



**Annual Status Report  
on the  
Destruction of the United States Stockpile of Lethal  
Chemical Agents and Munitions  
for Fiscal Year 2020**

**September 30, 2020**

The estimated cost of this report or study for the Department of Defense is approximately \$480 for the 2020 Fiscal Year. This includes \$0 in expenses and \$480 in DoD labor.

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## **I. Introduction**

The Department of Defense (DoD) is submitting this annual report for fiscal year (FY) 2020 to Congress, pursuant to section 1521(i) of title 50 United States Code (U.S.C.). The report documents the status of the U.S. Chemical Demilitarization Program (CDP) as of September 30, 2020.

## **II. Mission**

The CDP mission is to enhance national security by eliminating chemical warfare materiel, while protecting the workforce, the public, and the environment and meeting obligations specified in the Chemical Weapons Convention (CWC).<sup>1</sup> The CDP is a program established pursuant to section 1521 of title 50 U.S.C., which directs DoD to destroy the U.S. stockpile of lethal chemical agents and munitions.

## **III. Organization**

The CDP is divided into two Acquisition Category ID Major Defense Acquisition Programs: (1) Chemical Demilitarization Program (Chem Demil) - U.S. Army Chemical Materials Activity (CMA); and (2) Chem Demil – Assembled Chemical Weapons Alternatives (ACWA). In accordance with section 1521(g) of title 50 U.S.C., the Secretary of the Army manages the CMA and the Program Executive Officer (PEO) for ACWA manages the ACWA program with a direct reporting to the Under Secretary of Defense for Acquisition and Sustainment.

The CMA mission included destruction of the chemical weapons stockpiles stored at Deseret Chemical Depot, Utah; Umatilla Chemical Depot (UMCD), Oregon; Anniston Chemical Activity (ANCA), Alabama; Pine Bluff Chemical Activity (PBCA), Arkansas; Newport Chemical Depot (NECD), Indiana; Aberdeen Proving Ground, Maryland; and Johnston Atoll in the Pacific Basin. Destruction of these stockpiles was completed in 2012 and each associated chemical weapons destruction facility was dismantled and closed three years later. The CMA is also responsible for implementation of the Chemical Stockpile Emergency Preparedness Program (CSEPP) and for the Recovered Chemical Warfare Material (RCWM) Program support functions, which includes the assessment and destruction of suspected, recovered chemical warfare materials in the United States.

The ACWA program is responsible for destruction of the remaining U.S. stockpiles stored at Pueblo Chemical Depot (PCD), Colorado, and Blue Grass Army Depot (BGAD), Kentucky. The ACWA program expects to complete destruction operations by December 31, 2023, the U.S. statutory destruction deadline.

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<sup>1</sup> The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, commonly known as the CWC, defines the stockpile elimination deadline for 100 percent destruction of Category 1 chemical weapons as April 29, 2012, the latest date allowable under the CWC. Section 1411 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92) amended the U.S. statutory destruction deadline from “the deadline established by the Chemical Weapons Convention, but not later than December 31, 2017” to “the deadline established by the Chemical Weapons Convention, but not later than December 31, 2023.”

