



**Annual Status Report  
on the  
Disposal of Chemical Weapons and Materiel  
for Fiscal Year 2007**

**September 30, 2007**

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**MESSAGE FROM MR. DALE ORMOND, DEPUTY ASSISTANT SECRETARY OF  
THE ARMY, ELIMINATION OF CHEMICAL WEAPONS, ACTING DIRECTOR,  
U.S. ARMY CHEMICAL MATERIALS AGENCY**

The U.S. Army Chemical Materials Agency (CMA) made tremendous progress during fiscal year 2007, achieving several destruction milestones while continuing to safely operate storage and demilitarization facilities. As of September 30, 2007, 50 percent of the original U.S. stockpile of chemical agent and 55 percent (or more than 1.8 million) of the nation's original munitions have been destroyed. On December 28, 2006, the final former production facility (FPF) was demolished, allowing the United States to take credit for this Chemical Weapons Convention (CWC) milestone four months prior to the April 2007 deadline. Another CWC milestone was achieved on June 18, 2007, as the United States reached the 45-percent destruction of the declared Category 1 chemical stockpile since Entry into Force, a full six months prior to the extended December 2007 deadline. As of September 30, 2007, 48.2 percent of the declared Category 1 chemical stockpile has been destroyed. These achievements illustrate the United States' commitment to the success of the CWC and would not have been possible without CMA's dedicated workforce.

Numerous technical challenges have delayed progress toward meeting the original CWC deadline for destruction of 100 percent of the declared Category 1 chemical stockpile by April 29, 2007. As a result, the United States requested a 5-year extension, which was formally approved in December 2006, moving the 100 percent deadline to April 29, 2012. CMA will continue its efforts to destroy the chemical warfare materiel under its charge as close to the revised deadline as possible, and will continue to comply with all other CWC requirements and applicable international obligations.

Our five operating facilities continue to demonstrate tremendous progress to destroy chemical agent and munitions. The Aberdeen, Maryland, facility completed Resource Conservation and Recovery Act permit closure—the first continental United States facility to reach this status. The facilities in Pine Bluff, Arkansas, and Umatilla, Oregon, destroyed the remainder of their GB stockpiles, thereby eliminating the entire GB stockpile for which CMA holds destruction responsibility. The Anniston, Alabama, facility completed destruction of VX M55 rockets and the facility in Tooele, Utah, continued its mustard campaign—the last major destruction campaign at this site. The facility in Newport, Indiana, neutralized over 50 percent of its VX stockpile, and began safely shipping the hydrolysate from the VX neutralization process to a commercial treatment, storage, and disposal facility.

The Non-Stockpile Chemical Materiel Project has made great strides in the past year in addition to completion of FPF destruction. Final destruction of binary chemical weapon components continued with the start of neutralent destruction operations at an offsite treatment, storage, and disposal facility. Explosive Destruction System operations at Pine Bluff Arsenal continued to destroy the recovered chemical warfare materiel stored at the arsenal. Other activities included managing portions of the closure of the Chemical Agent Munitions Disposal System in Utah, as well as recovered chemical warfare materiel assessment and disposal operations in a variety of locations.

CMA personnel have embraced the destruction mission and committed themselves to completing the task, while protecting the safety of the workforce, the public, and the environment. This safety culture has permeated every level of the agency. Based on U.S. labor statistics, chemical demilitarization operations at CMA facilities are safer than the national average of similar industries. In addition, risk to the public from continued storage of the chemical weapon stockpile has been reduced by 77 percent through demilitarization and mitigation activities. Finally, destruction efforts continue to be executed in an environmentally sound manner.

The United States stores the second largest stockpile of chemical weapons in the world—and it is CMA's responsibility to destroy 90 percent of this stockpile. Every chemical munition safely destroyed by one of our facilities or systems makes our nation a safer place to live. CMA has overcome many technical challenges and continues to identify and mitigate evolving challenges and events to contain costs and maintain schedule. Operating demilitarization sites benefit from lessons learned, shared throughout the Chemical Demilitarization Program, enhancing our ability to proceed with the important mission of destroying U.S. chemical warfare materiel in a safe, efficient, and environmentally sound manner.

**MESSAGE FROM MR. MR. KEVIN J. FLAMM, PROGRAM MANAGER  
ASSEMBLED CHEMICAL WEAPONS ALTERNATIVES**

The Assembled Chemical Weapons Alternatives (ACWA) program continued to make progress during fiscal year (FY) 2007 toward implementation of alternative technologies at Pueblo Chemical Depot (PCD), Colorado, and Blue Grass Army Depot (BGAD), Kentucky. The ACWA program staff, systems contractors (SCs), support contractors and stakeholders will continue to work together to ensure the chemical weapons stockpiles at PCD and BGAD are disposed of as safely and expeditiously as possible.

During FY 2007, the ACWA program continued to make progress toward the design and construction of the demilitarization facilities at PCD and BGAD. New ACWA schedules and cost estimates were certified by the Defense Acquisition Executive in January 2007, and used as the basis for a revised Acquisition Program Baseline, signed in April 2007. In May 2007, the final design was accepted for Pueblo Chemical Agent-Destruction Pilot Plant; construction activities continue at PCD. In addition, final design development and early construction efforts for Blue Grass Chemical Agent-Destruction Pilot Plant continued as the SC worked to meet previously issued guidance requirements to balance cost, schedule, and performance.

While the program continues to move forward with onsite construction activities, our focus on safety will remain steadfast. The millions of hours worked by SC personnel without a lost-time injury at both ACWA locations is evidence of this safety mindset. This safety culture will persist throughout the life of the program.

The ACWA program has diligently built an open atmosphere that fosters interaction with local, state, and federal stakeholders. Stakeholder involvement has been a priority since the program's inception and program officials have encouraged and facilitated a cooperative environment with the Citizens' Advisory Commissions and the general public to ensure all parties are kept informed of activities and actions regarding the program. This exchange cultivates trust, and we will continue collaborating with stakeholders and our partners in the chemical storage and demilitarization communities.

I am convinced that the expertise of our workers and partners, as well as the involvement of our stakeholders, will support our imperative to destroy our nation's chemical weapons stockpile. Your efforts on behalf of the citizens of the United States are much appreciated.

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## EXECUTIVE SUMMARY

### Introduction

The Department of Defense (DoD) is submitting this annual report for fiscal year (FY) 2007 to Congress pursuant to title 50, U.S. Code (USC), section 1521(g). The report documents the status of the U.S. Chemical Demilitarization Program (CDP) as of September 30, 2007.

### Programmatic Activities

The U.S. Army Chemical Materials Agency (CMA) and the Assembled Chemical Weapons Alternatives (ACWA) Program jointly manage this nationally important and internationally significant program. The CMA mission encompasses safe and secure storage of the entire U.S. chemical weapons stockpile, and safe destruction of 90 percent of the stockpile while providing maximum protection to the workers, the public, and the environment. The Assistant Secretary of the Army for Acquisition, Logistics, and Technology and the Commanding General, U.S. Army Materiel Command jointly oversee the program. The Program Manager Assembled Chemical Weapons Alternatives (PM ACWA) manages chemical stockpile disposal efforts for the 10 percent of the U.S. stockpile stored in Colorado and Kentucky, in accordance with Public Law (PL) 107-248, Section 8122. PM ACWA reports directly to the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) in accordance with PL 105-261, Section 142.

The USD(AT&L) formed a Strategic Governance Board in June 2006 to oversee CDP strategic planning and monitor execution against annual destruction and performance goals. The Board continued to meet quarterly throughout FY 2007 to review the status of the program. CMA and ACWA provided scorecards with clearly defined performance measures that address, at a minimum, safety; performance against goals; cost, schedule, and performance trends; and risk mitigation.

Both CMA and ACWA utilized integrated risk management approaches to identify and assess risks against program objectives to determine severity and priority for mitigation. Mitigating actions are incorporated into program planning and budget projections. This integrated risk management process is aligned with DoD strategic plans and supports the DoD strategy for the CDP.

The chemical weapon stockpile monitoring and inspection program ensures that munition storage remains safe. While the stockpile can be safely stored for the indeterminate future, over time the weapon components tend to develop leaks. During FY 2007, a total of 53 leaking chemical munitions were discovered and overpacked without incident in accordance with long-standing procedures. [For historical leaker information, see appendix B.]

Although munition and container leaks continue to occur throughout the stockpile, the risks posed by these occurrences are diminishing as the stockpile is destroyed. Leaks occurring in storage igloos are extremely unlikely to endanger

off-post communities in the vicinity of the storage sites. CMA and ACWA are working to eliminate this risk by pursuing the expeditious destruction of the chemical weapons stockpile while maintaining the commitment to safety and protection of the environment. A rigorous safe conduct of operations philosophy is the central premise of chemical agent disposal operations for CMA; this philosophy is embraced by the entire workforce. Under the Chemical Stockpile Emergency Preparedness Program, CMA continues to maintain emergency preparedness, enhance emergency response capabilities, and provide assistance to communities in partnership with the Department of Homeland Security and state and local governments.

Programmatic activities during FY 2007 included environmental compliance and environmental management, as well as public affairs activities. CMA and ACWA continued to work with the DoD, Department of the Army, U.S. Environmental Protection Agency, and state and local regulatory agencies to ensure continued compliance with environmental regulations.

The Public Affairs offices, for both CMA and ACWA, continued efforts to engage all program stakeholders. Efforts resulted in a variety of informational materials and support to numerous gatherings, all providing opportunities for stakeholders to interact with agency personnel, provide input and feedback, and address public education and significant program issues.

Citizens' Advisory Commissions (CACs) continued to be important partners of CMA and ACWA. The CDP spent a total of \$34,882 in FY 2007 to reimburse CAC members for mission-related travel expenses.

The FY 2007 Chemical Agents and Munitions Destruction, Army appropriation was \$1,403.4 million, which included \$349.2 million for ACWA (including Military Construction [MILCON]). During FY 2007, \$1,460.8 million of FY 2007 and prior year funds were disbursed for activities carried out under title 50 USC, section 1521. Disbursed amounts are higher than appropriated funding levels due to multi-year funding obligations disbursed during FY 2007. The following table reflects disbursements as of September 30, 2007. Funds were disbursed as shown.

Purpose	Funds Disbursed (\$ in thousands)
Construction of and equipment for chemical disposal facilities (includes systemization)	57,101
Operation of chemical disposal facilities	861,820
Dismantling and closure of Johnston Atoll Chemical Agent Disposal System	1,853
Research and development	184,055
Program management (includes Chemical Demilitarization Training Facility)	93,239
Non-stockpile chemical materiel disposal	106,727
Chemical Stockpile Emergency Preparedness Program <sup>1</sup>	155,981
Travel and associated costs for CAC members	35
<b>Total</b>	<b>1,460,811</b>

Source: Defense Finance and Accounting System 218 report.

The table in appendix C shows the funds disbursed by project and location. The total estimated cost of the program is \$36.6 billion, as reported in the December 2006 Selected Acquisition Reports for the Chemical Demilitarization-CMA, Chemical Demilitarization-CMA Newport, and Chemical Demilitarization-ACWA Major Defense Acquisition Programs.

## Chemical Weapons Convention

The United States continued to fully comply with the requirements of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, commonly known as the Chemical Weapons Convention (CWC).

The United States achieved two significant CWC milestones during FY 2007: (1) on June 18, 2007, the United States reached 45 percent destruction of the nation's stockpile of Category 1 chemical weapons; and (2) on December 28, 2006, destruction of 100 percent of U.S. former (chemical weapons) production facilities (FPFs) was completed.

In April 2006, the United States formally requested an extension of the 100 percent chemical weapons destruction deadline from April 29, 2007, to April 29, 2012. The Organisation for the Prohibition of Chemical Weapons (OPCW) Conference of the States Parties considered and granted the extension during its Eleventh Session in December 2006. For CWC purposes, 48.2 percent of the declared Category 1 chemical materiel has been destroyed as of September 30, 2007.

Based on current projections, the United States does not expect to meet the extended 100 percent deadline, an expectation that was relayed to Congress by the

<sup>1</sup> FY 2007 Chemical Stockpile Emergency Preparedness Program funding includes \$57.0 million provided for direct grant funds and funding for contracts managed by Federal Emergency Management Agency Headquarters on behalf of states. For additional information, refer to the FY 2007 CSEPP Report to Congress.

Secretary of Defense in April 2006. The United States will continue destruction of Category 1 chemical weapons and will work to complete destruction as close to April 2012 as practicable.

During FY 2007, the United States continued to support the presence of CWC inspectors to monitor the destruction of unitary chemical weapons at chemical agent disposal facilities (CDFs), hosted inspections at chemical storage facilities and FPFs, and prepared documentation in accordance with CWC requirements.

## **Chemical Stockpile Disposal**

During FY 2007, CMA CDFs destroyed approximately 3,071 U.S. tons of chemical agent (9.8 percent) out of the original U.S. stockpile of 31,499 U.S. tons.<sup>2</sup> The status of the facilities is as follows:

*Tooele Chemical Agent Disposal Facility, Utah.* During FY 2007, the Tooele Chemical Agent Disposal Facility (TOCDF) continued destruction of chemical agent through its mustard (HD) campaign. In FY 2007, TOCDF destroyed 1,833 U.S. tons of blister agent HD.

*Anniston Chemical Agent Disposal Facility, Alabama.* The Anniston Chemical Agent Disposal Facility (ANCDF) completed the VX M55 rocket campaign, destroying 23,289 rockets containing 117 U.S. tons of VX, and began destruction of VX 155mm projectiles, destroying 36,727 projectiles containing 110 U.S. tons of VX. ANCDF destroyed a total of 227 U.S. tons of nerve agent VX during FY 2007.

*Umatilla Chemical Agent Disposal Facility, Oregon.* The Umatilla Chemical Agent Disposal Facility completed the GB 8-inch and GB 155mm projectile campaigns, destroying 14,173 8-inch and 47,406 155mm projectiles containing 257 U.S. tons of nerve agent GB.

*Pine Bluff Chemical Agent Disposal Facility, Arkansas.* The Pine Bluff Chemical Agent Disposal Facility (PBCDF) completed destruction of GB rockets during FY 2007, processing 31,190 M55/56 rockets, which contained 167 U.S. tons of nerve agent GB.

*Aberdeen Chemical Agent Disposal Facility, Maryland.* The Aberdeen Chemical Agent Disposal Facility became the first facility in the continental United States to complete destruction of its chemical stockpile and eliminate all public risk from chemical weapons stockpile storage during FY 2006. The facility closure phase continued throughout FY 2007.

*Newport Chemical Agent Disposal Facility, Indiana.* The Newport Chemical Agent Disposal Facility continued chemical agent neutralization operations and began offsite shipment of hydrolysate for treatment and final disposal during FY 2007. The

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<sup>2</sup> The original tonnage of total stockpile reported in the FY 2006 Annual Report (31,496 U.S. tons) has been revised due to destruction of non-stockpile material at CDFs. Please note that destruction numbers in this report have been rounded to whole numbers.

facility drained a total of 651 ton containers (TCs) and neutralized 495 U.S. tons of nerve agent VX. The hydrolysate equivalent of 587 U.S. tons of VX agent has been destroyed and treaty verified.

*Pueblo Chemical Agent-Destruction Pilot Plant, Colorado.* Final redesign efforts for the Pueblo Chemical Agent-Destruction Pilot Plant were completed during FY 2007. Early construction is ongoing.

*Blue Grass Chemical Agent-Destruction Pilot Plant, Kentucky.* Early construction for the Blue Grass Chemical Agent-Destruction Pilot Plant continued during FY 2007. Redesign efforts are ongoing.

## **Non-Stockpile Chemical Materiel Disposal**

The Project Manager for Non-Stockpile Chemical Materiel (PMNSCM) carried out a variety of activities to destroy chemical warfare materiel (CWM) not classified as part of the U.S. chemical stockpile, including the following:

*Recovered Chemical Warfare Materiel.* PMNSCM supported activities to recover and destroy CWM at the Edgewood Area of Aberdeen Proving Ground, Maryland; Former Camp Sibert, Alabama; Former Fort McClellan, Alabama; Former Tulalip Backup Ammunition Storage Depot, Washington; Fort Benning, Georgia; Fort Bragg, North Carolina; Fort Campbell, Kentucky; Great Salt Plains National Wildlife Refuge, Oklahoma; Holloman Air Force Base, New Mexico; Redstone Arsenal, Alabama; Savanna Army Depot, Illinois; Spring Valley, Washington D.C.; and Schofield Army Barracks, Hawaii.

*Binary Chemical Weapons Disposal.* Destruction of binary components was completed in FY 2006. Binary neutralent disposal operations, via the wet air oxidation unit, continued during FY 2007. Destruction of the neutralent, scheduled to be completed in December 2007, is required in order for destruction to be complete by CWC treaty definition. This will allow the United States to take treaty credit for destruction and will complete the binary chemical weapons disposal effort.

*Former (Chemical Weapons) Production Facilities.* PMNSCM completed 100 percent destruction of FPFs on December 28, 2006, in advance of the treaty deadline of April 29, 2007. Destruction was certified by the OPCW in April 2007.

*Miscellaneous Chemical Warfare Materiel.* Miscellaneous CWM includes empty TCs, Category 3 chemical weapons, and chemical samples. Activities during FY 2007 included destruction coordination of 2 GB TCs and 14 GB samples using PBCDF, as well as continued operation of the Pine Bluff TC Decontamination Facility.

