Remediation and Compliance Operations for Major Department of Defense Facility — Pueblo Chemical Depot

Environmental site closure of former DOD chemical depot for eventual transfer of the reclaimed property to the U.S. Fish and Wildlife Service.

Client
Department of Defense, US Army Corps of Engineers

Location
Colorado, USA

Contract Value
USD 141MM

Years
1994—present

More Information
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Project Overview
Since 1994, AECOM has provided environmental support activities to the 15 Solid Waste Management Units (SWMUs) at this 34 square mile Department of Defense facility, which is regulated under the Resource Conservation and Recovery Act (RCRA) Hazardous Waste Part B Permit. In 1995, AECOM opened and maintained a field office to manage and perform reclamation of 60 discrete SWMUs. To date, 33 have been issued a No Further Action (NFA) status. We are currently working on 8 more SWMUs seeking NFAs from the Colorado Department of Public Health and Environment.

Client Benefits
- The AECOM team developed and implemented a comprehensive strategy for risk-based closure for the SWMUs, saving the client $1M.
- AECOM’s successful closure of the site’s SWMUs means the reclaimed site will eventually be turned over to the U.S. Fish and Wildlife Service.
- AECOM’s remedy reduced costs by over $1M by choosing a sodium lactate treatment, which was as effective as traditional, more expensive substrates for bioremediation.
- The team developed and maintained an excellent, cooperative relationship with Colorado Department of Public Health and Environment (CDPHE) regulators.
- AECOM improved turn-around times and was able to produce customized detection limits by opening an on-site laboratory to examine environmental samples on site.
- AECOM’s on-site field office supports responsiveness to the client’s immediate needs.

Work Performed
The sites included in this remedial effort were comprised of explosives processing operations, fire training areas, ordnance and explosives (OE) disposal areas, firing ranges, industrial processes, sandblast operations, missile disposal...
sites, a mercury storage building, septic tanks, and a sewage treatment plant. Contaminants addressed include VOCs, SVOCs, explosives, pesticides, herbicides, and PCBs.

Services AECOM has provided include:
- Characterization of munitions disposal areas using Military Munitions Response Program guidance
- Contaminated soil removal and disposal
- Public meeting support
- Operation of an analytical laboratory
- Operation and maintenance of a municipal drinking water system and individual point-of-use groundwater treatment systems
- Corrective measures study preparation and implementation
- Ecological risk assessment
- No Further Action (NFA) report preparation
- Technical and general program support

Over a span of 19 years, under two US Army Corps of Engineers – Omaha District contracts and eight task orders, AECOM has provided environmental support activities related to management of various SWMUs under the Pueblo Chemical Depot (PCD) Base Realignment and Closure (BRAC) program. The sites are regulated under a RCRA Hazardous Waste Part B Permit, administered by CDPHE.

- AECOM developed and implemented a comprehensive strategy for risk-based closure of SWMUs. This strategy was followed and updated annually under this task order and includes risk-based screening levels for six human receptors for more than 200 chemicals and screening criteria for eight ecological receptors for more than 125 chemicals. This unprecedented development was approved by CDPHE and is being used as the agency’s policy for the entire state.
- AECOM performed characterization of munitions burial grounds using various geophysical techniques, including EM-31 and EM-61 as well as exploratory trenching using armored excavation equipment.
- AECOM led excavation and disposal of contaminated soil from several SWMU sites, allowing progress toward NFA status. Contaminants include explosives, heavy metals, VOCs and SVOCs.
- In response to an explosives and nitrate groundwater plume, AECOM designed and installed approximately 20 point-of-use water treatment systems and a large-scale (500 gallons per minute) treatment system that augments the municipal drinking water plant under a previous task order. AECOM continues to provide operations and maintenance of these treatment systems for the Avondale Water and Sewage District.

- AECOM’s exit strategy for accelerated cleanup of groundwater in the southwest terrace aquifer allowed cleanup of contaminated groundwater more quickly and inexpensively than existing pump-and-treat systems. A significant component of Southwest Terrace monitoring includes operation of an on-site analytical laboratory certified to analyze explosive samples by Methods 8321 and 8330, as well as nitrates by Method 300.

Special issues and AECOM solutions included:
- At SWMU 45, unknown conditions existed in the burial trenches where explosives had been disposed, creating a dangerous safety hazard for on-site workers. AECOM instituted OE avoidance, including cross-sectional trenching and installing 4-inch thick Plexiglas shielding to the excavator cab to protect the operator during subsurface clearance activities used to determine the extent of buried OE material. As a result of these actions, AECOM has had no reportable injuries while performing this dangerous work.
- At SWMU 29 (fire training area), AECOM discovered that site contamination (primarily SVOCs) were much more extensive than originally indicated by initial site groundwater samples. AECOM performed additional sampling, characterization, and staged excavation and worked closely with CDPHE during remedial actions to address all comments/concerns. This close coordination helped AECOM achieve NFA status of this complex site.
- At SWMU 56, a Corrective Measures Study was necessary to specify remediation methods acceptable to CDPHE for a complex site contaminated with elemental mercury, while keeping waste disposal costs to a minimum. Working in concert with CDPHE, AECOM devised a cost-effective plan that incorporated selective demolition and segregation of waste materials to allow a significant quantity of debris to be disposed of at a non-hazardous facility. By using an innovative design approach, AECOM delivered an approved plan that will result in significant disposal cost savings when implemented.