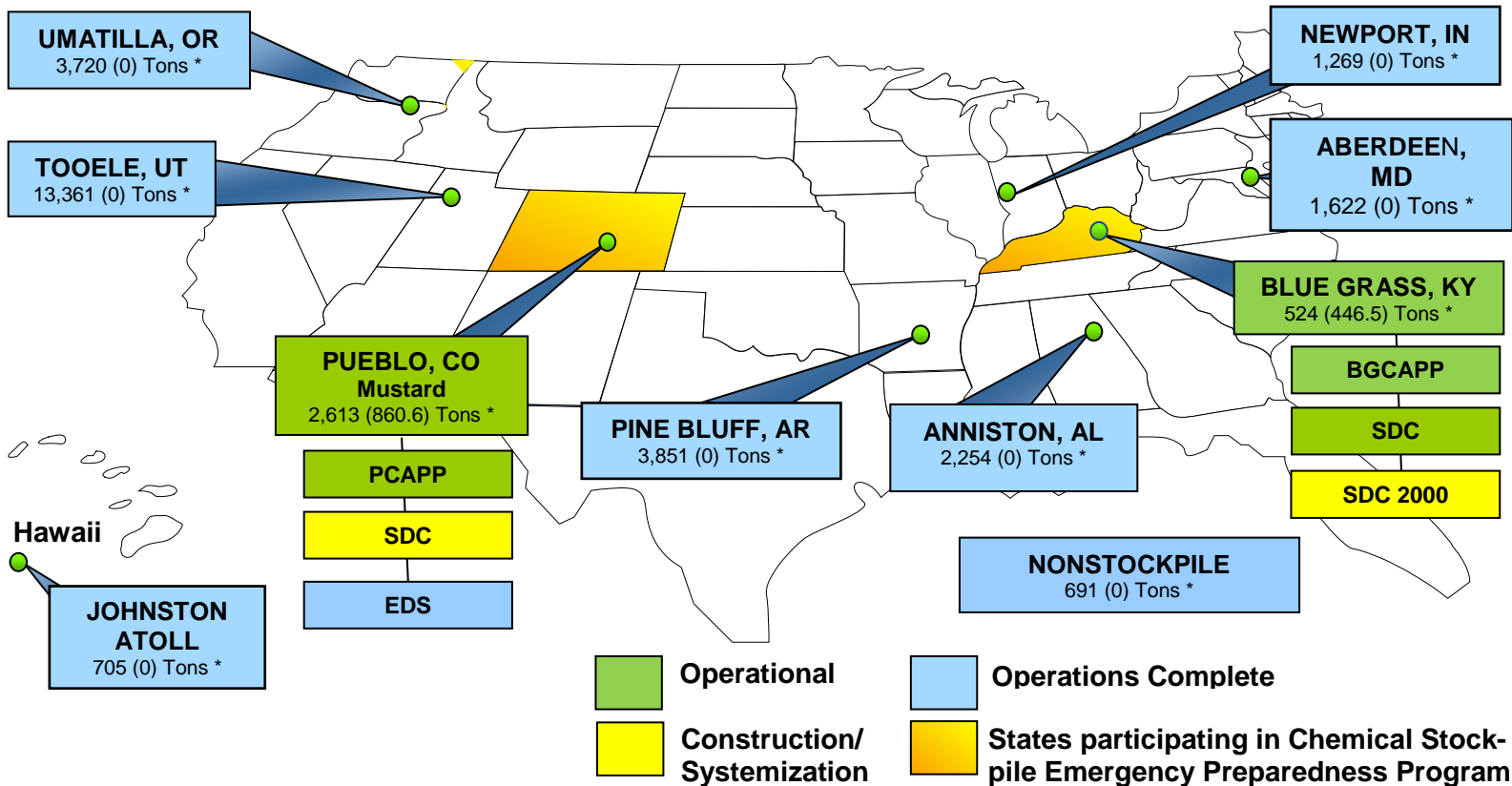
#### IV. Current Status of U.S. Chemical Weapons Stockpile Destruction

The CMA completed destruction of nearly 90 percent of the U.S. chemical weapons stockpile in 2012 followed by the dismantling and closure of the associated chemical weapons destruction facilities occurring over a three-year period. The ACWA program began destruction operations at the Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) Main Plant in September 2016, and at the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) in January 2020. Supplemental destruction technologies began a year earlier than main plant operations at both PCD and BGAD. As of September 30, 2020, the ACWA program has destroyed 58.3 percent of the remaining stockpile of chemical agent.

##### A. Site-by-Site Description of Chemical Weapons Stockpile Destruction

**CDP Site Status Summary**

Site	Destruction Operations	Storage Facility	Destruction Facility	Agent Destroyed (U.S. Tons)
Deseret/Tooele	Complete, Jan 2012	Closed, Jul 2013	Closed, Nov 2014	13,617
Umatilla	Complete, Oct 2011	Closed, Aug 2012	Closed, Jan 2015	3,720
Anniston	Complete, Sep 2011	Closed, May 2013	Closed, May 2014	2,254
Pine Bluff	Complete, Nov 2010	Closed, Aug 2012	Closed, Jan 2013	3,851
Newport	Complete, Sep 2008	Closed, Jun 2010	Closed, Jan 2010	1,269
Aberdeen	Complete, Feb 2006	Closed, Jun 2007	Closed, Jun 2007	1,622
Johnston Atoll	Complete, Nov 2000	Closed, Dec 2003	Closed, Dec 2003	2,031
Pueblo EDS	First campaign began, Mar 2015 Second campaign began, Jun 2018	Closed, Dec 2018	Closed, Dec 2018	3.8
Pueblo Main Plant (MP)	Began, Sep 2016	Active	Operational	1,752.6
Pueblo SDC	Systemization	Active	Systemization	N/A
Blue Grass SDC	Began, Jun 2019	Active	Operational	47.9
Blue Grass MP	Began, Jan 2020	Active	Operational	28.8
Blue Grass SDC 2000	Under Construction	Active	Construction	N/A



\* Declared Stockpile (Remaining Stockpile)

PCAPP: Pueblo Chemical Agent-Destruction Pilot Plant  
 BGCAPP: Blue Grass Chemical Agent-Destruction Pilot Plant  
 EDS: Explosive Destruction System  
 SDC: Static Detonation Chamber

NOTE:  
 Tonnage destroyed prior to Treaty Declaration:  
 1,326 U.S. tons at Johnston Atoll and 256 tons at Tooele, UT

## B. ACWA Program

The ACWA program recently achieved four milestones. On May 11, 2020, the BGCAPP destroyed all 8-inch projectiles containing GB (Sarin) nerve agent, marking completion of the first munitions campaign and destruction of a class of munitions at BGAD. On June 20, 2020, the ACWA program completed destruction of 50 percent of the remaining U.S. chemical stockpile at Pueblo, CO and Blue Grass, KY marking the halfway completion point of the mission. On June 23, 2020, the PCAPP completed baseline reconfiguration of all 4.2 inch mortars, which was required to prepare the munitions for destruction by separating the energetics. On September 5, 2020, the PCAPP completed destruction of the 155mm projectiles containing mustard agent that are suitable for processing in the Main Plant.