## **Incidents**

During FY 2007, nine Category II chemical events (as defined in accordance with Army Regulation 50-6, *Chemical Surety*; see appendix E) occurred at CMA sites. In addition, 24 Category I chemical events occurred at CMA and ACWA sites. None of the

events resulted in agent exposure to personnel or agent release to the environment. Event details are discussed in the sections for the site at which they occurred. No Category III chemical events occurred during FY 2007.

### **Fiscal Year 2008 Planned Activities**

During FY 2008, chemical agent disposal operations will continue at existing CDFs in Utah, Alabama, Oregon, Indiana, and Arkansas. The Maryland facility will complete contract closeout activities. Final design work and construction will continue at the facilities in Colorado and Kentucky. Efforts will continue toward disposal of non-stockpile CWM including destruction of the remaining binary weapon neutralent.

## I. CHEMICAL DEMILITARIZATION PROGRAM

### Introduction

The Department of Defense (DoD) is submitting this annual report for fiscal year (FY) 2007 to Congress pursuant to title 50, U.S. Code (USC), section 1521(g). The report documents the status of the U.S. Chemical Demilitarization Program (CDP) as of September 30, 2007. The CDP is in place to destroy the U.S. stockpile of lethal chemical agents and munitions, as well as non-stockpile chemical materiel (NSCM). Disposal of chemical warfare materiel (CWM) reduces public and environmental risk stemming from continued storage and serves to meet international obligations under the Chemical Weapons Convention (CWC).

### Program Management

The U.S. Army Chemical Materials Agency (CMA) continues to manage chemical stockpile storage at all storage locations, and chemical agent disposal at all locations except Pueblo, Colorado, and Blue Grass, Kentucky, which are managed by the Program Manager Assembled Chemical Weapons Alternatives (PM ACWA) in accordance with Public Law (PL) 107-248, section 8122.

The CDP is divided into three Major Defense Acquisition Programs: (1) Chemical Demilitarization-CMA, (2) Chemical Demilitarization-CMA Newport, and (3) Chemical Demilitarization- Assembled Chemical Weapons Alternatives (ACWA). Chemical Demilitarization-CMA includes chemical stockpile disposal operations at Deseret Chemical Depot (DCD), Utah; Anniston Army Depot (ANAD), Alabama; Umatilla Chemical Depot (UMCD), Oregon; Pine Bluff Arsenal (PBA), Arkansas; and Edgewood Area of Aberdeen Proving Ground (APG-EA), Maryland. It also includes the NSCM Project (NSCMP) and Chemical Stockpile Emergency Preparedness Program (CSEPP) for all sites and surrounding communities. The mission of Chemical Demilitarization-CMA Newport is to destroy the chemical stockpile stored at Newport Chemical Depot (NECD), Indiana. Chemical Demilitarization-ACWA includes chemical stockpile destruction at Pueblo Chemical Depot (PCD), Colorado, and Blue Grass Army Depot (BGAD), Kentucky.

Chemical Demilitarization-CMA and Chemical Demilitarization-CMA Newport are under Army management as acquisition category (ACAT) ID programs. As previously reported, revised Acquisition Program Baselines (APBs) were approved by the Defense Acquisition Executive on April 5, 2006.

DoD manages Chemical Demilitarization-ACWA as an ACAT ID program. Following a program review in FY 2006 and subsequent Nunn-McCurdy certification process, new ACWA cost and schedule estimates were certified to Congress on January 10, 2007. The Defense Acquisition Executive approved a revised APB, based on the new estimates, on April 3, 2007.

The ACWA program was designated a separate reporting activity under U.S. Army Materiel Command (AMC), which provides direct execution support for the

ACWA mission as determined by PM ACWA. The ACWA program continues a direct reporting relationship with the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)). The provisional ACWA Activity became effective on May 7, 2007; a draft concept plan was submitted to AMC on May 9, 2007. The ACWA Activity was officially stood up on October 1, 2007.

Effective management of risk is a priority within the CDP. During FY 2007, CMA utilized an integrated risk management approach to identify and assess risks against program objectives to determine severity and priority for mitigation. Mitigating actions are incorporated into program planning and budget projections. This integrated risk management process is aligned with CMA and DoD strategic plans and supports the DoD strategy for the CDP.

ACWA utilized an integrated risk management approach to identify and analyze risks against program and project objectives and to evaluate and prioritize risks for mitigation planning and implementation. Mitigation measures are incorporated into program and project planning. Quantitative risk analyses calculated the expected value of the risk bundle and the associated risk confidence limits included within the life-cycle cost estimates (LCCEs). This integrated risk management process aligns with ACWA and DoD strategic plans, corresponds with Defense Acquisition University and Project Management Institute guidance, and supports the DoD strategy for the CDP.

## **Strategic Planning**

The USD(AT&L) formed a Strategic Governance Board in June 2006 to oversee the CDP strategic planning and to monitor execution against annual destruction and performance goals. The Board continued to meet quarterly throughout FY 2007 to review the status of the program. At each meeting, CMA and ACWA provided scorecards with clearly defined performance measures that address, at a minimum, safety; performance against goals; cost, schedule, and performance trends; and risk mitigation.

The performance measures monitored by the Strategic Governance Board are documented in the *Strategic Plan for Destruction of Lethal Chemical Agents and Munitions*, dated April 2005, which was prepared jointly by Office of the Secretary of Defense (OSD) and the Army pursuant to title 50, USC, section 1521(d).

CMA uses a strategy consisting of 5 strategic goals and 14 objectives that support the DoD plan. The performance measures supporting these goals and objectives are aligned horizontally and vertically from the sites and headquarters offices through the DoD plan and performance measures developed for the Office of Management and Budget Program Assessment Rating Tool (PART).

In addition to participation in the PART process, CMA uses the Department of the Army (DA) Strategic Management System and a balanced scorecard methodology to track the accomplishment of annual goals.

## **Safety of the Chemical Stockpile**

CMA continued to assess the safety and integrity of the chemical stockpile during FY 2007, through a monitoring and inspection program that includes analytical sampling and analysis. While the stockpile can be safely stored for the indeterminate future, over time, the weapon components tend to develop leaks. During FY 2007, a total of 53 leaking munitions were discovered and overpacked without incident, in accordance with long-standing procedures. CMA uses high-performance overpack containers to safely store leaking containers and munitions. [For historical leaker information, see appendix B.]

Although munition and container leaks continue to occur throughout the chemical stockpile, these occurrences are diminishing consistent with stockpile destruction. Leaks occurring in storage are extremely unlikely to endanger off-post communities in the vicinity of the storage sites. Other storage risk factors include external events such as lightning strikes, earthquake, or fire. CMA has completed mitigation activities to address these issues.

## **Environmental Compliance and Chemical Agent Monitoring**

CMA and ACWA continued work with the DoD, DA, U.S. Environmental Protection Agency (EPA), and state and local regulatory agencies to ensure compliance with environmental regulations. In addition, CMA continued implementation of, and compliance with, an ISO 14001<sup>1</sup> Environmental Management System (EMS) at chemical agent disposal facilities (CDFs).

During FY 2007, Tooele Chemical Agent Disposal Facility (TOCDF), Anniston Chemical Agent Disposal Facility (ANCDF), Umatilla Chemical Agent Disposal Facility (UMCDF), and Pine Bluff Chemical Agent Disposal Facility (PBCDF) received third-party verification of ISO 14001 conformance from the U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM). All CDFs had an EMS that was ISO 14001 conformant prior to the Army's December 2005 deadline. Annual audits are conducted at all CDFs to ensure continued EMS conformances with ISO 14001.

CMA chemical agent monitoring systems continue to provide more than adequate protection to the workforce, public, and environment. Current monitoring technologies and systems at CDFs and storage facilities are the best available for the monitoring levels required. The National Research Council (NRC)<sup>2</sup> recommended that the program continue with incremental improvements to monitoring instrumentation, and CMA has several efforts underway to improve the sensitivity and specificity of current

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<sup>1</sup> ISO 14001 is the International Organization for Standardization standard for EMS.

<sup>2</sup> *Monitoring at Chemical Agent Disposal Facilities, 2005*. This report from the NRC Committee on Monitoring at CDFs was requested by the Army for purpose of advising CMA on the status of analytical instrumentation technology and systems appropriate for monitoring airborne chemical warfare agents at chemical weapons disposal and storage facilities.

monitoring methods and technology. In addition, operational and changeover schedules have been reviewed to determine requirements for agent-specific monitors. Significant changes to monitoring instrumentation are validated by an independent third party to ensure those changes meet or exceed CMA quality standards.

## **Chemical Stockpile Emergency Preparedness**

The Director, CSEPP, continued to maintain emergency preparedness and improve operational readiness at chemical agent storage installations, and continued to work with the Department of Homeland Security (DHS) and state and local governments to provide assistance to the surrounding communities. DHS conducts the off-post emergency preparedness program and is supported by the Army, which provides DHS with funding for state grants and technical assistance. DHS will provide a separate report to Congress outlining accomplishments and issues in participating civilian communities, pursuant to 50 USC 1521 (g).

Annual exercises were held at all seven of the existing stockpile sites. The Director, CSEPP, conducted the CSEPP National Workshop in Chicago, Illinois, from June 26 to 28, 2007. More than 400 federal, state, county, and industry representatives attended.

CSEPP carried out the Congressional mandate<sup>3</sup> for a single CSEPP automation system by developing WebPuff™, a Web-based system built around the D2-Puff™ dispersion model.<sup>4</sup> D2-Puff is a downwind dispersion model now used at all CSEPP sites. This system exports all uniquely CSEPP information in a format compliant with the latest private sector standards for information exchange (the Common Alerting Protocol).<sup>5</sup> This allows states and counties to use existing or planned commercial all-hazards automation systems to manage the response to a CSEPP event, avoiding the need to train personnel on separate systems and the cost of maintaining a separate CSEPP automation system.

During FY 2007, there were three releases of WebPuff, with each providing approximately 50 training sessions for approximately 300 CSEPP personnel. Additional training was provided for those personnel performing “Hazard Analysis” duties using the D2-Puff model. Training consisted of both online and instructor/classroom setting at all seven stockpile sites.

CSEPP communities continue to maintain effective emergency public information programs consistent with the requirements of the National Incident Management Systems (NIMS). Specifically, on- and off-post public affairs staff at each site, with the

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<sup>3</sup> FY 1993 Senate Appropriations Committee (SAC) Report. September 17, 1992. Report 102-408 [to accompany H.R. 5504].

<sup>4</sup> Atmospheric dispersion models (plume dispersion models) predict the location and extent of the chemical plumes that could result from an accidental release of chemical warfare agents. The WebPuff model determines which specific areas could be impacted, time at which the plume could arrive, and potential concentrations. WebPuff also helps determine which protective action (for example, evacuation or sheltering) would be the best option for this particular scenario.

<sup>5</sup> <http://www.incident.com/cap/> and <http://www.oasis-open.org/committees/emergency>

support of Army and DHS headquarters personnel, jointly coordinate the establishment of a Joint Information System (JIS) and Joint Information Center (JIC) for the dissemination of timely, accurate, and complete information during an emergency response. This effort includes pre-incident public education and outreach. Additionally, media training was provided in FY 2007 to incoming Army commanders at CSEPP installations.

## **Public Outreach**

During FY 2007, CMA Public Affairs supported CMA's overall mission through outreach and communications efforts to inform key stakeholders and the public of the program's accomplishments and challenges. Continued development and dissemination of ongoing programmatic informational products, including the CMA Web site, newsletter, fact sheets, brochures, and stakeholder briefings, served to educate and inform these audiences.

Specific communication strategies were developed based on continuous identification and monitoring of public concerns and areas of interest in the program and included the planning and implementation of various specific communications campaigns throughout FY 2007, such as the following:

- *45 Percent Chemical Agent Destruction* – CMA Public Affairs maximized this good news opportunity by developing and executing a communications campaign to reach CMA's varied stakeholders through both Army and civilian media outlets. CMA's Web site pages and podcast devoted to the milestone were widely viewed within the United States and received visits from international viewers.
- *Newport Hydrolysate Shipments* – Army leadership utilized CMA Public Affairs briefing materials to inform key stakeholders of the Army's careful planning and attention to safety. CMA Public Affairs developed and implemented communication plans in support of the resumption of hydrolysate shipments after activists' petition to federal court for a temporary injunction was dismissed. In addition, CMA Public Affairs developed a crisis communication plan in the event of an accident or spill during transportation.
- *Secondary Waste* – CMA Public Affairs worked with site personnel to develop secondary waste fact sheets, as well as question and answer content, and provided guidance on integrating site messages with programmatic key messages concerning the safe and cost-effective disposal of agent-contaminated materials generated in the course of operations.

In addition, CMA Public Affairs assisted with planning and staffing chemical demilitarization facility field exercises for CSEPP.

CMA Public Affairs developed specific objectives and measures of success for these initiatives and utilized the balanced scorecard (aligned with the overarching CMA

scorecard) to evaluate and monitor performance. The office is leveraging this information to enhance future campaign efforts.

During FY 2007, the ACWA Public Affairs team applied its FY 2006 performance measure data to strategically tailor its communications with stakeholders regarding a variety of program milestones and technical issues. The team continued to produce its quarterly newsletters, fact sheets, instructional aids, portable displays, and internal public affairs tools to support numerous program highlights, as well as reinforce the alternative destruction technologies that will be used at each site. The ACWA team supported the Blue Grass and Pueblo outreach teams in preparing for their respective key milestones, including the Blue Grass Groundbreaking Open House and the acceptance of the Pueblo design. In addition, particular emphasis was given to the following:

- *Nunn-McCurdy Certification* – ACWA Public Affairs coordinated with the OSD public affairs office to develop guidance to announce the program's recertification under the Nunn-McCurdy amendment. In addition, the team facilitated a media roundtable for the Special Assistant, Chemical and Biological Defense and Chemical Demilitarization Programs, in the Office of the Assistant to the Secretary of Defense of Nuclear and Chemical and Biological Defense Programs with reporters from media outlets based in Kentucky and Colorado.
- *Approved APB* – APB approval was publicized through a press release and through existing tools to explain its significance to the public. A fact sheet was developed and announcements regarding the APB approval were made in both the Pueblo and Blue Grass *Exchange* newsletters and at various briefings provided at the Colorado and Kentucky Citizens' Advisory Commission (CAC) meetings.
- *Offsite Shipment of Hydrolysate* – This issue was addressed several times throughout the year, providing the public with information at a Program Manager roundtable with the Pueblo community in October 2006. Public meetings with both Colorado and Kentucky stakeholders were held in January and February 2007 to discuss the Mitretek Systems, Inc. (MTS), now known as Noblis, and Lean Six Sigma reports. Further, in September 2007, the team coordinated with Colorado and Kentucky CAC members to discuss the Noblis and NRC technical analyses.
- *ACWA Leadership Changes* – ACWA public affairs developed a plan to facilitate the transition of ACWA leadership and ensure smooth communications and introductions with key community members.

Several new public affairs tools were initiated in FY 2007. The ACWA Quarterly Brief is a top-level, one-page document designed to provide Pentagon officials and congressional staffers updated information regarding the program on a consistent basis. Additionally, in coordination with the systems contractor (SC), the team developed a technical milestone matrix to augment its issues management process. The matrix is a listing of all technical milestones that the Blue Grass and Pueblo chemical agent

destruction pilot plant projects will achieve through December 2008. It is intended to provide a snapshot of the expected progress of the program and help the team proactively identify technical achievements that should be entered into the public affairs issues management system.

## Program Funding and Expenditures

The FY 2007 Chemical Agents and Munitions Destruction, Army appropriation was \$1,403.4 million, which included \$349.2 million for ACWA (including military construction [MILCON]).

During FY 2007, \$1,460.8 million of FY 2007 and prior year funds were disbursed for activities carried out under title 50 USC, section 1521. Disbursed amounts are higher than appropriated funding levels due to multi-year funding obligations disbursed during FY 2007. The following table reflects disbursements as of September 30, 2007. Funds were disbursed as shown.

Purpose	Funds Disbursed (\$ in thousands)
Construction of and equipment for chemical disposal facilities (includes systemization)	57,101
Operation of chemical disposal facilities	861,820
Dismantling and closure of Johnston Atoll Chemical Agent Disposal System	1,853
Research and development	184,055
Program management (includes Chemical Demilitarization Training Facility)	93,239
NSCM disposal	106,727
Chemical Stockpile Emergency Preparedness Program <sup>6</sup>	155,981
Travel and associated costs for CAC members (detailed in the following paragraphs)	35
<b>Total</b>	<b>1,460,811</b>

Source: Defense Finance and Accounting System 218 report.

The table in appendix C shows the funds disbursed as of September 30, 2007, by project and location.

The current LCCE, as reported in the December 2006 Selected Acquisition Reports for the Chemical Demilitarization-CMA, Chemical Demilitarization-CMA Newport, and Chemical Demilitarization-ACWA Major Defense Acquisition Programs, is \$36.6 billion. CMA continued to implement and refine cost control initiatives; these include the Earned Value Management System and performance-based incentives for chemical demilitarization SCs.

<sup>6</sup> FY 2007 CSEPP funding includes \$57.0 million provided for direct grant funds and funding for contracts managed by Federal Emergency Management Agency Headquarters on behalf of states. For additional information, refer to the FY 2007 CSEPP Report to Congress.

