

8 CLOSURE AND DECOMMISSIONING

The legislation that established ACWA (P.L. 104-208) instructed DOD to demonstrate alternatives to the baseline incineration process for the demilitarization of ACWs. Subsequent legislation specified development and testing of technologies for the destruction of lethal chemical munitions; however, this legislation did not address the disposition of ACWA pilot test facilities once pilot testing was completed. After completion of pilot testing, a facility could be (1) closed and decommissioned (i.e., operations ceased and the site secured), (2) converted to an operational chemical weapons destruction facility, or (3) converted to another use, within the constraints imposed by the *National Defense Authorization Act for Fiscal Year 2000*.

This EIS addresses the closure and decommissioning option but not the latter two options, since those options depend on the weapons stockpile and decisions by DOD that are beyond the scope of this ACWA EIS. Whether an ACWA pilot test facility would be converted to an operational destruction facility or some other use would depend on (1) whether any chemical agents remained at the end of pilot testing, (2) whether an existing destruction facility was in operation, (3) what technology was determined (as a result of other deliberations) to be most appropriate for chemical munitions destruction, and (4) what the future plans of other programs and the installations and the states involved were. Whether any option for continued use would be proposed is speculative at this time, and such a proposal would require additional NEPA evaluations. Hence, only closure and decommissioning of the ACWA pilot facility are addressed in this EIS. This discussion applies to the four installations (ANAD, PBA, PCD, and BGAD) and to the four destruction systems (Neut/Bio, Neut/SCWO, Neut/GPCR/TW-SCWO, and Elchem Ox) considered in this EIS.

The closure and decommissioning of an ACWA pilot facility would require compliance with the provisions of any permits issued by regulatory agencies for the construction and operation of the facility. Thus, compliance with RCRA requirements for the closure of a hazardous waste TSDF would be required. In addition, DA and DOD requirements for the management and disposition of facilities involved in the handling of chemical warfare materials would also have to be met by the PMACWA and other parties involved in the closure and decommissioning of ACWA pilot facilities.

8.1 CLOSURE AND DECOMMISSIONING ACTIVITIES

The closure and decommissioning of an ACWA facility would be likely to be similar to the closure of baseline incineration facilities (such as JACADS and TOCDF) and the closure of destruction facilities that use alternative technologies (located at Aberdeen Proving Ground in Maryland and Newport Chemical Depot in Indiana). General concepts for facility closure and decommissioning are available in the JACADS site closure plan (Washington Demilitarization Company 2000) and the Aberdeen and Newport RCRA permit applications (Aberdeen Proving Ground 1997; Kimmell et al. 2001).

On the basis of (1) general requirements for a TSDF under RCRA, (2) DA and DOD policies and regulations, and (3) general concepts for the decommissioning of chemical destruction facilities, the following steps would be likely to be involved in the closure and decommissioning of an ACWA pilot facility:

- Removal of all hazardous wastes from the demilitarization site;
- Decontamination of the structures and equipment (including piping and tankage) to allow safe handling;
- Removal of all or part of the remaining equipment;
- Demolition of all or part of the facility;
- Removal or abandonment of all or part of the supporting infrastructure; and
- Grading and revegetation of the areas, as needed, after removal of structures and infrastructure.

These actions would generate wastes similar to the wastes created during the operation of the facility: (1) decontamination solutions consisting of water or caustic solutions containing agent and energetic by-products (similar to agent and energetic hydrolysates), (2) contaminated and uncontaminated debris (such as, metals, wood, and concrete, which are similar to dunnage and maintenance wastes), (3) protective clothing, (4) wastes from administrative and maintenance areas, (5) petroleum products, and (6) industrial chemicals. To the degree feasible, these materials would be processed through the ACWA facility in the same manner as like materials were processed during the pilot testing. Once the facility was rendered nonoperational, these materials would be collected, put in containers, and treated or disposed of in accordance with environmental regulations.

Equipment removed from the facility would be decontaminated and reused or recycled where possible. Structures would be decontaminated to the degree required by DA and DOD regulations to allow either their reuse or their demolition. Demolition debris would be disposed of in accordance with environmental, DA, and DOD regulations.

Removal, demolition, grading, and revegetation activities would be similar to the activities that took place during construction. Disassembly of the facility would involve equipment and actions very much like those used to prepare the site and erect the facility. Materials used in the construction of the facility would be conveyed out of the area in a manner similar to that used to bring them into the area (e.g., concrete and steel would be taken away from the site in trucks). The size of the area required to support removal and demolition operations would not exceed that needed for material staging and facility construction.

8.2 IMPACTS OF CLOSURE AND DECOMMISSIONING

8.2.1 Land Use

Closure and decommissioning would not require any added restrictions on the use of adjacent land areas. At the conclusion of closure and decommissioning of an ACWA pilot facility, the land area encompassed by the facility, supporting operations, and buffer zones would be available for other uses, ranging from restoration of natural habitat to support of other installation operations.