The PCAPP Operations Contract, with a period of performance extension, was negotiated and placed on contract on March 31, 2020. The extension incorporates an operationsincentive clause with a payment of up to \$110 million for accelerating destruction operations completion and reducing the total program cost. The BGCAPP Operations Contract negotiations to

incorporate the revised rocket processing activities and an additional SDC began in July 2020 and are projected to conclude no later than November 2020.

The ACWA program continues to focus on safety and environmental compliance. In March 2020, the ACWA program proactively responded to the COVID-19 pandemic through the development of site-specific Pandemic Plans for PCAPP and BGCAPP that incorporated guidance from the Centers for Disease Control and Prevention (CDC) and DoD. This allowed the plants to continue operations under rigorous safety protocols and minimize risk to the workforce and the local community. In May 2020, PEO ACWA, working closely with state and local regulators in Colorado and Kentucky, began implementing return-to-work plans to phase contractor and government employees back to the sites.

### PCD and PCAPP, Colorado

On September 5, 2020, the PCAPP completed the 155mm mustard-filled projectile campaign. This accounts for 1,752.6 U.S. tons of mustard agent destroyed. There are 286 155mm overpacked projectiles are unsuitable for processing in the Main Plant and will be destroyed in the SDCs. The Main Plant is now conducting mechanical changeover, where systems are being converted for the 105mm projectile campaign scheduled to begin in the first quarter of FY 2021. Baseline reconfiguration, the process of preparing munitions for destruction, was completed for all 105mm projectiles in February 2018 and all 4.2- inch mortars on June 23, 2020.

The PCAPP Main Plant was approved to operate at the increased munitions processing rate of up to 64 projectiles per hour, based on the Colorado Department of Public Health and Environment (CDPHE) review of the Multi Pathway Health Risk Assessment (MPHRA). The approved Resource Conservation and Recovery Act (RCRA) hazardous waste permit modification authorizing the increased processing rate was received on May 28, 2020. The CDPHE requires a permit application to convert the Main Plant's Research, Development and Demonstration (RD&D) permit to a RCRA Part B permit. The Systems Contractor (SC) submitted the final RCRA Part B permit application on June 26, 2020, after the results of the MPHRA and demonstration test were incorporated. The CDPHE issued the RCRA Part B permit on September 2, 2020. In October 2019, the PEO ACWA authorized the activation of the third Immobilized Cell Bioreactor (ICB) module in the Bio-Treatment Area (BTA) to allow more flexibility in handling hydrolysate from an expected increase in throughput. This ICB came online in December 2019.

The PCAPP operations were down from April 27 to May 8, 2020, and again from May 12 to June 4, 2020, due to pinhole leaks in the piping and components from the Spent Decontamination System tanks to the agent neutralization reactors. Destruction operations were halted to complete installation and associated independent engineering certification of a temporary system for processing spent decontamination fluids through the wash water system. In June 2020, PCAPP began development of a long-term, permanent piping repair/replacement strategy that is projected to be completed in December 2020. There was no threat to the workforce or the surrounding community.

The PCAPP was also down from July 6-12, 2020, due to an inadvertent bypass of the carbon distillate filters, which allowed the delivery of waste to the Process Water Tank and six related locations. The SC installed physical locks on the bypass valves to the filters to prevent this from occurring in the future and the affected areas were triple-rinsed. There was no threat to the workforce or the surrounding community.

Construction of the three SDCs implemented to augment PCAPP's destruction capability was completed in July 2020. PCAPP will use these SDCs to destroy the 4.2-inch mustard mortars and problematic 155mm and 105mm projectiles. Since June 6, 2019, PCAPP has received six of seven Temporary Authorizations from the CDPHE to complete SDC site construction activities and transition to systemization. The SDCs were anticipated to begin operations in December 2020, however, the needed RCRA environmental permit is still pending and must undergo public review.

### BGAD and BGCAPP, Kentucky

As of September 30, 2020, the BGCAPP has destroyed 8,193 of the 15,492 155mm mustard-filled projectiles in the SDC and all 3,977 of the GB projectiles in the Main Plant. This accounts for 76.8 U.S. tons of mustard and nerve agent destroyed.