## Citizens' Advisory Commissions Travel Cost Summary

The following table details funds expended for travel and associated travel costs by CAC members during FY 2007. Alabama, Arkansas, Indiana, Oregon, and Utah CAC travel funds are approved by the Deputy Assistant Secretary of the Army for Elimination of Chemical Weapons. Colorado and Kentucky CAC travel funds are overseen by OSD.

State	Expenditures
Alabama	\$5,064
Arkansas	\$5,223
Colorado	\$5,037
Indiana	\$1,015
Kentucky	\$6,008
Oregon	\$8,031
Utah	\$4,504
<b>TOTAL</b>	<b>\$34,882</b>

## Program Reviews

The Government Accountability Office (GAO) issued a report in January 2007, entitled, *Chemical Demilitarization: Actions Needed to Improve the Reliability of the Army's Cost Comparison Analysis for Treatment and Disposal Options for Newport's VX Hydrolysate*. The report indicated that while the Army's rationale for eliminating technologies as viable treatment/disposal options was reasonable, the data used for the cost estimates were not reliable. GAO further found that the programmatic risk assessment was unreliable because it was based on the cost estimates.

CMA requested NRC to assess and evaluate current and proposed policies and approaches by the Army and its contractors to adequately anticipate and address equipment/facilities obsolescence at chemical demilitarization facilities. They were also asked to examine the extent to which these policies and approaches are consistent with generally accepted practices in the chemical process industry. NRC issued its report, *Continuing Operability of Chemical Agent Disposal Facilities and Equipment*, in March 2007. The report offered several recommendations to CMA to ensure obsolescence continues to be addressed while safely destroying the nation's stockpile of chemical weapons and closing demilitarization facilities.

NRC, at the behest of CMA, reviewed secondary waste disposal and regulatory requirements for CDFs and similar facilities in industry. In its July 2007 report, *Review Chemical Agent Secondary Waste Disposal and Regulatory Requirements*, the committee found that the regulatory requirements for waste characterization and disposal were similar for industrial facilities and the Army's CDFs. The conclusion was that it is technically feasible and advantageous to dispose of as much waste as possible at approved treatment, storage, and disposal facilities (TSDFs) during operations.

GAO reviewed CMA's strategic framework, schedules, and earned value management data from May 2006 through July 2007 to assess progress DoD and the Army have made in implementing GAO's recommendations from *Chemical Weapons*:

*Sustained Leadership, Along With Key Strategic Management Tools, Is Needed to Guide DoD Destruction Program*, Report Number GAO 03-1031, dated September 2003. The final report is expected in the first quarter of FY 2008.

ACWA met with local communities in Blue Grass, Kentucky, on September 11, 2007, and Pueblo, Colorado, on September 26, 2007, to discuss separate studies, in which the NRC and Noblis will review offsite shipment of hydrolysate and secondary waste from both BGCAPP and PCAPP. The studies are being conducted to comply with the January 10, 2007, Acquisition Decision Memorandum. The results are expected in February 2008.

### **Fiscal Year 2008 Planned Activities**

During FY 2008, CMA and ACWA are scheduled to continue or complete the following activities:

- *Chemical Stockpile Elimination Project:*
  - *TOCDF:* Complete sampling mustard (HD) ton container (TCs) and continue processing low-mercury, low heel TCs; begin processing mustard (H) 155mm projectiles; and continue planning activities to prepare for processing high-mercury, high-heel TCs
  - *ANCDF:* Continue processing of VX 155mm projectiles
  - *UMCDF:* Complete GB-to-VX agent changeover activities; complete the VX M55 rocket campaign; complete destruction of VX spray tanks; and begin processing of VX 155mm projectiles
  - *PBCDF:* Begin the VX M55 rocket campaign, and complete mustard TC sampling
  - Aberdeen Chemical Agent Disposal Facility (ABCDF): Complete contract closeout activities
  - Newport Chemical Agent Disposal Facility (NECDF): Complete TC draining and agent neutralization.
- *NSCMP:*
  - Complete operations at the Pine Bluff Explosive Destruction System (PBEDS) including support operations at the German Traktor Rocket (GTR) Separation System (GTRSS)
  - Complete operational testing (OT) of the Large Item Transportable Access and Neutralization System (LITANS) in preparation for use of a LITANS at DCD and begin design of the DCD variant of LITANS
  - Continue Chemical Agent Munitions Disposal System (CAMDS) closure activities

- Respond as requested to chemical weapon recoveries and support U.S. Army Corps of Engineers (USACE) during site remediation activities
- Continue to develop a path forward for the disposal of recovered chemical items located at Schofield Army Barracks, Hawaii
- Complete wet air oxidation (WAO) processing of binary neutralent
- Begin thermal decontamination operations for empty TCs at PBA.
- *ACWA Program:*
  - *PCAPP:* Continue Stage II construction (non-process structures)
  - *BGCAPP:* Complete the final design and continue early construction activities (site preparation, earthworks, utilities, and construction of access control point).
- *CSEPP:*
  - Conduct the annual CSEPP exercise at each storage facility.

## II. CHEMICAL WEAPONS CONVENTION

The United States continued to fully comply with the requirements of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, commonly known as the CWC.

The original U.S. Category 1 chemical weapons amount of 31,499 U.S. tons<sup>7</sup> of chemical agent includes 1,582 U.S. tons that were destroyed prior to entry into force of the CWC on April 29, 1997. After entry-into-force, the U.S. Category 1 chemical weapons declaration consists of 29,916 U.S. tons of stockpile chemical agent and 693 U.S. tons of non-stockpile chemical agent, for a total U.S. Category 1 chemical weapons declaration of 30,609 U.S. tons. Category 1 chemical weapons include the unitary chemical stockpile, binary components, and some chemical samples and recovered chemical weapons. For CWC purposes, 48.2 percent of the declared Category 1 chemical weapons have been destroyed as of September 30, 2007.

The United States achieved two significant CWC milestones during FY 2007. On June 18, 2007, in advance of the extended deadline of December 31, 2007, the United States reached 45 percent destruction of the nation's stockpile of Category 1 chemical weapons. This achievement represented 13,775 U.S. tons of chemical agent destroyed since entry into force. In addition to destruction of chemical weapons, the CWC also requires destruction of U.S. former (chemical weapons) production facilities (FPFs) or conversion of FPFs for purposes not prohibited under the Convention by April 29, 2007. The U.S. FPFs were 100 percent destroyed as of December 28, 2006, in advance of this deadline.

In April 2006, the United States formally requested extension of the 100 percent chemical weapons destruction deadline from April 29, 2007, to April 29, 2012, the latest date allowable under the CWC. The Organisation for the Prohibition of Chemical Weapons (OPCW) Conference of the States Parties considered and granted the extension during its Eleventh Session in December 2006.

Based on current projections, the United States does not expect to meet the extended deadline, an expectation that was relayed to Congress by the Secretary of Defense in April 2006. The United States will continue the destruction of Category 1 chemical weapons and will continue its efforts to complete destruction as close to April 2012 as practicable.

The United States continued to support the presence of CWC inspectors to monitor the destruction of unitary chemical weapons at CDFs, as well as host periodic

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<sup>7</sup> The original U.S. Category 1 stockpile (31,496) and non-stockpile (695) chemical weapons amount reported in the FY 2006 Annual report have been revised. This reflects a change in reporting due to non-stockpile items destroyed at a stockpile facility, which are now reported at the respective stockpile facility, and stockpile items destroyed at a non-stockpile facility, which are now reflected under the non-stockpile facility. Please note that destruction numbers in this report have been rounded to whole numbers. Calculations solely based on this report may be affected by this rounding.

inspections at chemical storage facilities and FPFs. During FY 2007, CMA hosted 16 chemical weapons storage facility inspections, 3 FPF inspections, and more than 1,799 inspection days at CDFs.

CMA prepared numerous documents that were submitted by the United States to the OPCW in accordance with CWC requirements including *The Annual Reports for Destruction of Chemical Weapons and CW Production Facilities* for calendar year 2006 and corresponding plans for calendar year 2007.

CMA supported the negotiation and implementation of optimized verification measures by the OPCW at the CDFs. These optimized measures have better focused verification of chemical weapons destruction while eliminating no-value-added inspection activities, thereby allowing the OPCW to reduce inspection team sizes. This has, in turn, allowed CMA disposal facilities to continue to fully demonstrate compliance while providing substantial cost savings to the U.S. Army Chemical Treaty Compliance Program.

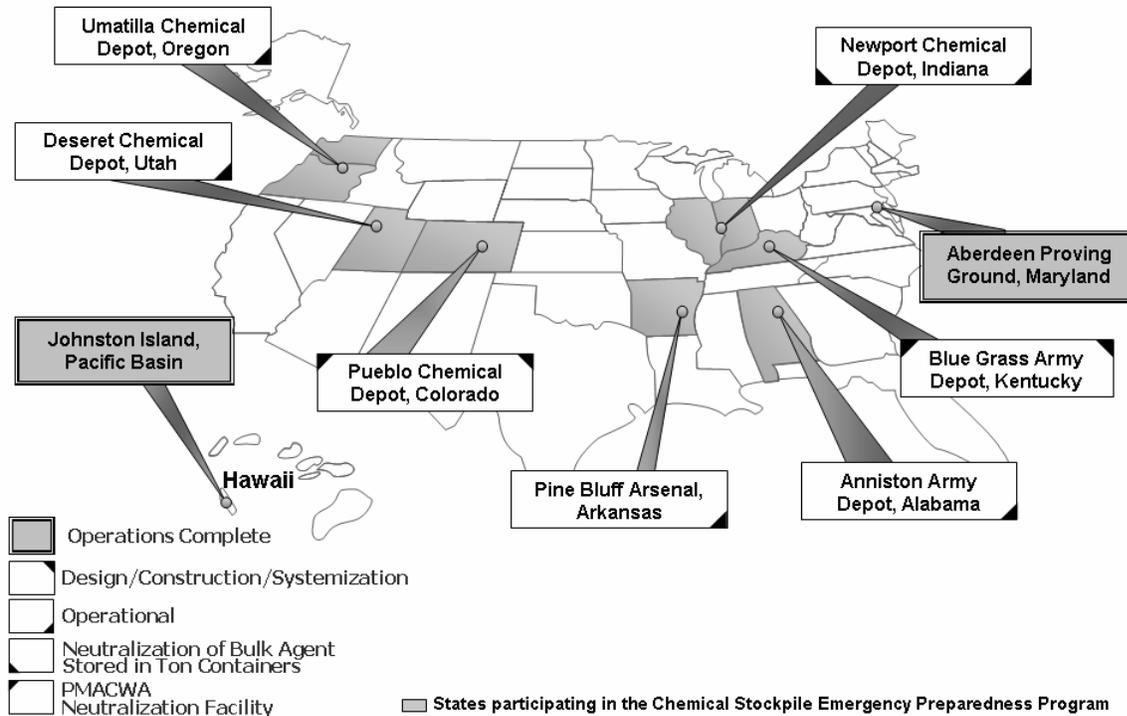
CMA continued to maintain its CWC compliance readiness through workshops, sharing lessons learned, and conducting exercises to prepare for CWC inspections.

#### **Fiscal Year 2008 Planned Activities**

The DoD will continue to demonstrate its compliance and meet all obligations under the CWC regarding submission of required documentation and supporting OPCW inspections at U.S. chemical storage and disposal facilities.

### III. CHEMICAL STOCKPILE DISPOSAL

**National Chemical Stockpile Distribution by Storage Location**



Notes: Unless annotated, destruction technology is incineration.

CMA continued destruction of the chemical weapons stockpile during FY 2007. All remaining CMA-managed disposal facilities were operational during FY 2007.

During FY 2007, CMA destroyed approximately 3,071 U.S. tons of chemical agent (9.8 percent) out of the original U.S. stockpile of 31,499 U.S. tons of chemical agent. As of September 30, 2007, the U.S. has destroyed a total of 1,892,594 munitions and a total of 15,758 U.S. tons of chemical agent from the original U.S. stockpile.

Numerous technical challenges have delayed progress toward meeting original CWC destruction milestones. CMA continues to implement initiatives to identify and mitigate these challenges and utilizes a program of sharing lessons learned throughout the CDP. CMA initiatives to address processing challenges include those outlined in the following paragraphs.

#### Mustard Processing Strategy

Prior sampling and analysis of approximately one percent of the HD TCs at DCD has determined that some HD TCs are contaminated with varying

concentrations of mercury. Some contain large solid heels (layers of solid material formed from the impurities present within the agent when the containers were filled) that are too large to be efficiently processed in the Metal Parts Furnace (MPF). High HD TC processing throughput rates were required at TOCDF to meet the CWC 45 percent destruction goal, which precluded the addition of processing equipment.

The current strategy being implemented at TOCDF entails feeding TCs that are identified as having low-mercury (defined at TOCDF as those containers with less than 1 milligram per kilogram mercury concentration in the liquid mustard as identified by a 1 milliliter sample) and small heels (defined as those heels that can be effectively processed through the MPF) through invasive liquid sampling and heel measurement in Area 10. Previous sampling data suggests that low-mercury levels in the liquid fed to the Liquid Incinerator (LIC) imply low-mercury levels in the heel fed to the MPF. As negotiated with the Utah regulators, compliance with mercury emission levels for the TOCDF MPF is provided through the installation of mercury sorbent traps located on the offgas duct to the common stack. An additional mercury pollution abatement system (PAS) filtration system (PFS) with mercury removal by sulfur-impregnated carbon (SIC) fixed beds is planned for the LIC and MPF for processing of high-mercury TCs. Experimental measurements of mercury removal efficiencies by various SIC fixed beds are underway to support PFS design efforts. The other baseline incineration CDFs already have PFS units that can be retrofitted to add SIC fixed beds prior to the start of mustard campaigns.

Mustard TC sampling equipment, which was installed in an igloo in Area 10, started operations on June 6, 2006. As of September 30, 2007, a total of 4,074 HD TCs have been sampled; of the sampled TCs, 2,187 have low-mercury and low heels and can be destroyed through the baseline process prior to installation of the PFS; 2,054 of these TCs have been disposed of in the TOCDF MPF. With these sampling results and historical research on Rocky Mountain Arsenal (RMA), Colorado, mustard production history, a predictive model has been developed to identify agent lots and TC serial numbers of RMA HD TCs that are likely to have low-mercury content. These trends and predictions have been shared with other sites to assist in the development of HD TC sampling and campaign strategies.

Although this mustard processing strategy is site specific to TOCDF, other sites with mustard TCs will benefit from this experience and lessons learned.

## **VX Hydrolysate Treatment and Disposal**

The nerve agent VX neutralization process employed at NECDF produces a caustic wastewater, known as hydrolysate, which is regulated as hazardous waste and requires additional treatment to meet final CWC destruction requirements.

At the beginning of FY 2007, plans were still being pursued to ship the caustic hydrolysate to DuPont for wastewater treatment. This was consistent with the findings of a cost-benefit analysis conducted in 2006 showing significant cost and schedule benefit of offsite treatment. Section 922 of the John Warner National Defense Authorization Act for Fiscal Year 2007 included a requirement for the GAO to submit a report to Congress of the Secretary of the Army cost-benefit analysis of offsite versus onsite treatment and disposal of Newport hydrolysate. In late January 2007, the GAO submitted a report indicating a number of concerns regarding the thoroughness of the evaluation. Ultimately DuPont decided not to pursue permit modifications required to accept the hydrolysate waste stream. These events led the Army to explore additional hydrolysate treatment options.

Final treatment and disposal of the hydrolysate was initiated in April 2007 at Veolia Environmental Services (Veolia), a permitted commercial TSD facility located in Port Arthur, Texas. The facility has been safely and effectively destroying the hydrolysate using incineration technology.

In June 2007, a lawsuit was filed against the Army by the Sierra Club and other plaintiffs in the United States District Court for the Southern District of Indiana, challenging the shipment of hydrolysate and citing violations of the Resource Conservation and Recovery Act (RCRA) and the National Environmental Policy Act (NEPA). Plaintiffs filed a Motion for a Preliminary Injunction to halt further shipments. CMA voluntarily halted the shipments on June 19, 2007, pending the court's resolution of the motion. A hearing was held on July 18, 2007, and on August 3, 2007, the court denied the motion. Shipments resumed on August 7, 2007. The suit remains pending, and discovery is ongoing.

As of September 30, 2007, 193 intermodal containers carrying approximately 3,575 gallons of hydrolysate each have been safely transported to Veolia where it is incinerated upon receipt. OPCW inspectors have accepted the process and confirm destruction of the source agent.

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## **Deseret Chemical Depot, Tooele Chemical Agent Disposal Facility, and Chemical Agent Munitions Disposal System, Utah**

### **Highlights**

During FY 2007, TOCDF continued the HD campaign, processing a total of 2,054 HD TCs and destroying 1,833 U.S. tons of chemical agent.

### **Tooele Chemical Agent Disposal Facility Operations**

The HD campaign is the last major destruction campaign at TOCDF. There were nearly 6,194 U.S. tons of HD agent stored at DCD. Most were in TCs at the remote depot, located 60 miles southwest of Salt Lake City, Utah. This is the largest chemical agent destruction campaign that CMA will undertake to eliminate aging stockpiles and meet the nation's commitment under the CWC.

