

## Termination of License SNM-145 for the Babcock &amp; Wilcox Apollo Site and Release of the Property for Unrestricted Use

AGENCY: Nuclear Regulatory Commission

ACTION: Notice of License Termination

SUMMARY: This notice is to advise the public of the U.S. Nuclear Regulatory Commission's decision to terminate License SNM-145 for the Babcock & Wilcox (B&W) Apollo, Pennsylvania, site and release the property for unrestricted use.

The Apollo facility was used for the manufacture of nuclear fuel under NRC License SNM-145, which was issued in December of 1957. The primary activity at the site was the conversion of uranium hexafluoride (UF<sub>6</sub>) into uranium dioxide (UO<sub>2</sub>). Operations at the site ceased in 1983 and decommissioning activities were completed in 1995.

Based on the results of NRC's inspections, Oak Ridge Institute for Science and Education's Confirmatory Surveys, B&W's Termination Surveys, and B&W's groundwater monitoring program results, the staff concludes that decommissioning activities are complete and the site is suitable to be released for unrestricted use.

## SUPPLEMENTARY INFORMATION

The Apollo facility was used for the manufacture of nuclear fuel under NRC License SNM-145, which was issued in December of 1957. The primary activity at the site was the conversion of UF<sub>6</sub> into UO<sub>2</sub>.

The site is located on Warren Avenue in Apollo, Armstrong County, Pennsylvania, about 40 km (25 miles) east-northeast of Pittsburgh along the Kiskiminetas River. The Apollo site consisted of three areas: (1) the Main Facility containing the process buildings, laundry building, and parking lot, which were located between Warren Avenue and the river; (2) another industrial facility located next to the Main Facility, but was not owned nor operated by B&W; and (3) the Apollo office building, which was located outside the restricted area, on the opposite side of Warren Avenue. The site was located in a residential neighborhood with some privately owned houses being within several hundred yards of the facility.

Atlantic Richfield Company (ARCO) was the operator of the site from 1967 to 1971. In 1971, ARCO sold its shares of Nuclear Material and Equipment Corporation (NUMEC) stock to B&W, who then operated the site from 1971 to the present. Low-level waste containing thorium and uranium was shipped for disposal at a number of locations, including the neighboring Parks Township Shallow Land Disposal Area, which is also listed on the Site Decommissioning Management Plan (SDMP) and being assessed for remediation. Decommissioning of inactive portions of the facility began in 1978 and continued through 1995. The Apollo site was included on the SDMP because of the large quantity of building and soil contamination which was present on-site. All operations at the site ceased in 1983 and on August 30, 1991, B&W submitted a specific decommissioning plan to complete the final activities necessary to remediate the entire site to NRC requirements for unrestricted use. In a letter dated April 15, 1992, B&W requested that NRC terminate this license. The staff reviewed the decommissioning submittal and developed an Environmental Assessment (EA) to consider the impacts to the environment from the remediation of the site. The EA was published in the Federal Register on June 25, 1992, along with the staff's Finding of No Significant Impact and an opportunity for a hearing (57 FR 28539).

A request for a hearing was filed by petitioners on July 27, 1992, which cited 20 areas of concern about the amendment request. They submitted a supplement dated October 9, 1992, requesting an immediate cessation of site clean-up activities. Memorandum and Order LBP-92-31, dated November 12, 1992, denied the petitioners' request to cease clean-up activities. During the remainder of the proceedings, there were several requests for information from the presiding officer and several additional submittals by the participants. Then, in Memorandum and Order LBP-93-4, dated February 5, 1993, the judge denied the hearing request and terminated the proceedings.

Because of the proximity to a residential area, this site was, and continues to be, the subject of a great deal of public concern. The public was involved throughout the decommissioning process, concerned with past operations that could have resulted in doses to workers and the public, off-site contamination through emissions from the plant and off-site disposal of waste, the adequacy of decommissioning activities, and future use of the property. The NRC Chairman visited the site in October 1991 and because of the level of public interest in the activities at the site, mandated that all NRC Inspection exit meetings be open to the public.

A majority of the material processed by the Apollo plant was for use by the Department of Energy (DOE) and its predecessors; therefore, B&W requested DOE assistance in covering the costs of decommissioning. In September 1991, DOE gave \$30 million from the 1990 Defense Appropriations Bill funding to B&W to aid in decommissioning. In addition, in November 1991, Federal legislation was enacted that required DOE to give \$1 million dollars to two organizations for independent oversight of the decommissioning. The money was divided between the Environmental Compliance Organization and the Center for Hazardous Material Research. This money was used to take independent radiological and chemical measurements.

Decommissioning activities at the site continued, and in 1995 the Apollo office building, the last major remaining structure on the site, was dismantled. The Apollo office building had been used for office space since the mid-1950s. Portions of the building had been used for an analytical laboratory and to develop and manufacture calibration sources in the 1960s and early 1970s. Both laboratory operations had been terminated by 1972. NRC contracted with Oak Ridge Institute for Science and Education (ORISE) to perform several radiological surveys, in 1993. Both B&W and the NRC regional inspector performed additional surveys. By letter dated September 7, 1994, NRC staff released the building for unrestricted use and removed it from License SNM-145. The building was then dismantled and returned to a green area.

B&W has completed decommissioning activities at the remainder of the site, which included: dismantlement of the main building; the removal or replacement of three sewer lines; remediation and reconstruction of the riverbank; and remediation of other contaminated areas. B&W removed over 22,000 m<sup>3</sup> (800,000 ft<sup>3</sup>) of contaminated soil and building rubble and disposed of it at Envirocare in Utah, and Barnwell in South Carolina. B&W submitted radiological survey data for each phase of remediation, which staff reviewed. NRC and ORISE performed several confirmatory radiological surveys during the period from 1992 to 1995. These surveys consisted of document and data reviews, gamma surface scans, exposure rate measurements, and soil, sediment, water, and miscellaneous sampling. The final surveys showed that the site meets NRC's criteria (30 pCi/g enriched uranium in soil) for unrestricted use.

Based on the results of NRC's inspections, ORISE's Confirmatory Surveys, B&W's Termination Surveys, and groundwater monitoring program results, the staff concludes that decommissioning activities are complete. Consistent with the NRC procedures that implement the SDMP Action Plan (57 FR 13389), the staff will inform the U.S. Environmental Protection Agency (EPA) of NRC's intent to release the Apollo site. In addition, in accordance with the recently issued Memorandum of Understanding with the Pennsylvania Department of Environmental Protection (PADEP), staff also intends to inform PADEP of NRC's intent to release the site. The staff will also proceed to formally notify B&W that remediation of the site is complete and that the site is suitable for unrestricted use and will not be subject to additional remediation.

FOR FURTHER INFORMATION CONTACT: Heather Astwood, Division of Waste Management, U.S. Nuclear Regulatory Commission, Mail Stop T-7F-27, Washington, D.C., 20555, telephone (301) 415-5819.

Dated at Rockville, MD this th day of January 1997.

FOR THE U. S. NUCLEAR REGULATORY COMMISSION  
John W. N. Hickey, Chief  
Low-Level Waste and Decommissioning Projects Branch  
Division of Waste Management  
Office of Nuclear Material Safety and Safeguards