Since beginning full-scale chemical agent destruction operations at the BGCAPP Main Plant, the SC has conducted safe and compliant operations, successfully completing the destruction of all 8-inch GB nerve agent projectiles on May 11, 2020. The Main Plant is now in a changeover phase, where systems are being converted to enable VX nerve agent projectile processing scheduled to begin in the first quarter of FY 2021.

Since starting SDC operations, BGCAPP has experienced operational pauses. In each case, the SC placed the facility into a safe condition, investigated, and resolved the issue. A majority of the operational pauses are due to the condition of the mustard agent (H) stored within the munitions. The condition of mustard (H) projectiles stored at BGCAPP is worse than anticipated, which has affected the throughput rate by increasing the frequency of required maintenance. The BGCAPP SDC successfully processed 50 percent of the mustard agent stockpile in September 2020 and is projected to complete that campaign in the third quarter of FY 2021. After the mustard projectile campaign is complete, the SC will modify the system to accommodate the nerve agent destruction process, at which time it will be designated the SDC 1200. Modifications will include upgrades to the detonation chamber as well as a larger Off-Gas Treatment System (OTS). The modified system is expected to be ready to process drained rocket warheads in third quarter of FY 2022, if environmental permits are received.

The PEO ACWA continued implementing the revised strategy for processing M55 rockets which requires major modifications to the BGCAPP Main Plant, the aforementioned enhancements to the existing SDC, and a larger SDC 2000 that is able to handle overpacked rockets. Rocket equipment installation and readiness in the Main Plant is ongoing, the SC projects to begin rocket processing in fourth quarter of FY 2021.

Due to ongoing worker safety concerns with the Supercritical Water Oxidation (SCWO) and Reverse Osmosis (RO) systems, system demonstrations were completed on January 17, 2020,

with water and isopropyl alcohol. A 30-day system shakedown period concluded on March 31, 2020. Following the shakedown, operations were paused as a result of two safety concerns. The first was discovered during the shakedown test that identified 9 ruptured safety disks caused by 34 unplanned reactor shutdowns, and the second occurred on April 8, 2020, when a high-pressure pump experienced a catastrophic failure. The PEO ACWA conducted a safety analysis to understand the safety concerns associated with the ruptured disks. Based on these safety, the Program Executive Officer determined that that the long-term programmatic concerns with the SCWO could not be resolved within the timeframe needed. Off-site hydrolysate processing was determined to be in the best interest of the ACWA program, the workforce, and community safety. This course of action supports the BGCAPP operations, does not impact schedule, and provides the program the best chance of meeting the mission to destroy the chemical weapons by 2023. In addition, this action was recommended by the Kentucky Department for Environmental Protection and the Kentucky Chemical Demilitarization Citizens' Advisory Commission and its subcommittees, and thus, public acceptance is anticipated.

## **V. Chemical Stockpile Emergency Preparedness Program (CSEPP)**

The CSEPP is a joint program between the Army (CMA) and the Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) with the Army responsible for the on-post mission and DHS/FEMA responsible for the off-post mission. The CSEPP activities have been implemented at all continental U.S. chemical weapons storage sites. As of September 30, 2020, the CSEPP is only active at the PCD and BGAD storage sites.

In response to the COVID-19 Pandemic, the CSEPP modified planning, resources and activities to effectively maintain stockpile emergency preparedness. Planning and communication activities were fully transitioned utilizing remote and video conferencing by early April 2020. CSEPP personnel, facilities, and equipment were used by the communities to assist during the COVID-19 Pandemic. State emergency operation centers (EOC) in Colorado and Kentucky were activated as well as Pueblo County, Colorado and Madison County, Kentucky used their EOCs in support of the local community pandemic response. Military Commanders at both stockpile sites, each morning, assessed emergency response capabilities to include community medical status as part of their daily determination of the limiting conditions for the conduct of operations. CSEPP communities continued to maintain preparedness for a chemical accident while simultaneously working to support the pandemic response.

The CMA and DHS/FEMA common programmatic support efforts at both sites focused on maintaining preparedness across the 12 CSEPP capability benchmarks. Of particular challenge was meeting exercise program requirements, as a traditional demonstration of community level exercise is inconsistent with current public health and community priorities amid COVID-19. The Pueblo community exercise originally scheduled for May 6, 2020, was postponed until August 12, 2020. In lieu of full scale exercises, the exercise planning teams from Federal, State, and local communities carefully reviewed the prolonged emergency response and lessons learned from COVID-19 in each jurisdiction and granted exercise credit, as appropriate, to reduce personnel contact at the exercise sites. The exercise team conducted virtual evaluations of Chemical Accident Incident Response Assistance (CAIRA) type exercises in Pueblo on August



12, 2020 and Blue Grass on September 16, 2020. FEMA and the U.S. Army distributed final after-action reports and recommendations across the program within 90 days of each exercise.