The HD campaign began in FY 2006 with the first HD agent-filled TC punched and drained in August 2006. LIC and MPF agent trial burns (ATBs) were successfully completed on January 25, 2007. On March 6, 2007, TOCDF received approval from the Utah Division of Solid and Hazardous Waste (DSHW) and Department of Air Quality for the LIC ATB Preliminary Report. This approval allowed TOCDF to increase the feed rate to the LIC from 50 to 75 percent of that demonstrated during the trial burn and supported the schedule that helped achieve the CWC 45 percent destruction milestone.

On April 17, 2007, TOCDF received notification from the Utah DSHW allowing TOCDF to increase the MPF feed rate from 75 percent to 100 percent of that demonstrated during the trial burn. TOCDF achieved a 100 percent feed rate in the MPF in only 88 days following completion of the trial burn. Approval of the MPF 100 percent feed rate supported the schedule that helped achieve the CWC 45 percent destruction milestone.

On April 30, 2007, TOCDF received notification from the Utah DSHW allowing TOCDF to increase the mustard agent and spent decontamination solution (SDS) feed rate to the LIC from 75 percent to 100 percent of that demonstrated during the trial burn. These feed rates are 1,208 pounds per hour of mustard agent and 1,809 pounds per hour of SDS. This allowed TOCDF to achieve 100 percent feed rate for the LICs in 95 days following completion on the trial burn and processing at full rate in both the LIC and MPF within 3 months of completion of the mustard trial burns, a first in the CDP. Approval of the LIC 100 percent feed rate supported the schedule that helped achieve the 45 percent Treaty milestone.

On June 7, 2007, TOCDF marked the 1-year anniversary of the start of the Area 10 HD TC sampling operation. As of September 30, 2007, 4,074 TCs have been sampled. Although a larger than projected number of high-heel TCs have been encountered, the SC and DCD storage area workers have been able to provide an ample number of TCs to the sampling operation, to maintain a sufficient supply of low-heel TCs to TOCDF for processing, thereby avoiding interruption of operations. Of the

sampled TCs, 2,187 were cleared to be destroyed through the baseline process. Sampling operations are projected to continue until June 2008.

TOCDF personnel reached a major safety milestone during FY 2007, by recording more than 3 million consecutive hours (705 days) of operations without a lost-time injury.

On August, 7, 2007, TOCDF met a milestone in which they processed more mustard TCs (more than 1,818) in 1 year than was previously processed at ABCDF in 3 years. TOCDF was able to make this milestone as a result of their safety record and receiving approval for 100 percent processing rates.

On August 31, 2007, TOCDF resumed mustard TC processing operations following the MPF maintenance mini-outage, which included a complete inspection of the MPF, including refractory, conveyor rollers, and PAS. During the course of the outage, eight drums of ash were removed from the MPF primary chamber. Minor refractory repairs were required.

TOCDF began preparations for start of the mustard (H) 155mm projectile campaign, scheduled to begin during FY 2008. TC processing will continue in parallel with H 155mm projectile campaign preparations and secondary waste processing.

CMA awarded a contract for assessment of the feasibility of utilizing TOCDF and CAMDS as a resource for conventional weapons demilitarization after chemical demilitarization operations are complete. The study commenced in October 2006; MTS representatives visited DCD on November 14 and 15, 2006, to gather information for the report. The report, entitled *Feasibility Study: Reuse of Chemical Demilitarization Facilities at Desert Chemical Depot (DCD) for Conventional Munitions Demilitarization*, was completed in March 2007, and concluded that neither CAMDS nor TOCDF could be economically used for conventional demilitarization operations.

## **Environmental Compliance**

During FY 2007, all necessary permitting requirements were met; the permits continue to be maintained. An Environmental Assessment was completed for the processing of elevated mercury HD TCs. Third-party verification from CHPPM was received regarding TOCDF conformance with ISO 14001.

## **Chemical Stockpile Safety**

The remainder of the chemical stockpile at DCD continues to be stored safely. During FY 2007, 27 leaking munitions and overpack containers were identified at Utah facilities [see the summary table in appendix B]. Leakers were handled in accordance with chemical surety procedures, and there was no release of chemical agent to the environment. Ongoing disposal and mitigation actions have resulted in greater than approximately 99 percent reduction of risk to the public stemming from the potential for a low-probability, high-consequence accident associated with the storage of chemical munitions and agent at DCD at the end of FY 2007.

## **Public Outreach**

During FY 2007, the DCD public affairs team continued to proactively address stakeholder questions and concerns regarding the TOCDF HD campaign strategy. Following the start of the mustard campaign, DCD hosted a visit by Actuality Productions to film footage and interview TOCDF representatives for a History Channel documentary program, Modern Marvels called Weapons of Mass Destruction; the national program was broadcasted in February 2007. Outreach efforts also included a public information meeting and poster session for the draft Finding of No Significant Impact to the TOCDF Environmental Assessment for proposed modifications to support the destruction of mustard agents and munitions. On July 17, 2007, a local ceremony was held to recognize the DCD work force contributions toward meeting the 45 percent international chemical weapons destruction milestone. The DCD public affairs team developed information products on CAMDS closure details, mustard sampling, and TOCDF processing strategy and status; provided monthly and annual reports/updates; and conducted a CAMDS media tour that resulted in a positive media story.

## **Chemical Stockpile Emergency Preparedness**

Cooperation among the Army, DHS, State of Utah, and local governments continued to be excellent. DCD has all CSEPP enhancements in place and is in sustainment. The depot has taken steps to adopt the NIMS. There is a robust Incident Command System (ICS) training program in place, and emergency plans have begun to incorporate the NIMS format. The DCD command staff, local community officials, public affairs officers, and public information officers received JIS/JIC training June 12 and 13, 2007.

The annual CSEPP exercise took place on September 12, 2007; this was the first time WebPuff 2.2 was used in an exercise. The exercise featured use of the new community JIC established in Tooele, Utah, providing easier media access than the former facility located at Tooele Army Depot. Throughout the year, community emergency preparedness was maintained by making upgrades to the depot Emergency Operations Center. A robust training program was maintained for emergency responders.

## **Chemical Agent Munitions Disposal System Operations**

CAMDS at DCD is undergoing closure activities. Beginning in FY 2007, the Project Manager for Non-Stockpile Chemical Materiel (PMNSCM) began managing portions of the closure at the direction of CMA. These closure activities are detailed in the non-stockpile section of this report.

## **Incidents**

During FY 2007, there were eight Category II chemical events (defined in accordance with Army Regulation (AR) 50-6, Chemical Surety; [see appendix E]) at Utah facilities. All eight were liquid leakers. There were five Category I chemical

events. At no time was the community or environment at risk of exposure to chemical agent.

### **Fiscal Year 2008 Planned Activities**

During FY 2008, TOCDF is scheduled to complete sampling the HD TC stockpile and continue processing low-mercury, low-heel TCs. Other planned activities include the start of the HD 155mm projectiles campaign, as well as the continuation of planning activities to prepare for processing high-mercury, high-heel TCs.

## **Anniston Chemical Activity and Anniston Chemical Agent Disposal Facility, Alabama**

### **Highlights**

ANCDF completed the VX M55 rocket campaign, destroying 23,289 rockets containing 117 U.S. tons of nerve agent VX during FY 2007. Following a VX munitions changeover, 36,727 155mm projectiles containing 110 U.S. tons of VX were destroyed. ANCDF destroyed a total of 227 U.S. tons of VX during FY 2007.

### **Anniston Chemical Agent Disposal Facility Operations**

ANCDF continued the VX M55 rocket campaign, which began in FY 2006. During production of VX M55 rockets, a small amount of polychlorinated biphenyl (PCB) material was used as a lubricant to ease the insertion of rockets into firing tubes. Under a Toxic Substances Control Act (TSCA) permit, EPA granted CMA approval to destroy the PCB-contaminated M55 rockets in the deactivation furnace system (DFS) at ANCDF and other CDFs.

ATBs for the LIC and DFS were conducted in September 2006. The Alabama Department of Environmental Management (ADEM) approved the LIC VX ATB Preliminary Report on November 13, 2006, and the DFS VX ATB Preliminary Report on November 20, 2006. This allowed ANCDF to process at 75 percent of the rocket and VX agent feed rate. In June 2007, ADEM approved the final LIC VX ATB report allowing ANCDF to process VX in the LIC at 100 percent of the ATB demonstrated rates.

Destroying the last of the 35,662 M55 VX rockets on March 7, 2007, ANCDF completed the campaign 46 days ahead of the baseline plan. ANCDF personnel completed TSCA permit closure activities following the rocket campaign; a closure report was submitted to EPA in July 2007. Site personnel await approval of the report.

Following an 86-day munition changeover period, which was completed 10 days ahead of schedule, ANCDF began destruction operations for VX 155mm projectiles on June 3, 2007. This campaign is the second of three VX munition campaigns at ANCDF.

The MPF VX Secondary Waste Destruction and Removal Efficiency test was completed in October 2006. On December 15, 2006, ADEM approved the report allowing ANCDF to process VX secondary waste.

On March 25, 2007, ANCDF surpassed a major safety milestone by recording 10 million safe hours of operations without an injury that resulted in lost-time from work. Based upon criteria established by the National Safety Council, this milestone placed ANCDF employees among the safest in the nation. This accomplishment dates back to May 19, 2000, during the early stages of plant construction, a span that covers over 2,500 consecutive days without a lost-time injury through all operations, including the completion of the GB campaign and VX rockets. On July 23, 2007, ANCDF logged its

first lost-time injury in over 10 million hours; 250,000 consecutive hours (72 days) of operations without a lost-time injury has been recorded since this incident occurred.

In an effort to leverage technology and knowledge across programs, a joint test project between CMA and ACWA was initiated. The project would place a Linear Projectile/Mortar Disassembly (LPMD) machine, designed for use at ACWA sites, at ANCDF to support mustard projectile campaign operations. The LPMD utilizes a fully-automated process to remove energetics from projectiles by removing nose plugs, fuze caps, and bursters. At ANCDF, the LPMD will be used to process 10,000 munitions of each configuration (105mm and 155mm projectiles and 20,000 4.2-inch mortars, if supported by the budget). Utilizing the LPMD at ANCDF will remove the explosives removal step for these projectiles. The benefits of ANCDF using the LPMD include the potential to eliminate two mechanical changeovers and potential reduction of delays due to projectile/mortar disassembly mechanical issues and dependency on the DFS. The benefits for the ACWA program include the opportunity to obtain actual weapon test data prior to ACWA operations, the potential to reduce operations schedules due to LPMD improvements, and gaining operational lessons learned and information to support procedure development.

The SC continues to mitigate staffing shortfalls through implementation of employee retention incentives and relocation of employees from company projects experiencing a surplus. ANCDF staffing situation remains challenging because of high attrition rates (10 to 15 percent).

## **Environmental Compliance**

During FY 2007, all necessary permitting requirements have been met, and the permits are being maintained. A RCRA permit renewal application was prepared and submitted to ADEM in December 2006. ANCDF continues to operate under its original permits until ADEM completes the permitting process. ANCDF completed *Second Review and Evaluation of Information for Updating the 1991 Environmental Impact Statement* resulting in a Record of Environmental Consideration (REC) concluding that no update was necessary. Third-party verification of ANCDF conformance with ISO 14001 was received from CHPPM.

## **Chemical Stockpile Safety**

The remainder of the chemical stockpile at ANAD continues to be stored safely. During FY 2007, five leaking munitions and overpack containers were identified at Alabama facilities [see summary table in appendix B]. Leakers were handled in accordance with chemical surety procedures, and there was no release of chemical agent to the environment. Ongoing disposal operations and mitigation actions have resulted in approximately 97 percent reduction of risk to the public stemming from the potential for a low-probability, high-consequence accident associated with the storage of chemical munitions and agents at ANAD at the end of FY 2007. As disposal operations continue, such risk at ANAD will be further reduced. The main risk driver in the remaining chemical stockpile at ANAD is the potential for auto-ignition of VX M55 rockets due to a lightning strike or earthquakes. CMA has completed mitigation

activities to address these issues, including placement of dielectric barriers in storage igloos, as well as reduction of stack height and banding of rocket pallets.

## **Public Outreach**

The fourth anniversary of safe operations at ANCDF was observed during FY 2007. While that milestone passed with little fanfare in the media and community, the completion of all M55 rocket demilitarization operations at the ANCDF in March 2007, was observed with a significant stakeholder event. An SC Roundtable Luncheon on March 29, 2007, involving more than 50 community and business leaders, provided agency and site officials the opportunity to herald the achievement. All outreach activities in the spring of 2007, noted that some 97 percent of the risk associated with the storage of chemical munitions at ANAD had been safely eliminated with disposal of all nerve agent-filled rockets. Due to the overall success of Anniston operations, there have been positive news stories and editorials in local and regional media outlets; when coupled with an aggressive speaker's bureau, a positive reputation for the mission and workforce within the community has been maintained.

## **Chemical Stockpile Emergency Preparedness**

ANAD has all CSEPP enhancements in place and is in sustainment. The Integrated Process Team has started to focus on CSEPP close-out issues, anticipating the successful elimination of chemical weapons.

The annual CSEPP emergency response exercise took place on March 14, 2007. A new mask fit and safety video is being developed for use by ANAD workers and visitors. Also, a public information video is being developed for users of Pelham Range, which is part of the Fort McClellan Army National Guard Training Center.

## **Incidents**

During FY 2007, there were no Category II chemical events (defined in accordance with AR 50-6, Chemical Surety; [see appendix E]) at Alabama facilities. There were four Category I chemical events. At no time was the community or environment at risk of exposure to chemical agent.

## **Fiscal Year 2008 Planned Activities**

During FY 2008, ANCDF is scheduled to continue processing VX 155mm projectiles and conduct testing of the LPMD machine.

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## **Umatilla Chemical Depot and Umatilla Chemical Agent Disposal Facility, Oregon**

### **Highlights**

During FY 2007, UMCDF completed the GB 8-inch and GB 155mm projectile campaigns, destroying 14,173 8-inch and 47,406 155mm projectiles containing 257 U.S. tons of chemical agent, and initiated agent changeover to process VX M55 rockets.

### **Umatilla Chemical Agent Disposal Facility Operations**

UMCDF began the GB projectile campaign in September 2006, with the processing of GB 8-inch projectiles, which was completed on January 3, 2007.

UMCDF began processing GB 155mm projectiles on January 26, 2007. On February 11, 2007, UMCDF completed disposal of 50 percent of the total 220,599 munitions (23 percent by tonnage) in the UMCD stockpile.

On July 3, 2007, the final enhanced onsite container (EONC) containing GB agent munitions was delivered to the UMCDF for processing. UMCDF completed processing of the GB 155mm projectiles on July 8, 2007, marking the completion of the GB-filled munitions at UMCD and at all CMA-operated sites. The site initiated changeover of equipment to process VX M55 rockets.

The MPF Secondary Waste trial burn, demonstrating the capability to burn 400 pounds of secondary waste per waste incineration container per hour, was completed on January 31, 2007. On April 17, 2007, an opinion was issued in the GASP I litigation and remanded three issues to the Oregon Environmental Quality Commission (EQC). These issues were impacts of mercury in mustard agent; the impacts of waste streams that no longer will be incinerated in the dunnage incinerator; and the ability of carbon filters to protect against mercury and former-dunnage incinerator waste stream emissions. The court held that these EQC determinations are required by Oregon law, which required the EQC to determine, prior to issuing a new hazardous waste permit, that the facility uses the best available technology (BAT) and that the facility will have no major adverse effect on public health and safety or the environment of adjacent lands. During the week of May 3, 2007, UMCDF voluntarily suspended processing Demilitarization Protective Ensemble suits and miscellaneous solid waste originally intended for the dunnage incinerator while these determinations were made. The EQC went through a Secondary Waste BAT discussion and unanimously approved the decision to resume processing. The MPF and DFS were declared to be the BAT for the destruction of secondary waste initially identified for processing through the cancelled dunnage incinerator. On August 16, 2007, UMCDF received approval from the Oregon Department of Environmental Quality (ODEQ) to resume processing of secondary waste. Waste processing resumed in the MPF on August 17, 2007. This event is an important milestone for the UMCDF project.

In January 2007, UMCDF received Occupational Safety and Health Administration (OSHA) Voluntary Protection Program (VPP) "Star" status, the highest

safety honor bestowed by the federal government. The VPP promotes effective worksite-based safety and health. Participants in the program are assigned “Merit” or “Star” status following a comprehensive onsite review by OSHA. Within the VPP, management, labor, and OSHA establish cooperative relationships at workplaces that have implemented a comprehensive safety and health management system.

As of September 30, 2007, UMCDF personnel have recorded over 1.6 million consecutive hours (450 days) of operations without a lost-time injury.

### **Environmental Compliance**

During FY 2007, all necessary permitting requirements were met, and the permits are being maintained. RCRA and Air permit renewal applications were prepared and submitted to ODEQ in 2006. ODEQ has determined the RCRA permit renewal application to be complete; however, new permits have not been issued to date. ODEQ is in the process of transferring emission requirements from the RCRA permit into the Air permit in order to comply with Maximum Achievable Control Technology regulations. UMCDF continues to operate under its original permits and completed the *Review and Evaluation of Information for Updating the 1996 Revised Final Environmental Impact Statement*, resulting in a REC concluding that no update was necessary. Third-party verification of UMCDF conformance with ISO 14001 was received from CHPPM.

