



**Annual Status Report  
on the  
Destruction of the United States Stockpile of Lethal  
Chemical Agents and Munitions  
for Fiscal Year 2019**

**September 30, 2019**

The estimated cost of this report or study for the Department of Defense is approximately \$740 for the 2019 Fiscal Year. This includes \$0 in expenses and \$740 in DoD labor.

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## **I. Introduction**

The Department of Defense (DoD) is submitting this annual report for fiscal year (FY) 2019 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, 2019.

## **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 Materiel (RCWM) Program support functions, which includes the assessment and destruction of suspected non-stockpile 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.

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

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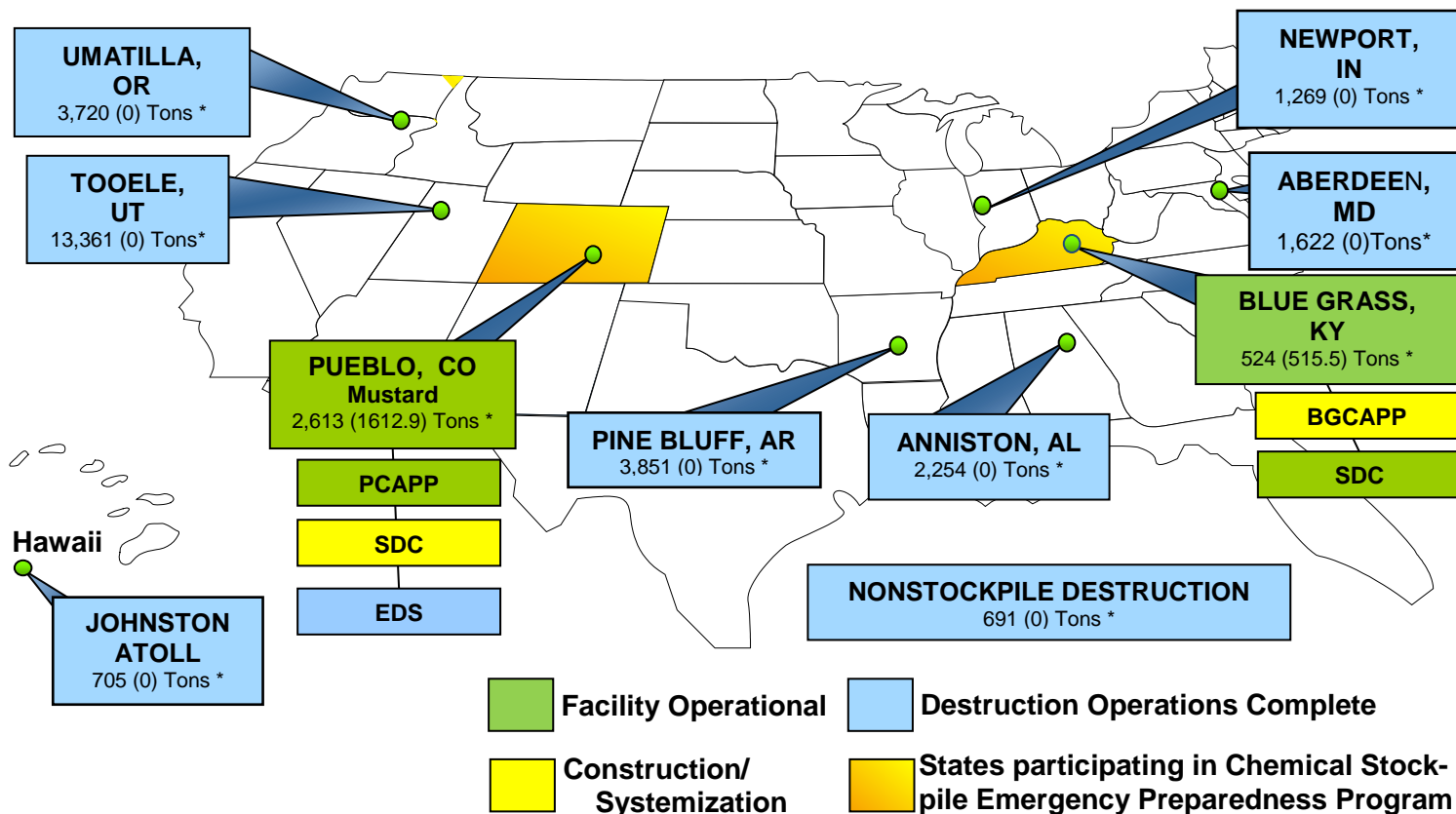
<sup>1</sup> The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, commonly known as the CWC, defines the stockpile elimination deadline for 100 percent destruction of Category 1 chemical weapons as April 29, 2012, the latest 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.”