Both CMA and FEMA also continued implementation of CSEPP Strategic Plan priorities of maintaining preparedness & effective closeout. Closeout planning perspective focuses on present state, transition state and future state with the goal of effectively and efficiently transitioning all resources and capabilities at mission's end.

In addition, CSEPP continued testing of the national Integrated Public Alert and Warning System (IPAWS). The IPAWS provides another alerting technology for the public notifications of emergencies. Additionally, CMA, in coordination with DHS/FEMA, completed the update of the CSEPP Exercise Implementation Guide. This document provides the foundation for, and ensures consistency in, the planning and execution of the exercises. The revised document was published in November 2019. The CSEPP automation systems, WebPuff and the Chemical Stockpile Wide Area Network, maintained their Authorization to Operate and initiated the review process to support security reauthorization by May 1, 2021.

Both Colorado and Kentucky and their surrounding communities remain prepared to respond in the event of a chemical accident/incident. The CMA on-post mission continued to maintain emergency preparedness and readiness at chemical weapons storage installations, and DHS/FEMA executed the off-post mission with State and local governments to meet the CDP mandate of maximum protection.

#### *Blue Grass Chemical Activity and the Commonwealth of Kentucky Communities*

The DHS/FEMA used FY 2020 funds for validated projects in the CSEPP communities; all funds are awarded for these purposes in the annual cooperative agreements.

Procurement funds were awarded to the Commonwealth of Kentucky to support: 1) life cycle replacement of Adviser Alert Radio System equipment in Madison County, Kentucky; and 2) installation of the simulcast radio network in Garrard County, Kentucky.

Operations and Maintenance (O&M) funds were awarded to Kentucky's CSEPP jurisdictions for emergency preparedness activities in each of the 12 CSEPP benchmarks. Kentucky communities maintained alert and notification systems, interoperable communications systems, and chemical decontamination equipment and trained staff to support each program benchmark. O&M funds also assisted communities in maintaining public outreach and education programs, maintaining an emergency public information capability and providing medical training for first responders and hospital personnel.

On September 16, 2020, the BGAD and Blue Grass Chemical Activity (BGCA) conducted a modified evaluated annual CSEPP exercise.

#### *Pueblo Chemical Depot, the State of Colorado and Pueblo Community*

The DHS/FEMA used FY 2020 funds for validated projects in the CSEPP communities; all funds are awarded for these purposes in the annual cooperative agreements.

Procurement funds were awarded to the State of Colorado to support the lifecycle replacement of digital trunked radio system in Pueblo County, Colorado. O&M funds were awarded to Colorado for emergency preparedness activities in each of the 12 CSEPP benchmarks. Colorado communities maintained alert and notification systems, interoperable communications systems, chemical decontamination equipment and trained staff to support each program benchmark. Assistance was given to support Colorado communities in maintaining coordinated emergency plans and cross training of both on- and off-post personnel. The O&M funds also assisted communities in maintaining public outreach and education programs, maintaining an emergency public information capability and providing medical training for first responders and hospital personnel.

On August 12, 2020, the PCD and Pueblo Community conducted a modified externally evaluated annual CSEPP exercise.

## VI. Funding Execution

The Consolidated Appropriations Act of 2018 (Public Law 115-141) set funding for the Chemical Agents and Munitions Destruction, Defense (CAMD,D) appropriation at \$961.732 million for the CDP. There were no funds appropriated for Chemical Demilitarization Construction, Defense. The ACWA program portion of the CAMD,D appropriation was \$831.900 million.

The following table reflects disbursements as of September 30, 2020.

**FY 2020 Disbursements**  
(Includes disbursement amounts for all active FYs)  
(\$ IN THOUSANDS)

Purpose	Funds Disbursed
Construction of and equipment for CWDFs (includes systemization)	395,141
Operation of CWDFs	617,220
Dismantling and closure of CWDFs	0
Recovered Chemical Warfare Material Program Research and Development	4,398
Program Management (includes Chemical Demilitarization Training Facility)	46,475
Recovered Chemical Warfare material Program Support Functions	48,335
Other - Panama	35
CSEPP	20,153
Travel and associated travel costs for CAC members (detailed in the following paragraphs)	0
<b>TOTAL</b>	<b>1,131,757</b>

Note: Total ±1 thousand dollars due to rounding

Sources: (1) General Fund Enterprise Business System Reconciliation reports with data as of September 30, 2020

(2) Corps of Engineers Financial Management System data as of September 30, 2020

The table at Appendix B shows a detailed listing of funds disbursed by project and location as of September 30, 2020.

Chemical Demilitarization Citizens' Advisory Commissions (CAC), in accordance with section 1521(m) of title 50 U.S.C., continued to be important partners of the ACWA program. Travel funds for the CAC are approved by the Office of the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs, when travel is required. There was no CAC travel during this reporting period.