### **Chemical Stockpile Safety**

The remainder of the chemical weapons stockpile at UMCD continues to be stored safely. During FY 2007, 19 leaking munitions and overpack containers were identified at Oregon facilities [see summary table in appendix B]. Leakers were handled in accordance with chemical surety procedures, and there was no release of chemical agent to the environment. Ongoing disposal operations and mitigation actions have resulted in approximately 93 percent reduction of risk to the public stemming from the potential for a low-probability, high-consequence accident associated with the storage of chemical munitions and agents at UMCD at the end of FY 2007. The potential of an earthquake causing such an event remains the dominant risk driver at this location.

### **Public Outreach**

UMCD and UMCDF celebrated several milestones with the community during FY 2007, most notably the end of GB agent operations in July 2007. Local communities and media voiced approval when the Umatilla project passed the 50 percent mark in the number of stockpile munitions destroyed and received the federal OSHA VPP “Star Status” award that recognized the UMCDF as one of the safest workplaces in the United States. The Umatilla public affairs team continues to inform the community on preparations for the beginning of VX processing.

## **Chemical Stockpile Emergency Preparedness**

UMCD has all CSEPP enhancements in place and is in sustainment. U.S. Coast Guard Pacific Strike Team personnel presented ICS level 300 and 400 training to the on- and off-post CSEPP community decision-makers in April 2007.

The annual CSEPP community exercise was conducted on May 22, 2007. The Umatilla CSEPP community is currently preparing to participate in the National Level Exercise/Service Response Force Exercise in May 2008. Planning for eventual closeout continues.

## **Incidents**

During FY 2007, there were no Category II chemical events (defined in accordance with AR 50-6, Chemical Surety; [see appendix E]) at Oregon facilities. There were 11 Category I chemical events. At no time was the community or environment at risk of exposure to chemical agent.

## **Fiscal Year 2008 Planned Activities**

During FY 2008, UMCDF is scheduled to complete GB-to-VX agent changeover activities, complete the VX M55 rocket campaign, complete destruction of VX spray tanks, and begin processing VX 155mm projectiles.

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## **Pine Bluff Chemical Activity and Pine Bluff Chemical Agent Disposal Facility, Arkansas**

### **Highlights**

PBCDF completed destruction of nerve agent GB rockets during FY 2007, processing 31,190 M55/56 rockets, which contained 167 U.S. tons of nerve agent GB, and began agent changeover for VX M55 rocket processing.

### **Pine Bluff Chemical Agent Disposal Facility Operations**

PBCDF continued to process GB M55 rockets during FY 2007. The Pine Bluff Chemical Activity (PBCA) safely transported the last EONC carrying GB rockets to PBCDF on May 17, 2007, and the last GB nerve agent-filled chemical weapon was disposed of at PBCDF on May 19, 2007. The inventory of GB-filled weapons that have been safely destroyed consisted of 90,409 rockets and 2 TCs.

With the completion of the GB campaign, 73.5 percent of the total munitions stockpile stored at PBCA has been destroyed. The GB-filled munitions were the first disposal campaign, since these munitions posed the greatest storage risk. The next campaign will destroy VX-filled rockets. On September 20, 2007, PBCDF began an outage for maintenance and changeover of the facility equipment.

On May 9, 2007, activities commenced to sample and analyze the stockpile mustard TCs stored at PBA. The purpose of this sampling project is to more definitively determine the heavy metal content of the unique mustard stockpile at PBA. The mustard TC stockpile stored at the PBA is 97 percent HT-type mustard agent and 3 percent HD-type mustard. This differs from the mustard TCs at other Army stockpile storage locations, whose stockpile inventories are exclusively type HD and are from a different manufacturing source than the inventory stored at PBA. The analytical data to be obtained from this sampling project will be used to evaluate potential refinement of plans, procedures, and PAS to be used during future disposal of the mustard stockpile at the PBCDF.

On May 9, 2007, PBCDF achieved a safety milestone by recording 9 million safe hours of operations without a lost-time injury. This achievement is a reflection of the excellent safety culture and efforts of the PBCDF workforce. As of September 30, 2007, 9.65 million consecutive hours (2,038 days) of operations without a lost-time injury have been recorded.

The MPF Secondary Waste ATB was completed on November 4, 2006. On December 21, 2006, PBCDF received approval from the Arkansas Department of Environmental Quality (ADEQ) of the PBCDF MPF GB ATB Preliminary Data Report. Approval allowed PBCDF to process secondary waste at 75 percent of the maximum permitted feed rates for the MPF.

The SC continues to mitigate staffing shortfalls through employee retention incentives and relocation of employees from company projects experiencing a surplus. PBCDF staffing attrition rates have fallen from 10 to 15 percent to less than 10 percent. The staffing situation is slowly improving as a result of the mitigation strategies implemented.

### **Environmental Compliance**

During FY 2007, all necessary permitting requirements have been met, and the permits are being maintained. Approval of permit modifications required to begin the VX campaign have been obtained. Third-party verification of PBCDF conformance with ISO 14001 was received from CHPPM.

### **Chemical Stockpile Safety**

The chemical stockpile at PBA continues to be stored safely. During FY 2007, there were no leaking munitions identified at Arkansas facilities [see summary table in appendix B]. Ongoing disposal operations and mitigation actions have resulted in approximately 66 percent reduction of risk to the public stemming from the potential for a low-probability, high-consequence accident associated with the storage of chemical munitions and agents at PBA at the end of FY 2007. The potential of a lightning strike causing such an event through auto-ignition of M55 rockets remains the dominant risk driver at this location; it has been mitigated through the placement of dielectric barriers in storage igloos.

### **Public Outreach**

The Pine Bluff team supported several major events during FY 2007, including the end of nerve agent GB processing at PBCDF, closure of several non-stockpile projects, and the recommendation for certification for PBCDF as an OSHA VPP Star facility. The team created an arsenal-wide informational brochure highlighting the multiple missions at PBA, including the CDP, which was used as a handout at public events.

### **Chemical Stockpile Emergency Preparedness**

PBCA has all CSEPP enhancements in place and is in sustainment. Construction of the new CSEPP-funded Emergency Operations Center should be completed before the end of 2007. A new mask fit and safety video was developed for PBCA workers and visitors.

The annual CSEPP community exercise was conducted on February 28, 2007. A media campaign was conducted in the Pine Bluff area during the reporting period. A telephonic survey was also conducted in May 2007, which indicated significant increase in public knowledge of shelter-in-place procedures and CSEPP information overall. PBCA staff, local community representatives, public affairs officers, and public information officers received JIS/JIC training November 7 and 8, 2006.

## **Incidents**

During FY 2007, there were no Category II chemical events (defined in accordance with AR 50-6, Chemical Surety; [see appendix E]) at Arkansas facilities. There were two Category I chemical events. At no time was the community or environment at risk of exposure to chemical agent.

## **Fiscal Year 2008 Planned Activities**

PBCDF is scheduled to begin the VX M55 rocket campaign in November 2007. Mustard TC processing strategy recommendations are expected in October 2007, and Closure Phase 1 planning is scheduled to begin in October 2007. Mustard sampling is scheduled to be completed during FY 2008.

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## **Aberdeen Chemical Agent Disposal Facility, Maryland**

### **Highlights**

ABCDF completed the facility closure phase during FY 2007, becoming the first CMA site to complete RCRA closure; administrative closeout continues.

### **Aberdeen Chemical Agent Disposal Facility Closure**

ABCDF continued the closure phase during FY 2007, having completed destruction operations in FY 2006. In September 2006, demolition of the TC Cleanout facility began; it was completed in October 2006. Final demolition of the Process Neutralization Bay began on October 30, 2006, and was completed in December 2006.

During closure operations, ABCDF shipped more than \$10 million in equipment (such as process equipment, laboratory and analytical equipment, safety and environmental supplies, and office equipment) to ACWA sites. This effort accelerated the ABCDF closure schedule and resulted in significant cost avoidance in procurement of new materials and equipment for the ACWA sites.

On June 21, 2007, the Maryland Department of the Environment (MDE) approved the closure of the ABCDF RCRA permit, making it the first CMA site to complete RCRA closure.

Administrative closeout is ongoing and projected to be complete in FY 2008.

### **Environmental Compliance**

During FY 2007, all permitting activities were completed. In June 2007, MDE approved the closure of ABCDF and released Aberdeen Proving Ground, CMA, and Bechtel Aberdeen from responsibility under Controlled Hazardous Substances Facility Permit Number A-190 with respect to the ABCDF.

### **Chemical Stockpile Safety**

All chemical agent stored at APG-EA has been destroyed.

### **Public Outreach**

The ABCDF outreach team organized a closure ceremony for ABCDF personnel and CMA leadership in March 2007. The team also worked with CMA leadership to maximize this positive story by fully publicizing the closure ceremony and inviting elected officials and key stakeholders. The team publicized the RCRA closure as yet another program accomplishment.

## **Chemical Stockpile Emergency Preparedness**

Due to the elimination of the Maryland stockpile and risk to the public, CSEPP has been terminated at this site.

## **Incidents**

Due to the elimination of the Maryland stockpile, there were no chemical events at Maryland facilities during FY 2007.

## **Fiscal Year 2008 Planned Activities**

ABCDF will continue and complete contract closeout activities.

## **Newport Chemical Depot and Newport Chemical Agent Disposal Facility, Indiana**

### **Highlights**

NECDF continued chemical agent neutralization operations. In FY 2007, a total of 651 TCs have been drained; 495 U.S. tons of agent have been neutralized; and 1,086 TCs have been processed through the decontamination facility. An approximate total of 700,000 gallons of hydrolysate have been safely transported to a commercial TSDF, where an equivalent of 587 U.S. tons of VX agent has been destroyed and treaty verified.

### **Newport Chemical Agent Disposal Facility Operations**

NECDF continued chemical agent neutralization operations throughout FY 2007. Hydrolysate from the VX neutralization process was stored at NECD in intermodal containers in anticipation of a contract award to an offsite TSDF for final treatment and disposal. The hydrolysate undergoes a secondary treatment process before credit for destruction can be taken for CWC purposes.

The Army signed a contract with Veolia Environmental Services, a permitted commercial TSDF located in Port Arthur, Texas, to safely provide the necessary final treatment of hydrolysate. On April 17, 2007, the first intermodal containers, each carrying approximately 3,575 gallons of hydrolysate, arrived at the TSDF for disposal.

On April 26, 2007, NECDF reached the 50 percent milestone for neutralization of the Newport stockpile of nerve agent VX.

On May 14, 2007, a refined method for the analysis of low-level VX in hydrolysate was implemented. This refined method has the capability of providing confirmation for the destruction of VX in a shorter amount of time and has aided in the total destruction optimization process and increased plant throughput.

In June 2007, a lawsuit was filed against the Army by the Sierra Club and other plaintiffs in the United States District Court for the Southern District of Indiana challenging the shipment of hydrolysate and citing violations of the Resource Conservation and Recovery Act (RCRA) and NEPA. Plaintiffs filed a Motion for a Preliminary Injunction to halt further shipments. CMA voluntarily halted the shipments on June 19, 2007, pending the courts resolution of the motion. A hearing was held on July 18, 2007, and on August 3, 2007, the court denied the motion. Shipments resumed on August 7, 2007. A lawsuit is still pending, and discovery is ongoing.

Operations were paused on August 8, 2007, when sodium hydroxide (NaOH) was not added to the water/NaOH mixture being prepared for agent injection. Preliminary analysis of samples, to verify completion of neutralization, indicated concentrations of agent at levels greater than surety levels. The batch from which the samples were taken was stored under engineering controls pending the outcome of an investigation to determine the cause of the incident, with neutralization operations being

paused throughout the investigation. Following implementation of critical corrective actions and an approved plan for completion of additional corrective actions, partial neutralization operations resumed on September 7, 2007 and full neutralization operations resumed on September 11, 2007. Another incident occurred on September 17, 2007, where a batch of hydrolysate was not yet confirmed as clear, draining/neutralization operations were again paused to revisit previous corrective actions and root causes. To reduce the likelihood of future incidents the SC and government regulators are developing a verification/validation plan to ensure that corrective actions are completed and effective. Other site activities such as TC cleanout and shipment of hydrolysate continue.

Since logging a lost-time injury in early October 2006, NECDF personnel recorded 1.10 million consecutive hours (363 days) without a lost-time injury during FY 2007.

### **Environmental Compliance**

NECDF initiated discussions with the Indiana Department of Environmental Management to determine a path forward to allow for processing of 106 pounds of VX stored in a drum at NECD and allow for reprocessing of flammable hydrolysate initially produced at the beginning of neutralization operations. Because the flammable hydrolysate is greater than 90 days old, it no longer falls under the current permit guidelines for processing VX at NECDF.

### **Chemical Stockpile Safety**

The chemical stockpile at NECD continues to be stored safely. During FY 2007, no leaking containers were identified. Ongoing neutralization operations and mitigation actions, such as relocating VX TCs from outdoors to hardened storage igloos, have resulted in approximately 93 percent overall reduction of risk to the public stemming from the potential for a low-probability, high-consequence accident associated with the storage of chemical agent at NECD by the end of FY 2007. As disposal operations continue, such risk at NECD will be further reduced.

### **Public Outreach**

In November 2006, the Newport Chemical Stockpile Outreach Office opened at a new location in Clinton, Indiana. The office has experienced increased visibility at this location. Public interest is transitioning to topics related to NECD and NECDF closure as it is possible that NECDF may finish neutralization operations as early as summer 2008.

## **Chemical Stockpile Emergency Preparedness**

NECD has all CSEPP enhancements in place and is in sustainment. A high level of cooperation between the Army, DHS, and local community continued to address emergency preparedness issues. The community Integrated Process Team close-out planning effort is going extremely well, due to a high level of cooperation. Efforts to separate the hydrolysate issue from CSEPP were successful. A new mask fit and safety video was developed for use by NECD workers and visitors.

The annual CSEPP exercise took place on April 18, 2007. A media campaign was conducted to increase public awareness of protective actions. JIS/JIC training was conducted on April 3 and 4, 2007, and included both military and civilian representatives. A news-writing workshop was conducted on April 5, 2007, for public affairs staff.

## **Incidents**

During FY 2007, there were no Category II chemical events (defined in accordance with AR 50-6, Chemical Surety; [see appendix E]) at Indiana facilities. There was one Category I chemical event. At no time was the community or environment at risk of exposure to chemical agent.

## **Fiscal Year 2008 Planned Activities**

NECDF is scheduled to continue TC draining and agent neutralization, as well as continuing shipment of hydrolysate to the offsite TSDf for final treatment and disposal in FY 2008. The potential for completion of agent neutralization operations to occur ahead of schedule exists. Agent neutralization could be completed as early as the summer of 2008.

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## **Pueblo Chemical Depot and Pueblo Chemical Agent-Destruction Pilot Plant, Colorado**

### **Highlights**

PCAPP's final design was accepted by PM ACWA on May 10, 2007. Construction is ongoing.

### **Pueblo Chemical Agent-Destruction Pilot Plant Design and Construction**

Following acceptance of PCAPP's design, a Critical Design Review was conducted on July 18, 2007. This review provided the PM ACWA an opportunity to assess the design with respect to technical adequacy and resource requirements to ensure alignment with program objectives. All exit criteria were met, except for the Fire Protection Design Analysis Report, which required an update.

During 2007, Stage I construction (site preparation and underground utilities) was completed, and Stage II construction began. Stage II construction includes foundation work, gas pipeline installation, and construction of several support buildings.

### **Environmental Compliance**

All necessary permit requirements have been met and maintained during FY 2007. The Stage 3 Class 3 RCRA permit modification (based on the intermediate design) was submitted to the Colorado Department of Public Health and the Environment (CDPHE) on December 1, 2006. A supplemental package was submitted on August 17, 2007, to update the Stage 3 Class 3 modification request with final design information. The companion Stage 3 Certificate of Designation was submitted to Pueblo County, Colorado, on April 5, 2007. The review of the state and county permit modification requests are expected to continue for at least 12 months.

A Temporary Authorization Request (TAR) was submitted to CDPHE on September 27, 2007, for authorization to start construction before the Stage 3 modification is approved. The TAR addresses a limited scope of Stage 3 construction with approval expected in the second quarter of FY 2008. The approved Stage 3 Certificate of Designation is not required for this limited scope of construction. County commissioners agreed to informal notification after CDPHE approval of the TAR.

The final Multi-Pathway Health Risk Assessment (MPHRA) protocol was submitted to CDPHE on July 13, 2007. CDPHE approved the protocol on July 24, 2007. The MPHRA report, using initial facility data, will be submitted in October 2007. The MPHRA report will be considered by CDPHE when reviewing the Stage 3 modification request. CDPHE acceptance of MPHRA report results is a prerequisite for issuance of the Stage 3 draft permit.

## **Chemical Stockpile Safety**

The chemical weapons stockpile at PCD continues to be stored safely. During FY 2007, one leaking munition was identified at PCD [see summary table in appendix B]. The leaker was handled in accordance with chemical surety procedures, and there was no release of chemical agent to the environment. The remote possibility of an earthquake causing a low-probability, high-consequence accident associated with the storage of chemical munitions and agents remains the dominant driver of risk to the public at this location. Mitigation measures, such as reduced stack height of munitions and banding of pallets, are being implemented.