8.2.2 Infrastructure

Utility requirements during closure and decommissioning would be similar to those during construction and operation and would therefore have impacts similar to pilot facility operations. No construction of infrastructure would be necessary for closure and decommissioning. After closure and decommissioning, the utilities used by ACWA would be available for other uses by the installation. The impacts from removing utilities (e.g., ground disturbance) would be the same or similar to those impacts that resulted from the initial installation of those utilities.

8.2.3 Waste Management

During closure and decommissioning, wastes would consist of process materials remaining after the last pilot test, treatment by-products resulting from closure and decommissioning activities, and wastes generated by equipment removal and demolition. Initially, the level of waste by-product generation would be at the same level that existed during plant operations, but it would diminish to zero when closure and decommissioning were complete. The wastes would be of the same type as those generated by pilot facility operations but would be less in quantity. Demolition activities and removal of equipment would increase the off-site shipment of debris to a level equivalent to the shipment level of materials into the site during construction. The impacts from the disposal of nonhazardous debris at off-site waste management facilities would be the same as those from any large structural demolition project and would be within industrial capacity. The impacts from the disposal of hazardous waste at off-site facilities would depend on the quantity of material from the ACWA facility to be treated or disposed of. This quantity would vary, depending on the degree of decontamination applied to the material before, during, and after the demolition process. Just as the degree of waste treatment could be adjusted, so too could the available off-site hazardous waste treatment and disposal capacities be adjusted for by the responsible DA and DOD parties at the time of closure and decommissioning. After closure and decommissioning, there would be no further need for waste management.

8.2.4 Air Quality — Criteria Pollutants

Air quality impacts during the initial phases of closure and decommissioning, when residues would be treated and material decontaminated, would be the same as those that occurred during plant operations. During demolition, standard construction industry practices would be used to control fugitive dust emissions to meet air quality standards (Hansen 1992).

8.2.5 Air Quality — Toxic Air Pollutants

HAP emissions and toxic materials from the decontamination and treatment of residues would be similar to those present during ACWA pilot facility operations. The HAP emissions and toxic materials present during demolition would be similar to those present during construction. Therefore, the impacts from air emissions during closure and decommissioning would be the similar to those during plant construction and operation.

8.2.6 Human Health and Safety — Routine Operations

During the initial stages of closure and decommissioning, all engineering controls and safeguards would be in place and would continue to function until decontamination and treatment of residue treatment were complete. The impacts from any premature breach or deactivation of controls and safeguards would pose less risk than the risks during actual plant operations, since no large untreated quantities of chemical agents and energetics would be at the facility. During demolition, incomplete decontamination could pose some additional risk over that posed during construction. However, this risk could be mitigated by using QC measures and monitoring similar to those used in plant operations and at environmental cleanup sites. Risks to facility workers, on-post workers, and the off-post public would be the same as, or less than, the corresponding risks during plant operations and construction. No residual risk from ACWA pilot plant operations would exist after closure and decommissioning.

8.2.7 Noise

Equipment removal and facility demolition during closure and decommissioning would involve the use of heavy construction equipment and demolition processes. However, the overall expected sound levels and vibrations would not exceed those generated during construction, with the possible exception of the noise associated with the short-term, energy-intensive demolition of concrete and steel structures (e.g., the use of crushers and wrecking balls). Such activities could be audible off the site, but because of the distances from the sites to local residences, the noise would be at such a low level as to be acceptable within a residential community on the basis of regulatory limitations (Hansen 1992). Though it is possible that explosives could be used during

demolition, it is probable that their use would be an infrequent and highly controlled event and not have a significant impact on or off site other than a startle effect.

8.2.8 Visual Resources

The removal of the ACWA pilot plant would return the visual setting to that of the existing environment or that altered by actions not related to the proposed action. If ACWA facilities would not be removed, the visual setting would remain as it was during ACWA operations.

8.2.9 Geology and Soils

No underlying natural resources would be consumed or made unavailable as a result of closure and decommissioning. Soil disturbance would be limited to those areas already affected by the ACWA pilot plant and supporting infrastructure. The only potential new impact would be the use of soil to backfill areas that had been excavated to remove facilities. This soil would be obtained from within the site or from a previously designated area selected to minimize impacts on the environment.

8.2.10 Groundwater

Groundwater impacts from decontamination and treatment of residuals would be similar to impacts from operations, and groundwater impacts from equipment removal and demolition would be similar to impacts from construction. There would be a small positive impact on groundwater due the increase in the groundwater recharge area after the removal of parking lots and other structures.