## **VII. Safety Status of Chemical Weapons Stockpile Storage**

The CMA, through its subordinate relationship with the U.S. Army Materiel Command, is responsible for safe storage of the remaining chemical weapons stockpiles stored at PCD and BGAD, which is funded by the Army. The CMA continues a monitoring and inspection program that includes analytical sampling and analysis along with an enhanced ammunition surveillance program to assess the safety and integrity of the stockpile munitions, agent, and explosives involved. The CMA continues to test the stockpile to ensure that there is no degradation of any components involved. The CMA uses high-performance overpack containers to safely store leaking chemical agent-filled containers and munitions. Leaks that occur in storage are extremely unlikely to endanger on- or off-post communities in the vicinity of the storage sites; thus, the stockpile can be safely stored until treated and/or destroyed. During FY 2020, 48 vapor leaks were detected in mustard projectiles in storage magazines at PCD; and 45 vapor leakers, eight (8) liquid leakers, and one (1) exudite leaker of mustard were detected during maintenance (reconfiguration) operations at PCAPP. There were also 30 components contaminated and overpacked during maintenance operations. At no time was the community or environment at risk of exposure to chemical agents.

For historical leaker information, see Appendix C. Totals were adjusted from the FY 2015 report based on a search of historical leaker records at PCD and BGAD, and a review of the leaker history of M55 rockets.

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

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ACWA	Assembled Chemical Weapons Alternatives
ANCA	Anniston Chemical Activity
ANCDF	Anniston Chemical Agent Disposal Facility
BGAD	Blue Grass Army Depot
BGCA	Blue Grass Chemical Activity
BGCAPP	Blue Grass Chemical Agent-Destruction Pilot Plant
CAC	Citizens' Advisory Commission
CAMD,D	Chemical Agents and Munitions Destruction, Defense
CAMDS	Chemical Agent Munitions Disposal System
CDC	Centers for Disease Control and Prevention
CDP	Chemical Demilitarization Program
CDPHE	Colorado Department of Public Health and Environment
Chem Demil	Chemical Demilitarization
CMA	U.S. Army Chemical Materials Activity
CSEPP	Chemical Stockpile Emergency Preparedness Program
CWC	Chemical Weapons Convention
CWDF	Chemical Weapons Destruction Facility
CY	Calendar Year
DHS	Department of Homeland Security
DoD	Department of Defense
EDS	Explosive Destruction System
EOC	Emergency Operations Center
FEMA	Federal Emergency Management Agency
FER	Final Engineering Review
FY	Fiscal Year [October 1 through September 30]
ICB	Immobilized Cell Bioreactor
IFD	Integrated Facility Demonstration
IPAWS	Integrated Public Alert and Warning System
JACADS	Johnston Atoll Chemical Agent Disposal System
KDEP	Kentucky Department of Environmental Protection
KY	Commonwealth of Kentucky
MPHRA	Multiple Pathway Health Risk Assessment
MWS	Munition Wash Station
NECD	Newport Chemical Depot

NECDF	Newport Chemical Agent Disposal Facility
O&M	Operational and Maintenance
OPCW	Organisation for the Prohibition of Chemical Weapons
OTS	Office-Gas Treatment System
PBCA	Pine Bluff Chemical Activity
PBCDF	Pine Bluff Chemical Disposal Facility
PCAPP	Pueblo Chemical Agent-Destruction Pilot Plant
PCD	Pueblo Chemical Depot
PM	Plant Manager
PM CSE	Project Manager for Chemical Stockpile Elimination Recovered Chemical Warfare Materiel (RCWM) Program
PROC	Procurement
RCRA	Resource Conservation and Recovery Act
RCWM	Recovered Chemical Warfare Materiel
RD&D	Research, Development and Demonstration
RDT&E	Research, Development, Test, and Evaluation
RO	Reverse Osmosis
SC	Systems Contractor
SCWO	Supercritical Water Oxidation
SDC	Static Detonation Chamber
SPM	Site Project Manager
SUPLECAM	Surveillance Program, Lethal Chemical Agents and Munitions
TOCDF	Tooele Chemical Agent Disposal Facility
TADF	treatment, storage, and disposal facility
UMCD	Umatilla Chemical Depot
UMCDF	Umatilla Chemical Agent Disposal Facility
U.S.C.	United States Code

**APPENDIX B**  
**PROGRAM DISBURSEMENTS SUMMARY**

**APPENDIX B**  
**CHEMICAL DEMILITARIZATION PROGRAM**  
**FY 2020 DISBURSEMENTS SUMMARY – AS OF SEPTEMBER 30, 2020**  
**(INCLUDES DISBURSEMENT AMOUNTS FOR ALL ACTIVE FISCAL YEARS)**  
**(\$ IN THOUSANDS)**