## **Public Outreach**

During FY 2007, the Pueblo outreach team continued to provide the CAC, its working groups, and the public with program information on the funding status and hydrolysate treatment at various public meetings, site tours, and speakers bureau events. In January 2007, the outreach team coordinated three public meetings in the communities surrounding PCD to review and discuss permit modifications for the Stage 3 processing facilities. To highlight the PCAPP design acceptance, the team initiated a multi-faceted approach to communicating the good news story through various media relations activities and information distributions to key stakeholders. Monthly tours for community leaders and elected officials were initiated and the education outreach program reached more than 3,000 students over the course of the year. The Pueblo team also coordinated with the State of Colorado regarding outreach around the MPHRA and implemented a public outreach plan to address feedback received from community members in the Boone, Colorado, area.

## **Chemical Stockpile Emergency Preparedness**

Emergency preparedness continued with a high degree of cooperation among stakeholders. PCD has all CSEPP enhancements in place and is in sustainment. Spokesperson crisis communication training was provided for on- and off-post officials on February 20 and 21, 2007. The ICS training program has been very effective; virtually all of the depot staff has completed the required training. Hazard analysis training was conducted every 2 weeks for hazard analysts and key staff. The entire CSEPP community has upgraded to WebPuff 2.2. A new mask fit and safety video was developed for use by PCD workers and visitors.

There is an active joint exercise program in place; exercises involving on- and off-post elements are conducted monthly. The annual CSEPP community exercise took place on May 9, 2007.

## **Program Reviews**

PM ACWA requested that the NRC review the design and testing of the Metal Parts Treater (MPT) for BGCAPP. As part of this effort, the committee will review the PCAPP Munitions Treatment Unit (MTU) design and test data and compare that information with MPT data and recommend MTU applications for BGCAPP. The study, entitled *Review and Assess Developmental Issues Concerning the Metal Parts Treater Design for the Blue Grass Chemical Agent Destruction Pilot Plant*, began in August 2007 and is expected to take 7 months.

## **Incidents**

During FY 2007, there were no Category II chemical events (defined in accordance with AR 50-6, Chemical Surety; [see appendix E]) at Colorado facilities. There was one Category I chemical event. At no time was the community or environment at risk of exposure to chemical agent.

## **Fiscal Year 2008 Planned Activities**

During FY 2008, the balance of the construction task will be awarded. After this contract award, construction of the main processing buildings (Agent Processing Building and Enhanced Reconfiguration Building) will begin. In addition, other construction activities will continue, including work on the multipurpose/laundry building, control and support building, natural gas pipeline, various foundations and equipment pads, and utility building. There will also be a variety of activities scheduled throughout FY 2008 to support the development and design of first-of-a-kind (FOAK) equipment to be used at PCAPP.

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## **Blue Grass Chemical Activity and Blue Grass Chemical Agent-Destruction Pilot Plant, Kentucky**

### **Highlights**

BGCAPP is currently in the final design phase. Early construction (site preparation, earthworks, and construction of access road) is ongoing.

### **Blue Grass Chemical Agent-Destruction Pilot Plant Design and Construction**

Design activities continued at the BGCAPP during FY 2007. The SC submitted a Design Execution Strategy Plan to PM ACWA on May 4, 2007. The plan outlines the path forward for completing the final BGCAPP design. According to the plan, the SC will complete the final design of the main processing buildings, specifically the Munitions Demilitarization Building (MDB), Control and Support Building (CSB), and Supercritical Water Oxidation (SCWO) Processing Building, in January and February 2008, respectively.

During FY 2007, early construction activities, to include the access road, perimeter fencing and site preparations, were completed. In addition, planning and fabrication commenced for FOAK process equipment. A limited notice to proceed was awarded to begin long-lead procurement and detailed test planning for the Energetics Batch Hydrolyzer.

### **Environmental Compliance**

Sampling for the Background Site Investigation Work Plan was completed the week of March 19, 2007. A final report will be issued in first quarter of FY 2008. The report must be accepted by ACWA before concrete can be poured for the MDB. Construction is scheduled to begin in third quarter of FY 2008.

The SC submitted the Title V Air Permit modification to the Kentucky Department for Environmental Protection (KDEP) on March 26, 2007. The SC expects the final permit for the revised design will be issued in first quarter of FY 2009.

ACWA submitted a research, development, and demonstration permit modification to KDEP on September 27, 2006; the modification complemented the revised BGCAPP facilities and equipment designs and is based on the BGCAPP intermediate designs. Monthly status meetings are held with KDEP to address or resolve issues. Approval is expected by fourth quarter of FY 2008.

### **Chemical Stockpile Safety**

The chemical stockpile at BGAD continues to be stored safely. During FY 2007, one leaking munition was identified [see summary table in appendix B]. The leaker was handled in accordance with chemical surety procedures, and

there was no release of chemical agent to the environment. The potential of a lightning strike causing a low-probability, high-consequence accident associated with the storage of chemical munitions and agents remains the dominant risk driver at this location. Although destruction operations have not begun, placement of dielectric barriers has been completed. This mitigation action resulted in an approximate 33 percent reduction of overall risk to the public during storage.

## **Public Outreach**

During FY 2007, the Blue Grass outreach team continued to provide the Kentucky CAC, its working groups, and the public with program information on the key issues of funding status, hydrolysate treatment, and facility redesign at a variety of public meetings and speakers bureau events. The team facilitated a groundbreaking open house at Eastern Kentucky University, which was attended by approximately 250 people, including members of the public, local officials, regulators, project and BGAD personnel, and members of the Kentucky congressional delegation. In coordination with BGAD and BGCA public affairs, the team was responsible for all logistics for the event, including publicity and media relations, as well as the development of collateral materials such as invitations, programs, and displays. Other key initiatives included a series of technical articles in the Blue Grass *Exchange* newsletter responding to stakeholder questions regarding the neutralization and supercritical water technology, as well as a site tour for members of the Kentucky CAC and its subgroup, the Chemical Destruction Community Advisory Board (CDCAB). The team also coordinated a special public meeting of the CAC and CDCAB to discuss the results of the MTS and Lean Six Sigma studies regarding the offsite shipment of hydrolysate.

## **Chemical Stockpile Emergency Preparedness**

BGAD has all CSEPP enhancements in place and is in sustainment. A close working relationship and a high level of cooperation between the Army, DHS, and local community continued to address emergency preparedness issues. A new telephone system was installed in the BGAD Emergency Operations Center. The BGAD Health Clinic purchased several significant enhancements that included a Mega Code Kelly Advanced Manikin with VitalSim™ Control Unit for training, a LIFEPAK® 12 Defibrillator/Monitor with accessories, and a LIFEPAK 1000 Automated External Defibrillator with electrocardiogram display and accessories. A new mask fit and safety video was developed for use by BGAD workers and visitors.

The annual CSEPP community exercise was held on October 25, 2006.

## **Program Reviews**

An Army Research Laboratory/Army Research Office SCWO Panel Study, initiated at the request of PM ACWA, submitted its final report in October 2006.

The study was conducted to determine whether the BGCAPP project plan and path forward provide adequate measures to address the findings identified in the NRC SCWO report released in July 2006. The panel found that BGCAPP's plans for future testing are sufficiently comprehensive and if implemented as presented to the panel, adequately address the concerns raised in the NRC report.

PM ACWA requested that the NRC review the design and testing of the MPT for BGCAPP. As part of this effort, the committee will review the PCAPP MTU design and test data and compare that information with MPT data and recommend MTU applications for BGCAPP. The study, entitled *Review and Assess Developmental Issues Concerning the Metal Parts Treater Design for the Blue Grass Chemical Agent Destruction Pilot Plant*, is expected to take 7 months, with a report to be issued in FY 2008.

### **Incidents**

During FY 2007, there was one Category II chemical event (defined in accordance with AR 50-6, *Chemical Surety*; [see appendix E]) at Kentucky facilities. At no time was the community or environment at risk of exposure to chemical agent. There were no Category I chemical event.

### **Fiscal Year 2008 Planned Activities**

During FY 2008, the final designs for the MDB, CSB, and SCWO Processing Building will be completed. Construction activities will also continue, to include the completion of the Access Control Point and Badging Facility and the start of the horizontal concrete for the MDB and CSB. In addition, activities to support the procurement and fabrication of FOAK equipment will continue.

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#### IV. NON-STOCKPILE CHEMICAL MATERIEL

During FY 2007, PMNSCM pursued the following activities to safely destroy NSCM.

##### **Recovery and Destruction of Chemical Warfare Materiel**

PMNSCM supported a variety of remediation operations in FY 2007. These activities included the recovery, assessment, and destruction of CWM and suspect CWM. Additionally, PMNSCM supports USACE during site scoping studies, site remediation, and range clearance missions. PMNSCM has supported activities at the following locations:

- *Aberdeen Proving Ground-Edgewood Area, Maryland.*
  - On October 16, 2006, five 75mm projectiles were recovered from King's Creek. All items were reviewed by the Materiel Assessment Review Board (MARB) on October 30, 2006. Four of the five 75mm projectiles were found to contain FM smoke (titanium tetrachloride). These four items were subsequently destroyed by personnel from the 20th Support Command (SUPCOM), formerly known as the 22nd Chemical Battalion and U.S. Army Technical Escort Unit, at J-Field on December 4, 2006. The MARB recommendation for the fifth item was possible phosgene (CG). This item was placed in the N-Field bunker pending accessing in the Munitions Assessment and Processing System (MAPS) and destruction in the Explosive Destruction System (EDS).
  - On November 3, 2006, a suspect 4.2-inch mortar was recovered from D-Field. The item was assessed on December 4, 2006, and the MARB recommendation was possible CG. The mortar was placed in the N-Field bunker pending assessment in MAPS and destruction in the EDS.
  - On February 8, 2007, an E54R8 bomblet was recovered from Capa Field. The item was assessed and found to contain an antifreeze and water fill. The item was destroyed at J-Field on March 28, 2007.
  - Between June 5 and 6, 2007, 13 items were recovered at APG-EA in the proximity to the intersection of Wise and Douglas roads. Four Livens projectiles and nine Stokes mortars were recovered. Of the four Livens projectiles, one was found to contain water and three were found to contain FM smoke. Of the nine Stokes mortars recovered, seven were found to be empty and two were found to contain water. All items were recommended for local disposition by the MARB on August 24, 2007.
  - On July 10, 2007, 45 M60 rockets were discovered at the Aberdeen Test Center at Aberdeen Proving Ground, Maryland. The M60 is a training rocket used to simulate an M55 rocket. Forty-three of the M60s are in M441 shipping and firing tubes. All rockets are currently in storage at the N-Field

Bunker. Based on Center for Treaty Implementation and Compliance guidance, the items are not declarable Category 3 chemical weapons because they do not meet the CWC definition; however, the destruction of the rockets will be monitored for transparency measures, providing a form of destruction verification to the OPCW without the items being declared.

- On August 23, 2007, two E93 bomblets were turned over to personnel from the 20th SUPCOM by Baltimore County law enforcement personnel. The items were assessed and found to contain powder fills. It was determined that the items did not contain CWM, but the assessment could not exclude the possibility of a biological warfare agent fill. The items were turned over to the Edgewood Chemical Biological Center for additional analysis.
- *Former Camp Sibert, Alabama.* On April 19, 2007, personnel from the 20th SUPCOM were deployed to the Former Camp Sibert, Alabama, to assess 16 suspect 4.2-inch mortars recovered by USACE between June 27, 2006 and April 19, 2007, during Site 8 range clearance activities. As items were recovered by USACE and its contractors, the suspect items were placed in Interim Holding Facilities (IHF) provided by PMNSCM. Of the 16 items recovered, 13 contained possible tear gas fills, two contained water fills, and one contained FS smoke (sulfur-trioxide chlorosulfonic acid solution). On September 20, 2007, four of the suspect CNS<sup>8</sup>-filled items were successfully moved from the former Camp Sibert to APG-EA for testing and disposal in the MAPS and EDS.
- *Former Fort McClellan, Alabama.* On April 13, 2007, personnel from the 20th SUPCOM successfully completed an emergency chemical agent identification set (CAIS) destruction operation using the Single CAIS Access and Neutralization System (SCANS) at Former Fort McClellan, Alabama. The operation consisted of the destruction of one recovered K955 CAIS bottle containing mustard agent or lewisite.
- *Former Tulalip Backup Ammunition Storage Depot, Washington.* In FY 2007, PMNSCM supported the USACE remediation at the Former Tulalip Backup Ammunition Storage Depot, Washington. PMNSCM deployed an IHF in September 2006 after several site remediation personnel uncovered old gas cylinders and broken glassware. USACE prepared a Chemical Safety Submission and erected a vapor containment tent around the dig site before resuming intrusive operations in December 2006. Operations concluded in April 2007 with the recovery of 18 gas cylinders and various amounts of broken CAIS. The Former Tulalip Backup Ammunition Storage Depot was used for munition storage and chemical warfare training during World War II. The site is now an Indian Reservation.

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<sup>8</sup> CNS is a tear gas solution containing 23 percent chloroacetophenone (CN), 38.4 percent chloropicrin, and 38.4 percent chloroform. It is a non-persistent lachrymatory agent (causes tearing and pain) and upper respiratory passage irritant. The chloropicrin acts as a vomiting agent.

- *Fort Benning, Georgia.* On November 16, 2006, PMNSCM successfully completed the destruction of 38 K941 CAIS bottles containing mustard agent using the SCANS. As part of this operation, 20th SUPCOM personnel unpacked four CAIS overpacks containing a total of 134 bottles. Twenty-two of the 134 bottles contained mustard agent; 112 bottles were either empty or compromised and were subsequently decontaminated and disposed. There were 16 mustard-filled K941 bottles recovered as part of the initial remediation project already stored in the IHF at Fort Benning, Georgia.
- *Fort Bragg, North Carolina.* On May 4 and 5, 2007, PMNSCM successfully completed SCANS operations at Fort Bragg, North Carolina. Personnel from 20th SUPCOM successfully treated 24 CAIS vials during the operation.
- *Fort Campbell, Kentucky.* On October 30, 2006, a suspect 4.2-inch mortar was recovered from Range 44 of Fort Campbell, Kentucky. The local Explosive Ordnance Detachment x-rayed the item and determined it contained a liquid fill. The Emergency Operations Center was notified and contacted the 20th SUPCOM. The Mobile Munitions Assessment System (MMAS) and personnel from the 20th SUPCOM were deployed on October 31, 2006, to assess the suspect item. The item was found to contain FM smoke and was recommended for local disposition by the MARB. The item was destroyed via open detonation on November 2, 2006.
- *Great Salt Plains National Wildlife Refuge, Oklahoma.*
  - On April 21, 2007, a Boy Scout digging for selenite crystals at the Great Salt Plains National Wildlife Refuge in Oklahoma was overcome by a gaseous smell when he encountered several glass vials in the ground. Personnel from the Wildlife Refuge investigated the site and discovered approximately eight intact glass vials and contacted the local sheriff. On April 23, 2007, the Army was notified and provided with pictures of the vials, which were consistent with K951 CAIS vials.
  - PMNSCM coordinated an emergency response assessment with the 20th SUPCOM. Personnel from the 20th SUPCOM arrived at the site on April 29, 2007, to begin assessment operations using the Raman Spectrometer. In total, 134 intact CAIS vials were recovered; three broken or leaking CAIS vials were also recovered. These broken items were not assessed. All items were packaged and shipped to Vance Air Force Base, near Enid, Oklahoma, for temporary storage. On May 7, 2007, all CAIS items were shipped to a TSDf for disposal.
  - During the week of August 13, 2007, 28 additional CAIS vials were recovered at the Great Salt Plains National Wildlife Refuge as part of a USACE Time Critical Removal Action. Personnel from the 20th SUPCOM were deployed the week of August 27, 2007, to assess and package the items. The repackaged K951 vials were shipped to a TSDf for final disposition on September 10, 2007.

- The site of discovery is a Formerly Used Defense Site (FUDS), the former Great Salt Plains Bombing Range near Cherokee, Oklahoma. The bombing range is associated with another FUDS, the Muskogee Army Airfield, to which CAIS are known to have been shipped. The site is currently closed to the public and has been secured. USACE has initiated a full investigation.
- *Holloman Air Force Base, New Mexico.* On May 28, 2007, approximately 170 E61R4 bomblets were discovered at a landfill on Holloman Air Force Base, New Mexico. Notifications were immediately made to the Deputy Assistant Secretary of the Army for Environment, Safety, and Health; state regulators; and the Air Force Secretary. A team from the 20th SUPCOM was dispatched along with non-intrusive assessment equipment on June 5, 2007, to conduct an assessment of the items. The majority of the items were already expended. All intact items were x-rayed and found to be empty.
- *Redstone Arsenal, Alabama.*
  - On March 13, 2007, a suspect 4.2-inch mortar was recovered from an area of Redstone Arsenal, Alabama. The item was assessed by personnel from the 20th SUPCOM and found to contain FS smoke. This item was destroyed on April 5, 2007.
  - On March 30, 2007, a suspect 4.2-inch mortar was recovered at the Proof Mark Site of Redstone Arsenal, Alabama. Personnel from the 20th SUPCOM were deployed to assess the item and determined that the item contained FS smoke. This item was subsequently destroyed on April 5, 2007.
  - On April 19, 2007, a third suspect 4.2-inch mortar was recovered from the Tube Proofing Range at Redstone Arsenal, Alabama. This item was assessed by personnel from the 20th SUPCOM and found to contain FS smoke. This item was recommended for local disposition by the MARB on April 20, 2007.
- *Savanna Army Depot, Illinois.* On November 6, 2006, a suspect French 75mm projectile was recovered from an area of the Savanna Army Depot, Illinois. Personnel from the 20th SUPCOM were deployed to assess the fill of the item. The item was determined to contain a possible papite fill (riot control agent used by the French) and was subsequently recommended for local disposition by the MARB. This item was destroyed on November 29, 2006.
- *Spring Valley, Washington D.C.* A PMNSCM representative traveled to Spring Valley, Washington D.C., to perform an inspection of the three IHFs located on the USACE-Baltimore District site. This inspection was conducted in preparation for intrusive operations scheduled to begin at Spring Valley the week of October 29, 2007. The entire operation is scheduled to last 14 weeks. PMNSCM will provide assessment and disposal support if suspected chemical items are recovered during the USACE operation.