8.2.11 Surface Water

Surface water impacts from decontamination and treatment of residuals would be similar to impacts from operations, and surface water impacts from equipment removal and demolition would be similar to impacts from construction. Storm water management would be needed to prevent erosion from the site during demolition. There would be a positive impact on surface waters after closure and decommissioning, since the potential for petroleum contamination associated with vehicles on parking lots and other paved areas would be reduced. In addition, the risk of petroleum refueling spills and hazardous material (e.g., sodium hydroxide) spills would be eliminated.

8.2.12 Terrestrial Habitats and Vegetation

Closure and decommissioning would include the restoration of areas from which structures were removed; restoration would have beneficial impacts on terrestrial habitats and wildlife. During demolition activities, minor adverse impacts on terrestrial habitats and wildlife would occur during the stockpiling and removal of materials, similar to the impacts that occurred during construction. Good management practices would serve to limit potential impacts to areas previously disturbed. As a result of closure and decommissioning, there would be no new loss of terrestrial habitat, and there would be a potential increase of habitat after site restoration.

8.2.13 Wildlife

Impacts on wildlife from closure and decommissioning would be limited to impacts caused by demolition activities. These impacts would be similar to the impacts that resulted from construction. They would include disturbance during the transportation of materials and annoyance caused by noise during building removal. The short-term, energy-intensive demolition of concrete and steel structures (e.g., the use of crushers and wrecking balls) might startle wildlife or lead them to avoid the demolition site.

8.2.14 Aquatic Habitats and Fish

Impacts on the aquatic habitat and fish during closure and decommissioning would be the same or similar to the impacts that occurred during construction and operation. Good construction practices would be used to reduce sedimentation and runoff from the site during demolition. Revegetation of the site would reduce the potential for soil erosion into surface water bodies after the end of closure and decommissioning. After the completion of closure and decommissioning, the aquatic environment would return to that of the existing environment, barring other actions that might take place independent of the proposed action.

8.2.15 Protected Species

Closure and decommissioning would not have any impacts on protected species beyond those incurred during construction and operations. Habitat would be decreased for these species for a short while after closure and decommissioning until vegetation fully recovered.

8.2.16 Wetlands

Any impacts from closure and decommissioning would be limited to temporary changes in water flow and sediment transport from the site during demolition. Good management practices would reduce or eliminate drainage from the demolition site into wetlands. Any impacts would be minor and temporary and similar to the impacts from construction of the pilot test facilities.

8.2.17 Cultural Resources

No additional impacts on cultural resources would occur during or after closure and decommissioning.

8.2.18 Socioeconomics

Closure and decommissioning would result in a loss of jobs related to the operation and maintenance of the ACWA pilot facility. However, this loss would be partially compensated for by jobs created by the closure and decommissioning activities. During closure and decommissioning, persons in trades similar to those used during the construction of the facility would be employed for roughly the same or a shorter period of time. Recovered and recycled materials and equipment would be available for use by the local community. After completion of the closure and decommissioning, monies associated with the pilot plant would cease to be spent in the surrounding community. However, positive impacts would also be realized. For example, traffic flow to and from the ACWA facility would cease, land use restrictions on the installation associated with the ACWA facility would end, and support facilities and resources consumed by the ACWA facility (electricity, water, natural gas) would be available for other uses.

8.2.19 Environmental Justice

The closure and decommissioning requirements for an ACWA pilot facility would be based on state and federal laws and regulations, including DA and DOD regulations. Impacts from closure and decommissioning would be similar to or less than impacts from facility construction and operations, and these impacts would not disproportionately affect the health or environment of minority or lower-income populations.

8.2.20 Accidents Involving Assembled Chemical Weapons

Closure of an ACWA pilot test facility would eliminate the possibility of a highly unlikely accident involving release of agent from the container handling building, as described in Sections 4.21.3, 5.21.3, 6.21.3, and 7.21.3, since no chemical munitions would be present in the facility. Risk of an accident releasing chemical agent from a chemical munitions storage area is independent of the closure and decommissioning of an ACWA pilot test facility. However, destruction of some part of the chemical munitions stockpile during ACWA pilot testing would somewhat reduce the risk of a storage accident in proportion to the amount of the stockpile remaining.

8.3 REFERENCES FOR CHAPTER 8

Aberdeen Proving Ground, 1997, *Application for Permit to Construct the U.S. Army Aberdeen Proving Ground Chemical Agent Disposal Facility*, May.

Hansen, T.C., 1992, *Recycling of Demolished Concrete and Masonry*, E&FN Spon/Chapman and Hall, London, England.

Kimmell, T.A., et al., 2001, *Technology Resource Document for the Assembled Chemical Weapons Assessment Environmental Impact Statement*, ANL/EAD/TM-101, Vols. 1–5 and errata, Argonne National Laboratory, Argonne, Ill.

Washington Demilitarization Company, 2000, *JACADS Closure Campaign, Facility Closure Plan*, Oct.