Project/Facility	Chemical Agents and Munitions Destruction, Defense				Chemical Demilitarization Construction, Defense
	RDT&E	PROC	O&M	Total	Total
Program Management (CMA)	-	-	-	-	-
Program Management (PMCSE)	-	-	69	69	-
Chemical Demilitarization Training Facility	-	-	-	-	-
CAMDS (Closure)	-	-	-	-	-
JACADS (Closure)	-	-	-	-	-
TOCDF (Operations)	-	-	-	-	-
TOCDF (Closure)	-	-	-	-	-
ANCDF (Operations)	-	-	-	-	-
ANCDF (Closure)	-	-	-	-	-
UMCDF (Operations)	-	-	-	-	-
UMCDF (Closure)	-	-	-	-	-
PBCDF (Operations)	-	-	-	-	-
PBCDF (Closure)	-	-	-	-	-
ABCDF (Closure)	-	-	-	-	-
NECDF (Closure)	-	-	-	-	-
NECDF (Operations)	-	-	-	-	-
RCWM Program Support Functions	4,398	-	48,335	52,732	-
Other - Panama	-	-	35	35	-
Program Management (ACWA)	46,406	-	-	46,406	-
PCAPP (Construction, Equipment, & Systemization)	-	-	-	-	(196)
PCAPP (Operations)	492,772	-	-	492,772	-
BGCAPP (Construction, Equipment, & Systemization)	385,345	-	-	385,345	9,992
BGCAPP (Operations)	124,448	-	-	124,448	-
Chemical Stockpile Emergency Preparedness	-	46	20,107	20,153	-
<b>TOTAL</b>	<b>1,053,369</b>	<b>46</b>	<b>68,546</b>	<b>1,121,961</b>	<b>9,796</b>
<b>*Totals ±due to rounding</b>					



Source: General Fund Enterprise Business System and Corps of Engineers Financial Management System

ABCDF	= Aberdeen Chemical Agent Disposal Facility	NECDF	= Newport Chemical Agent Disposal Facility
ACWA	= Assembled Chemical Weapons Alternatives	O&M	= Operations and Maintenance
ANCDF	= Anniston Chemical Agent Disposal Facility	PBCDF	= Pine Bluff Chemical Agent Disposal Facility
BGCAPP	= Blue Grass Chemical Agent-Destruction Pilot Plant	PCAPP	= Pueblo Chemical Agent-Destruction Pilot Plant
CAMDS	= Chemical Agent Munitions Disposal System	PM CSE	= Project Manager for Chemical Stockpile Elimination
CMA	= U.S. Army Chemical Materials Activity	PROC	= Procurement
CSEPP	= Chemical Stockpile Emergency Preparedness Program	RCWM	= Recovered Chemical Warfare Materiel
FY	= Fiscal Year	RDT&E	= Research, Development, Test and Evaluation
JACADS	= Johnston Atoll Chemical Agent Disposal System	TOCDF	= Tooele Chemical Agent Disposal Facility
		UMCDF	= Umatilla Chemical Agent Disposal Facility