- *Schofield Army Barracks, Hawaii.* The USACE-led range clearance effort at Schofield Army Barracks, Hawaii, began in February 2004 and ended in March 2006, with the recovery of 269 items. This location has been designated by the Army as a future training range for the Stryker Armored Combat Vehicle.

Assessment of 99 potentially CWM-filled recovered items resulted in 67 of these items being recommended for Explosive System Demilitarization by the MARB. Sixty-six of these items contain CG fills and one contains a chloropicrin fill. An additional seven munitions were recovered in FY 2006. Two of the items were determined to be empty, and five were assessed in August 2007. The five items consist of one 75mm projectile containing CG fill, one 4.2-inch Stokes mortar containing CG fill, one 155mm projectile containing FM smoke fill, and two 155mm projectiles containing CG fill.

PMNSCM is coordinating with Schofield Army Barracks, the State of Hawaii, environmental regulators, and USACE to determine a path forward.

### **Recovered Chemical Warfare Materiel**

- *MAPS.* MAPS is a unique fixed-facility located at APG-EA, Maryland, designed to process recovered CWM (RCWM) by safely separating the chemical payload from the explosive component. During FY 2007, MAPS was transitioned into a warm shutdown status due to funding constraints and unavailability of RCWM at APG-EA.
  - Proposed future operations at MAPS include the drilling, sampling, and resealing of eight items: two CG-filled items recovered on October 16 and November 3, 2006, at APG-EA; two suspect CNB<sup>9</sup>-filled items stored on March 8, 2006, at ANAD, Alabama; and four suspect CNS-filled munitions recovered at the Former Camp Sibert, Alabama, between July 13, 2006, and April 18, 2007. PMNSCM successfully coordinated with the State of Alabama for the transport of these CNB- and CNS-filled items to APG-EA. All six tear gas-filled munitions were transported to APG-EA on September 20, 2007. All the items scheduled for MAPS processing are 4.2-inch mortars with the exception of one of the CG-filled items, which is a 75mm projectile.
  - During processing, each munition will be drilled, sampled, and resealed at the MAPS. The samples will be analyzed to validate Portable Isotopic Neutron Spectroscopy (PINS) spectra derived from in-the-field assessments and will be used to validate PINS spectra for tear gas (CNB and CNS) and CG fills.
  - Once the MAPS portion of the operation is complete, the resealed munitions will be put into storage pending destruction in the EDS. The MAPS portion of the operation is scheduled to occur in the December 2007/January 2008

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<sup>9</sup> CNB is a tear gas solution containing 10 percent CN, 45 percent carbon tetrachloride, and 45 percent benzene. Adopted in 1920, it was a non-persistent lachrymatory agent (causes tearing and pain) used predominately for training. CNB was replaced by CNS.

timeframe. In order to accommodate this operation, MAPS will be removed from its current warm shutdown status and returned to full operations mode beginning in October 2007.

- *PBA, Arkansas.* Approximately 1,200 recovered munitions and 5,387 CAIS items have been stored at PBA. The stored munitions were predominantly 4.2-inch mortars and GTRs, while the CAIS items included both CWM and industrial chemicals. Several PMNSCM projects were utilized during FY 2007 to dispose of these items and include the following:
  - *Rapid Response System (RRS).* PMNSCM deployed the RRS to PBA to dispose of more than 5,300 CAIS items in storage at PBA that were assessed and segregated by type through use of the Pine Bluff Munitions Assessment System (PBMAS). CAIS treatment and disposal began on August 1, 2005, and was completed on November 17, 2006, with the complete destruction of all K941, K951, and K955 items. Site closure was completed in March 2007, with the RRS unit returned to APG-EA.
  - *PBEDS.* PBEDS consists of three separate EDS units (two operating continually, one as a backup), at one location to destroy the current stock of RCWM at PBA. Site construction was completed and operations began during FY 2006. As of September 30, 2007, 793 munitions have been processed, including 610 4.2-inch mortars, 147 GTRs, all (19) 75mm projectiles, all (16) Livens projectiles, and 1 contaminated cylinder. Of the 793 munitions destroyed, 227 are treaty-declared items. Operations are scheduled to be completed in May 2008.
  - *GTRSS.* The GTRSS is a system used by NSCMP to separate GTR warheads from rocket motors, via an abrasive waterjet cutting system, to facilitate destruction of the warheads in the PBEDS. The operation is performed inside an Explosive Containment Chamber in the event of an accidental explosion. Operations during FY 2007 resulted in the separation of 177 out of 428 GTRs. Operations are scheduled to be completed in December 2007. Site closure will follow and be completed in January 2008. The GTRSS is located inside an Environmental Enclosure adjacent to the former PBMAS building.
- *LITANS.* The LITANS provides the capability to access, transfer, and neutralize the chemical fill of RCWM larger than can be accommodated by existing NSCMP treatment systems. The LITANS development program successfully completed the Engineering Design Test phase in July 2006. LITANS is currently preparing for the new developmental testing (DT) and OT phase, which will consist of a total of four 500-pound test items and one 1,000-pound test item. LITANS DT/OT is scheduled for completion in October 2007. Pending successful DT/OT results, the system is expected to receive limited operational approval for treating non-explosively configured M78 (500 pounds) CG-filled bombs in January 2008.

The Project Manager for Chemical Stockpile Elimination and PMNSCM DCD LITANS Demilitarization Plan proposes treatment of the lewisite (L) and tabun (GA) TCs stored at DCD using LITANS technology. This includes the disposal of empty TCs and generated secondary waste resulting from operations. Sampling and transport of samples to APG-EA of L and GA TCs was completed in September 2007. System redesign is slated to begin in April 2008, with operations scheduled to commence in January 2010.

- *EDS*. PMNSCM is currently in the process of procuring an EDS Phase 2 Unit 3, which will serve as a replacement for the EDS Prototype Phase 1 Unit 1. Delivery of this replacement unit is anticipated in May 2008.
- *MMAS*. PMNSCM is currently in the process of procuring three replacement MMAS units. Delivery of the first replacement MMAS is scheduled for December 2007.

### **Binary Chemical Weapons Disposal**

All binary components (DF and QL<sup>10</sup>) were destroyed via neutralization during FY 2006. Neutralization wastes were shipped to a commercial TSDF for final disposition via the WAO unit. The WAO unit began QL neutralent destruction operations on March 18, 2007, with the acceptance testing at Texas Molecular, Deer Park, Texas. Destruction of the QL neutralent was completed on April 27, 2007. Destruction of the DF neutralent began on May 4, 2007, and is expected to be completed in December 2007. As of September 30, 2007, WAO has processed 97,492 gallons of DF neutralent (63.5 percent complete).

Destruction of 52 U.S. tons of binary components has been treaty verified. CWC credit for the destruction of the remaining binary components will not be received until the neutralent is 100 percent destroyed. Once the neutralent is destroyed, the binary chemical weapons disposal mission will be complete.

### **Former (Chemical Weapons) Production Facility Destruction**

The Integrated Binary Production Facility (IBPF) at PBA was the final facility to be destroyed in order to achieve the 100 percent destruction of former chemical weapons production facilities CWC treaty milestone. This milestone was completed December 28, 2006, 4 months ahead of the April 29, 2007, treaty deadline. Specific destruction activities at the CWC-declared FPFs during FY 2007 included the following:

- *IBPF, PBA, Pine Bluff, Arkansas*. The IBPF, which comprised the DC, DF, and QL facilities, manufactured binary chemicals for use in U.S. binary chemical weapons between 1987 and 1990. Demolition of the QL facility began in October 2003 and was completed in June 2004; demolition of the DC facility

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<sup>10</sup> DF is the military symbol for methylphosphonic difluoride, the critical binary precursor of the nerve agent in what would have been the GB<sub>2</sub> binary munition (the M687 binary projectile). QL is the military symbol for an organophosphorus ester, the critical binary precursor to form nerve agent in what would have been the VX<sub>2</sub> binary munition (the Bigeye bomb).

began in May 2004 and was completed in December 2004. The last structure demolished at the IBPF, the DF Multiple Launch Rocket System Injector Tube Fill Building, was temporarily converted in 2005 to be used as a chemical agent destruction facility for the neutralization of DF and QL binary chemicals. Neutralization operations were completed in September 2006 and destruction of the DF facility resumed and completed on December 28, 2006. The OPCW closeout inspection to confirm destruction was completed on March 7, 2007; formal verification of destruction was received from the OPCW on April 16, 2007.

- *Former HD Production, Distillation, and Fill Facility, APG-EA, Maryland.* In April 2006, the United States declared the Former HD Production, Distillation and Fill Facility (Building E5476) at APG-EA as a FPF; therefore, its destruction, no later than April 29, 2007, was required. Destruction of Building E5476 began on August 16, 2006, and was completed on September 28, 2006. The OPCW Inspection Team conducted a systematic inspection of the demolition site on December 4, 2006, and verified the destruction process by checking the documentary evidence and measuring the geographic coordinates to verify the building's pre-existing location.

Ongoing FPF-related, non-treaty destruction efforts during FY 2007 included the following:

- *Former Newport VX Production and Fill Facility, NECD, Indiana.* This facility, which once manufactured the nerve agent VX, was declared destroyed for CWC purposes in FY 2006. Continuing efforts at the site included autoclave operations (for piping decontamination) and shipment of secondary waste (used personal protective equipment, plastics, etc.). These operations began in October 2006 and concluded in August 2007. All personnel demobilized from the site on August 31, 2007. Tennessee Valley Authority (TVA) is in the process of completing a final report to be delivered to PMNSCM.
- *Ancillary Buildings, APG-EA, Maryland.* PMNSCM continued efforts to demolish the remaining ancillary buildings located at APG-EA in FY 2007. These efforts included the destruction of two buildings in November 2006, one building in December 2006, one building in January 2007, two buildings in February 2007, two buildings in March 2007, and one building in August 2007. All demolition activities have been completed, and demobilization was completed on September 28, 2007. TVA is in the process of completing a final report to be delivered to PMNSCM.

## **Miscellaneous Chemical Warfare Materiel Disposal**

Activities during FY 2007 to destroy miscellaneous CWM, which includes empty TCs, CWC Category 3 chemical weapons,<sup>11</sup> and chemical samples, included the following:

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<sup>11</sup> Category 3 chemical weapons include unfilled munitions and devices and equipment designed specifically to employ chemical weapons.

- *Chemical Samples at PBA, Arkansas.* On March 30 and April 13, 2007, PMNSCM coordinated the destruction of two GB TCs, and in February 2007 coordinated the destruction of 14 GB samples using the PBCDF.
- *Chemical Samples Stored at Other Locations.* Pending issuance and/or modification of applicable environmental permits and in coordination with CDF operating schedules, disposal of chemical samples is scheduled to occur between FY 2008 and FY 2016. PMNSCM will continue to coordinate the disposal of NSCMP chemical samples with the operating schedules at the following sites: ANCDF, BGCAPP, PBCDF, PCAPP, TOCDF, and UMCDF.
- *PBA, Arkansas, Empty TC Disposal.* TC decontamination operations using a 20 percent sodium permanganate rinse, followed by sodium sulfite and hot water rinses were suspended in August 2006, to pursue development of a thermal decontamination process. A March 2007 analysis of alternatives report indicated that thermal decontamination is preferred over the liquid decontamination method and the facility conversion to support thermal decontamination was completed on June 30, 2007. TC lead paint removal operations began on July 16, 2007. A pre-operational survey for the thermal decontamination process was conducted in August 2007. Operations are scheduled to begin in October 2007.

No Category 3 items were discovered in FY 2007. To date, all known Category 3 items are destroyed.

### **Chemical Agent Munitions Disposal System**

In FY 2007, PMNSCM began managing portions of the closure of CAMDS at the direction of CMA. PMNSCM now oversees the dismantling and destruction of this facility. The Army constructed CAMDS to: (1) develop and test new technology for demilitarization and disposal of toxic chemical munitions, (2) develop a technical data package for use in design and construction of other similar plants, and (3) process any/all unserviceable chemical munitions. CAMDS has operated since 1979 conducting research, development, and demonstration of various methods of demilitarizing chemical munitions, and treating the waste resulting from demilitarization processes.

TVA is the contractor performing the dismantling activities of CAMDS. TVA assisted in closure of RMA, and recently completed the closure of the former VX nerve agent production facility at NECD and buildings at APG-EA. In May 2007, TVA initiated nonagent destruction activities and is expected to begin agent-related destruction work once the Utah DSHW approves the RCRA permit modification, which is anticipated in early FY 2008. Closure work is scheduled to be complete in FY 2010.

### **Technology Test Program**

The "Partnering With Industry" approach to establish a partnership with one or more TSDFs to transport and dispose of secondary wastes using treatment technologies that are non-incineration based, resulted in a contract awarded to Texas

Molecular Deer Park Services Limited Partnership in FY 2005. WAO technology is currently being used to treat and destroy DF and QL neutralent, as described in the Binary Chemical Weapons Disposal section of this report.

PMNSCM is pursuing short-term improvements to the PINS and investigating an advanced design concept PINS for NSCMP assessment mission requirements. PMNSCM also plans to evaluate two new commercial portable Raman units. Raman units non-intrusively identify and evaluate the contents of CAIS using laser light and matching the results to the suspect agent's light signature.

## **Environmental Compliance**

During FY 2007, PMNSCM successfully closed out several RCRA permits for NSCMP projects at PBA, including the following:

- On November 27, 2006, PMNSCM successfully coordinated the closure of the RCRA permit for EDS at PBMAS operations. This permit was terminated by ADEQ as the unit never operated, treated, or managed hazardous waste. In February 2007, PMNSCM successfully closed the RRS RCRA permit at PBA. RCRA permit closure was approved by ADEQ on March 23, 2007, and the permit subsequently terminated.
- During FY 2007, five Class 1 RCRA permit modification notices were prepared, submitted, and approved by ADEQ for PBEDS and GTRSS operations (both covered under the same RCRA permit). The approved permit modification notices addressed the following (dates these notices were provided are in parenthesis):
  - Editorial changes, corrections, and clarification regarding operations (November 2006)
  - Site layout and equipment position layout changes (March 2007)
  - Equipment replacement and additions (June 2007)
  - Updates to existing drawings and the addition of new equipment drawings (July 2007)
  - Disposition of separated GTR propellant-filled rocket motor components (August 2007).

In FY 2007, PMNSCM held discussions with Dugway Proving Ground (DPG) and the Utah DSHW to develop a strategy for use of EDS support for disposal of chemical items in DPG Igloo G (22 items) under a Stipulation and Consent Order.

## **Public Outreach**

During FY 2007, CMA Public Affairs continued to support NSCMP by communicating important information to interested stakeholders and highlighting

success in the safe identification, storage, and destruction of CWM. Tools used to accomplish these efforts include:

- *Media Relations.* Media releases were issued on subjects including the assessment and treatment technologies and destruction of the nation's FPFs. NSCMP media relations were accentuated by the in-house development and maintenance of a Web-supported multimedia center, providing media to illustrate CMA stories with access to current, accurate images.
- *Public Outreach.* Public outreach highlights include monthly updates on NSCMP activities at CAC meetings at PBA, Arkansas. Update support is provided by NSCMP technical personnel who discuss in detail the status of NSCMP activities at PBA and receive feedback from key community leaders. The event draws positive input from attendees and favorable media attention for CMA.
- *Communication Tools.* In addition to thorough reviews of the existing fact sheet inventory, NSCMP developed fact sheets and information products on new technologies, such as LITANS. As the technology proves ready for deployment, information products will be available on the CMA Web site for public review and media reference.

## **Program Reviews**

In FY 2006, the Army requested that NRC establish a committee to review and evaluate international technologies for the destruction of NSCM. The committee provided independent scientific and technical evaluations of international systems, facilities, and disposal technologies currently employed or under research and development in countries with inventories of RCWM. The committee compared these technologies with those utilized by PMNSCM in an overall effort to determine and further define state-of-the-art technologies for destruction of future NSCM.

As part of the analysis, the committee: (1) evaluated and assessed the technical feasibility and maturity of the foreign technologies and systems, (2) considered implementation and deployment issues related to cost, safety, risk, and protection of the environment of these foreign technologies and systems, and (3) addressed the acceptability of such systems and technologies to U.S. regulators and stakeholders.

The results were documented in the international technologies study report, *Review of International Technologies for Destruction of Recovered Chemical Warfare Materiel*, which was completed and delivered to PMNSCM in November 2006.

## **Incidents**

There were no chemical events during FY 2007.

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**APPENDIX A**  
**ABBREVIATIONS AND SYMBOLS**



## APPENDIX A ABBREVIATIONS AND SYMBOLS

ABCDF	Aberdeen Chemical Agent Disposal Facility
ACAT	acquisition category
ACWA	Assembled Chemical Weapons Alternatives
ADEM	Alabama Department of Environmental Management
ADEQ	Arkansas Department of Environmental Quality
AEL	airborne exposure limit
AMC	U.S. Army Materiel Command
ANAD	Anniston Army Depot
ANCDF	Anniston Chemical Agent Disposal Facility
APB	Acquisition Program Baseline
APG-EA	Edgewood Area of Aberdeen Proving Ground
AR	Army Regulation
ATB	agent trial burn
BAT	Best Available Technology
BGAD	Blue Grass Army Depot
BGCAPP	Blue Grass Chemical Agent-Destruction Pilot Plant
CAC	Citizens' Advisory Commission
CAIS	chemical agent identification set
CAMDS	Chemical Agent Munitions Disposal System
CDCAB	Chemical Destruction Community Advisory Board
CDF	chemical agent disposal facility
CDP	Chemical Demilitarization Program
CDPHE	Colorado Department of Public Health and Environment
CG	phosgene
CHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
CMA	U.S. Army Chemical Materials Agency
CNB	tear gas solution containing 10 percent chloroacetophenone (CN), 45 percent carbon tetrachloride, and 45 percent benzene
CNS	tear gas solution containing 23 percent CN, 38.4 percent PS, and 38.4 percent chloroform
CSEPP	Chemical Stockpile Emergency Preparedness Program
CSB	Control and Support Building
CWC	Chemical Weapons Convention
CWM	chemical warfare materiel
DA	Department of the Army
DC	military symbol for a binary precursor, which is methylphosphonic dichloride
DCD	Deseret Chemical Depot
DF	military symbol for the critical binary precursor for GB <sub>2</sub> , which is methylphosphonic difluoride
DFS	deactivation furnace system
DHS	Department of Homeland Security

DoD	Department of Defense
DPG	Dugway Proving Ground
DSHW	Division of Solid and Hazardous Waste
DT	developmental testing
EDS	Explosive Destruction System
EMS	Environmental Management System
EONC	enhanced onsite container
EPA	U.S. Environmental Protection Agency
EQC	Environmental Quality Commission
FPF	former (chemical weapons) production facility
FOAK	first-of-a-kind
FUDS	Formally Used Defense Sites
FY	fiscal year [October 1 through September 30]
GA	tabun
GAO	Government Accountability Office
GB	military symbol for the nonpersistent nerve agent sarin
GB <sub>2</sub>	military symbol for the nonpersistent nerve agent sarin formed from the binary munition
GTR	German Traktor Rocket
GTRSS	German Traktor Rocket Separation System
H	mustard
HD	mustard agent (distilled)
HT	thickened mustard
IBPF	Integrated Binary Production Facility [Pine Bluff Arsenal, Arkansas]
ICS	Incident Command System
IHF	interim holding facility
ISO 14001	International Organization for Standardization's standard for environmental management systems
JIS	Joint Information System
JIC	Joint Information Center
KDEP	Kentucky Department for Environmental Protection
L	lewisite
LCCE	life-cycle cost estimate
LIC	Liquid Incinerator
LITANS	Large Item Transportable Access and Neutralization System
LPMD	Linear Projectile/Mortar Disassembly
M20	military model number for DF canister portion of the binary nerve agent GB <sub>2</sub> projectile, M687
M55	military model number for nerve agent GB or VX 115mm rocket

MAPS	Munitions Assessment and Processing System
MARB	Materiel Assessment Review Board
MDB	Munitions Demilitarization Building
MDE	Maryland Department of the Environment
MMAS	Mobile Munitions Assessment System
MPF	Metal Parts Furnace
MPHRA	Multi-Pathway Health Risk Assessment
MPT	Metal Parts Treater
MTS	Mitretek Systems, Inc.
MTU	Munitions Treatment Unit
NaOH	sodium hydroxide
NECD	Newport Chemical Depot
NECDF	Newport Chemical Agent Disposal Facility
NIMS	National Incident Management Systems
NRC	National Research Council
NSCM	non-stockpile chemical materiel
NSCMP	Non-Stockpile Chemical Materiel Project
ODEQ	Oregon Department of Environmental Quality
OPCW	Organisation for the Prohibition of Chemical Weapons
OSD	Office of the Secretary of Defense
OSHA	Occupational Safety and Health Administration
OT	operational testing
PART	Program Assessment Rating Tool
PAS	pollution abatement system
PBA	Pine Bluff Arsenal
PBCA	Pine Bluff Chemical Activity
PBCDF	Pine Bluff Chemical Agent Disposal Facility
PBEDS	Pine Bluff Explosive Destruction System
PBMAS	Pine Bluff Munitions Assessment System
PCAPP	Pueblo Chemical Agent-Destruction Pilot Plant
PCB	polychlorinated biphenyl
PCD	Pueblo Chemical Depot
PFS	pollution abatement system filtration system
PINS	Portable Isotopic Neutron Spectroscopy
PL	Public Law
PM ACWA	Program Manager Assembled Chemical Weapons Alternatives
PMNSCM	Project Manager for Non-Stockpile Chemical Materiel
QL	military symbol for the critical binary precursor for VX <sub>2</sub> , which is O-Ethyl O-2-diisopropylaminoethyl methylphosphonite
RCRA	Resource Conservation and Recovery Act
RCWM	recovered chemical warfare materiel
REC	Record of Environmental Consideration
RMA	Rocky Mountain Arsenal

RRS	Rapid Response System
SAC	Senate Appropriations Committee
SC	systems contractor
SCANS	Single CAIS Access and Neutralization System
SCWO	supercritical water oxidation
SDS	Spent Decontamination Solution
SIC	sulfur-impregnated carbon
SUPCOM	Support Command
TAR	Temporary Authorization Request
TC	ton container
TOCDF	Tooele Chemical Agent Disposal Facility
TSCA	Toxic Substances Control Act
TSDF	treatment, storage, and disposal facility
TVA	Tennessee Valley Authority
UMCD	Umatilla Chemical Depot
UMCDF	Umatilla Chemical Agent Disposal Facility
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics
VPP	Voluntary Protection Program
VX	military symbol for a persistent nerve agent, which is o-ethyl S-(2-diisopropylaminoethyl)methylphosphonothioate
VX <sub>2</sub>	military symbol for a persistent nerve agent VX formed from the binary munition
WAO	wet air oxidation

**APPENDIX B**  
**OCCURRENCES OF LEAKING CHEMICAL MUNITIONS**



## APPENDIX B OCCURRENCES OF LEAKING CHEMICAL MUNITIONS

Fiscal Year	Leaker Occurrences by Type				Leaker Occurrences by State <sup>a</sup>									
	M55 Rockets <sup>b</sup>	SUPLECAM Samples <sup>c</sup> and Overpack Containers	All Other Munitions	TOTAL	AL	AR	CO	IN	JI	KY	MD	OR	UT	Other
2007	0	2	51	53	5	0	1	0	0	1	0	19	27	0
2006	3	6	55	66 <sup>d</sup>	4	2	0	0	0	1	0	45	14	0
2005	14	28	131	173 <sup>d</sup>	14	1	16	0	0	8	0	20	114	0
2004	34	46	77	157 <sup>d</sup>	33	0	9	0	0	0	1	11	103	0
2003	15	7	25	47 <sup>d</sup>	15	0	1	0	0	2	0	8	21	0
2002	45	18	32	95 <sup>d</sup>	40	6	0	0	0	0	0	8	41	0
2001	58	35	187	280 <sup>d</sup>	58	0	1	0	2	6	0	8	205	0
2000	68	142	35	245 <sup>d</sup>	51	2	0	0	0	6	0	6	180	0
1999	72	69	222	363 <sup>d</sup>	65	1	0	0	0	8	0	4	286	0
1998	27	27	45	99 <sup>d</sup>	17	2	0	0	0	0	0	5	74	0
1997	61	11	46	118 <sup>d</sup>	62	2	12	0	1	2	0	6	33	0
1996	153	3	98	254 <sup>d</sup>	119	0	2	0	70	7	0	3	53	0
1995	107	11	17	135 <sup>d</sup>	66	0	0	0	0	1	0	13	55	0
1994	144	29	27	200	82	4	2	0	0	6	0	5	103	0
1993	82	3	37	122	37	1	1	0	2	11	0	7	61	0
1992	81	139	52	272	52	1	1	1	6	21	0	7	183	0
1991	68	3	42	113	28	3	0	0	5	6	0	8	63	0
1990	76	5	27	108	17	11	1	0	7	2	0	12	58	0
1989	131	9	44	184	19	5	3	0	12	7	0	14	124	0
1988	50	5	26	81	14	2	3	0	2	0	0	20	40	0
1987	44	22	45	111	41	3	0	0	6	3	0	6	52	0
1986	82	18	28	128	40	0	11	0	12	4	0	10	51	0
1980 <sup>f</sup> - 1985	544 <sup>e</sup>	6	779	1,329	203	5	9	0	38	91	0	230	726	27
<b>TOTAL</b>	<b>1,959</b>	<b>642</b>	<b>2,077</b>	<b>4,678</b>	<b>1,077</b>	<b>51</b>	<b>72</b>	<b>1</b>	<b>163</b>	<b>192</b>	<b>1</b>	<b>454</b>	<b>2,640</b>	<b>27</b>
Qty Destroyed	1,832	467	1,651	3,950	971	7	47 <sup>g</sup>	1	163	45 <sup>g</sup>	1	334	2,354	27

Notes:

The inventory of leaking munitions continues to be reduced at sites with operating CDFs.

- <sup>a</sup> AL Alabama (ANAD)
- AR Arkansas (PBA)
- CO Colorado (PCD)
- IN Indiana (NECD)
- JI Johnston Island (includes the storage site and Johnston Atoll Chemical Agent Disposal System; mission completed in 2000)
- KY Kentucky (BGAD)
- MD Maryland (Edgewood Area of APG)
- OR Oregon (UMCD)
- UT Utah (DPG)
- Other Germany (munitions from German retrograde program that were transferred to Johnston Island in December 1990)
- <sup>b</sup> Includes GB and VX rockets and rocket warheads.
- <sup>c</sup> Surveillance Program, Lethal Chemical Agents and Munitions (SUPLECAM) (leaks from drilled and plugged holes in munitions selected for ammunition stockpile reliability testing).
- <sup>d</sup> Some leaking munitions were detected during disassembly at the CDFs prior to destruction, rather than at the storage area (5 in 1995, 64 in 1996, 11 in 1997, 102 in 1998, 161 in 1999, 24 in 2000, 168 in 2001, 6 in 2002, 16 in 2003, 45 in 2004, 116 in 2005, and 36 in 2006 ). All leaks detected during these operations were under engineering controls.
- <sup>e</sup> A large number of M55 GB rockets were inspected in 1984 and 1985, and a more sophisticated and more sensitive monitoring protocol was adopted. Quarterly storage monitoring inspections of M55 GB rockets were conducted thereafter.
- <sup>f</sup> Specific totals for years prior to FY 1980 are not included; as early records are incomplete, and any total incorporating these timeframes cannot be considered accurate.
- <sup>g</sup> These leakers were destroyed in the Drill and Transfer System (DATS) circa 1985/6.

**APPENDIX C**  
**PROGRAM DISBURSEMENTS SUMMARY**



**APPENDIX C**  
**U.S. ARMY CHEMICAL DEMILITARIZATION PROGRAM**  
**FY 2007 DISBURSEMENTS SUMMARY - AS OF SEPTEMBER 30, 2007**  
**(INCLUDES FY 2007 AND PRIOR YEAR FUNDS)**  
**(\$ IN THOUSANDS)**

Project/Facility	Chemical Agents and Munitions Destruction, Army				Military Construction
	RDT&E	PROC	O&M	Total	Total
Program Management (CMA)	290		36,300	36,590	(75)
Program Management (PMCSE)		6,846	42,971	49,817	
Chemical Demilitarization Training Facility			6,466	6,466	
CAMDS			30,136	30,136	
JACADS			1,853	1,853	
TOCDF		11,162	157,259	168,421	
ANCDF		2,130	143,260	145,390	
UMCDF		176	158,742	158,918	
PBCDF		1,429	161,059	162,488	1,304
Alternative Technologies and Approaches Project Program Management	55		691	746	
ABCDF	241		55,515	55,756	1
NECDF	410		140,952	141,362	122
Non-Stockpile Chemical Materiel	16,896	1,067	105,660	123,623	
ACWA Program Management	16,548			16,548	
PCAPP	50,511			50,511	39,752
BGCAPP	99,274			99,274	15,997
Chemical Stockpile Emergency Preparedness <sup>1</sup>	(170)	25,206	130,775	155,811	
<b>TOTAL</b>	<b>184,055</b>	<b>48,016</b>	<b>1,171,639</b>	<b>1,403,710</b>	<b>57,101</b>

Notes:

Source: Defense Finance and Accounting System 218 report  
 ABCDF = Aberdeen Chemical Agent Disposal Facility  
 ACWA = Assembled Chemical Weapons Alternatives  
 ANCDF = Anniston Chemical Agent Disposal Facility  
 BGCAPP = Blue Grass Chemical Agent-Destruction Pilot Plant  
 CAMDS = Chemical Agent Munitions Disposal System  
 CMA = U.S. Army Chemical Materials Agency  
 JACADS = Johnston Atoll Chemical Agent Disposal Facility  
 NECDF = Newport Chemical Agent Disposal Facility

O&M = Operations and Maintenance  
 PBCDF = Pine Bluff Chemical Agent Disposal Facility  
 PCAPP = Pueblo Chemical Agent-Destruction Pilot Plant  
 PMCSE = Project Manager for Chemical Stockpile Elimination  
 RDT&E = research, development, test and evaluation  
 TOCDF = Tooele Chemical Agent Disposal Facility  
 UMCDF = Umatilla Chemical Agent Disposal Facility  
 Military Construction for Program Management refers to Planning and Design for various locations.

<sup>1</sup> FY 2007 CSEPP funding includes \$57.0 million provided for direct grant funds and funding for contracts managed by Federal Emergency Management Agency Headquarters on behalf of states. For additional information, refer to the FY 2007 CSEPP Report to Congress.

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**APPENDIX D**  
**CONGRESSIONAL SUPPORT**



## **APPENDIX D CONGRESSIONAL SUPPORT**

The U.S. Army Chemical Materials Agency and the Program Manager Assembled Chemical Weapons Alternatives continue to implement and maintain initiatives to facilitate safe and efficient mission accomplishment. Congressional support is requested in the following areas to support those initiatives.

### ***Continue to support funding, consistent with the President's budget, of the Chemical Demilitarization Program***

The Chemical Demilitarization Program is funded by the Chemical Agents and Munitions Destruction, Defense appropriation to execute current requirements. Reductions in future President's budget requests may delay agent destruction and reduce the ability of the program to mitigate cost and schedule risks. This would likely result in increased life-cycle costs and extends the risk posed by continued storage. Program schedule delays will also impact the ability to meet Chemical Weapons Convention destruction milestones.

### ***Continue to support future efficiency initiatives as they are identified and requested by the Program.***

The Department of Defense continues to investigate cost and schedule savings initiatives for the program without sacrificing safety or environmental compliance. The John Warner National Defense Authorization Act for Fiscal Year 2007 included the enabling language requested by the Department to support the shared savings concept designed to motivate the systems contractors to reduce schedule while maintaining highest safety standards.

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**APPENDIX E**  
**CHEMICAL EVENT CATEGORIES**



## APPENDIX E CHEMICAL EVENT CATEGORIES

### **Category I: Non-surety emergency (informational)**

- Unexpected chemical surety-related occurrences reported to state or local jurisdictions as provided in local agreements but not mandated by law
- Any unexpected occurrences (without release of chemical agent to the atmosphere), which has a potential for negative reactions by the news media, state, or local officials towards chemical agent operations at Army installations during storage, transportation, or demilitarization; this includes circumstances where, in the judgment of the reporting installation commander, the occurrence could cause embarrassment to the Army
- Workers reporting that they were exposed to chemical agent, regardless of whether the postulated exposure is confirmed by clinical or laboratory evaluation
- Confirmed detection of chemical agent exceeding the established airborne exposure limits cited in Army Regulation (AR) 385-61, outside of the primary engineering controls but within secondary engineering controls
- Discovery of recovered chemical warfare materiel.

### **Category II: Limited area/post only emergency (site response)**

- Confirmed presence of liquid agent outside munitions, bulk containers, or overpack containers
- Confirmed detection of agent occurring for any period of time outside of engineering controls into the environment, exceeding the airborne exposure limit (AEL) source emission limit cited in AR 385-61; this includes agent operations conducted in a closed system (filtered bunkers, filtered igloos, overpack containers, onsite containers, demilitarization operating facilities, and outdoor glovebox operations) designed to protect unprotected workers or the ambient environment
- Any known release of chemical agent above the AEL cited in AR 385-61 for unmasked agent workers where unprotected or inadequately protected personnel have been present or likely to have been present at the time of release
- Personnel exhibiting signs or symptoms associated with chemical agent exposure
- A deliberate attempt to release Army chemical agents that is unauthorized or during the commission of a criminal act.

### **Category III: Community emergency (external response)**

- Explosion or fire where chemical agents are involved, resulting in personnel injury or substantial structure damage
- Actual theft of chemical agent material

- Any release of chemical agent into the atmosphere that is projected by approved downwind hazard projection methods, which indicate a hazard greater than no effects, will extend beyond the installation boundary
- Any release of chemical agent into the atmosphere, confirmed by an approved detection method, which exceeds the general population AEL in AR 385–61, which may extend beyond the installation boundary.