**APPENDIX C: OCCURRENCES  
OF LEAKING CHEMICAL MUNITIONS**

Fiscal Year	Leaker Occurrences by Type				Leaker Occurrences by State or Territory <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
2020	0	6	111 <sup>i</sup>	117 <sup>j</sup>	0	0	117 <sup>i</sup>	0	0		0	0	0	0
2019	2	0	17	19	0	0	17	0	0	2	0	0	0	0
2018	9	0	19	28	0	0	4	0	0	24	0	0	0	0
2017	1	0	2	3	0	0	2	0	0	1	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	1	1	0	0	0	0	0	1	0	0	0	0
2014	1	0	0	1	0	0	0	0	0	1	0	0	0	0
2013	0	0	3	3	0	0	3	0	0	0	0	0	0	0
2012	3	0	10 <sup>i</sup>	13 <sup>i</sup>	0	0	1 <sup>i</sup>	0	0	12	0	0	0	0
2011	0	0	5	5	0	0	5	0	0	0	0	0	0	0
2010	1	3	15 <sup>i</sup>	19 <sup>i</sup>	0	0	7 <sup>i</sup>	0	0	7	0	5	0	0
2009	4	1	344 <sup>i</sup>	349 <sup>d/i</sup>	184 <sup>e</sup>	0	1 <sup>i</sup>	0	0	9	0	154 <sup>e</sup>	1	0
2008	0	3	62	65 <sup>d</sup>	40	1	0	0	0	2	0	14	8	0
2007	0	7	59	66 <sup>d/i</sup>	5	0	1	0	0	1	0	25	34	0
2006	4 <sup>i</sup>	6	65 <sup>i</sup>	75 <sup>d/i</sup>	4	2	8 <sup>i</sup>	0	0	1	0	45	14	0
2005	15 <sup>i</sup>	28	132 <sup>i</sup>	166 <sup>d/i</sup>	14	1	17 <sup>i</sup>	0	0	9 <sup>i</sup>	0	20	114	0
2004	34	46	69 <sup>i</sup>	158 <sup>d/i</sup>	33	0	1 <sup>i</sup>	0	0	0	1	11	103	0
2003	17 <sup>i</sup>	7	24 <sup>i</sup>	48 <sup>i</sup>	15	0	0 <sup>i</sup>	0	0	2	0	8	21	0
2002	43 <sup>i</sup>	18	32	93 <sup>d/i</sup>	40	6	0	0	0	0	0	8	41	0
2001	70 <sup>i</sup>	35	186 <sup>i</sup>	291 <sup>d</sup>	58	0	0 <sup>i</sup>	0	2	6	0	8	205	0
2000	71 <sup>i</sup>	142	36 <sup>i</sup>	249 <sup>d/i</sup>	51	2	1 <sup>i</sup>	0	0	6	0	6	180	0
1999	73 <sup>i</sup>	69	226 <sup>i</sup>	368 <sup>d/i</sup>	65	1	4 <sup>i</sup>	0	0	8	0	4	286	0
1998	26 <sup>i</sup>	27	45	98 <sup>d</sup>	17	2	0	0	0	0	0	5	74	0
1997	62 <sup>i</sup>	11	46	119 <sup>d/i</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	108 <sup>i</sup>	11	17	136 <sup>i</sup>	66	0	0	0	0	1	0	13	55	0
1994	146 <sup>i</sup>	29	27	202 <sup>i</sup>	82	4	2	0	0	6	0	5	103	0
1993	77 <sup>i</sup>	3	37	117 <sup>i</sup>	37	1	1	0	2	11	0	7	61	0
1992	81	139	51 <sup>i</sup>	271 <sup>i</sup>	52	1	0 <sup>i</sup>	1	6	21	0	7	183	0
1991	67 <sup>i</sup>	3	43 <sup>i</sup>	113	28	3	1 <sup>i</sup>	0	5	6	0	8	63	0
1990	76	5	27	108	17	11	1	0	7	2	0	12	58	0

Fiscal Year	Leaker Occurrences by Type				Leaker Occurrences by State or Territory <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
1980 <sup>g</sup> -1989	819 <sup>h/i</sup>	60	931 <sup>i</sup>	1,810 <sup>i</sup>	317	15	29 <sup>i</sup>	0	70	111 <sup>i</sup>	0	280	993	27
<b>TOTAL<sup>i</sup></b>	<b>1,959<sup>i</sup></b>	<b>656</b>	<b>2,623<sup>i</sup></b>	<b>5,238<sup>i</sup></b>	<b>1,306</b>	<b>52</b>	<b>114<sup>i</sup></b>	<b>1</b>	<b>163</b>	<b>259<sup>i</sup></b>	<b>1</b>	<b>654</b>	<b>2,683</b>	<b>27</b>

Notes:

- <sup>a</sup> AL Alabama (ANCA) (operations completed in 2011)  
AR Arkansas (PBCA) (operations completed in 2010)  
CO Colorado (PCD)  
IN Indiana (NECD) (operations completed in 2008)  
JI Johnston Island (includes the storage site and Johnston Atoll Chemical Agent Disposal System; operations completed in 2000)  
KY Kentucky (Blue Grass Chemical Activity)  
MD Maryland (Edgewood Area of Aberdeen Proving Ground) (operations completed in 2006)  
OR Oregon (UMCD) (operations completed in 2011)  
UT Utah (Dugway Proving Ground and Deseret Chemical Depot) (operations completed in 2012)  
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 Chemical Demilitarization Facilities prior to destruction, rather than at the storage area (69 in FY 1996, 10 in FY 1997, 37 in FY 1998, 211 in FY 1999, 30 in FY 2000, 152 in FY 2001, 27 in FY 2002, 61 in FY 2004, 116 in FY 2005, 36 in FY 2006, 33 in FY 2007, 57 in FY 2008, and 333 in FY 2009). All leaks detected during these operations were under engineering controls.
- <sup>e</sup> The apparent spike in leakers at AL and OR in 2009 was due to the processing of M23 mines at those locations.
- <sup>f</sup> Leaker numbers were updated after the final submission of the FY 2007 Annual Report.
- <sup>g</sup> Specific totals for years prior to FY 1980 were not included, as early records were incomplete, and any total incorporating those time frames could not be considered accurate.
- <sup>h</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>i</sup> Totals adjusted from FY 2015 report based on a search of historical leaker records at PCD and BGAD, and a review of the leaker history of M55 rockets.
- <sup>j</sup> Total includes 30 components that were contaminated by leaking munitions.