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 continued destruction operations at the Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP), and began destruction operations on June 7, 2019, at the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) Static Detonation Chamber (SDC). In addition, the ACWA program employed the CMA Explosive Destruction System (EDS) for destruction of problematic munitions that were unable to be processed in the PCAPP main facility.

### 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	Began, Sep 2016	Active	Operational	996.3
Pueblo SDC	TBD	Active	Construction	--
Blue Grass SDC	Began, Jun 2019	Active	Operational	7.5
Blue Grass	TBD	Active	In systemization	--



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

\* Declared Stockpile (Remaining Stockpile)

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

## B. ACWA Program

On June 7, 2019, BGCAPP began destroying lethal chemical agent munitions in the SDC.

The BGCAPP Main Plant continues to prepare to start nerve agent projectile destruction operations. The Organisation for the Prohibition of Chemical Weapons (OPCW) conducted the Final Engineering Review (FER) of the BGCAPP Main Plant. The FER allows the OPCW to review the access to destruction information through cameras, laboratory sampling equipment, and control room screens. The BGCAPP Main Plant operations are scheduled to begin on or around January 8, 2020.

Since September 2018, PCAPP has increased projectile destruction throughput rate from an average of 120 projectiles per day to an average of 280 projectiles per day. This improvement is the result of: 1) a shift in roles, responsibility, and authority that gave the plant manager unencumbered authority; 2) implementation of engineering change proposals to improve efficiencies; and 3) adding destruction goals to award fee criteria.

The PCAPP Main Plant successfully completed the Integrated Facility Demonstration (IFD) on May 3, 2019. The IFD evaluates the plants activities and assesses/demonstrates that the plant, paper, and people can perform specified normal and off-normal activities in accordance with all requirements. Now, a 32 munitions per hour rate limit remains in place until the Colorado Department of Public Health and Environment (CDPHE) incorporates emission criteria based on the data collected during the IFD into the Resource Conservation and Recovery Act (RCRA) part B permit. Facilities that treat,

store, or dispose of hazardous waste must obtain a RCRA permit. The RCRA permit establishes the waste-management activities a facility may conduct and the conditions under which it must operate. The permit outlines the activities the facility must perform such as monitoring and reporting. The CDPHE plans to issue the RCRA part B permit by the second quarter of FY 2020.

The ACWA program continues to focus on safety and environmental compliance.

#### PCD and PCAPP, Colorado

Since the initiation of plant operations on September 7, 2016, the plant has destroyed over 170,217 of the 299,554 155mm mustard-filled projectiles. This accounts for over 996.3 U.S. tons of mustard agent destroyed. Baseline reconfiguration, the process of preparing munitions for destruction, was completed for all 105mm projectiles in February 2018 and for 52,893 of the 97,018 4.2- inch mortars.

Between September 25, 2018, and October 31, 2018, PCAPP shipped 253,633 gallons of hydrolysate. The need to ship hydrolysate became necessary because of a much faster than anticipated fill of the 30-Day Storage Tanks. This increased hydrolysate is due to: 1) increased rates of munition destruction resulting in more agent neutralization by-product produced; 2) more hot water flushing of the Agent Neutralization Reactors as a preventive measure to mitigate against solids buildup; and 3) increased decontamination solution because of pressurized rounds that spilled agent onto equipment. Since October 31, 2018, PCAPP has successfully disposed of hydrolysate on site using the Biotreatment Area.

The PCAPP was down from May 15-June 11, 2019, due to issues with hydrolysate storage. During routine tank inspections, potential leaks were detected on two of three hydrolysate storage tanks. Consistent with the RCRA permit, PCAPP halted destruction operations. The leaks were very minor in nature with a small amount of liquid visible within a weep hole of a blind flange. PCAPP had an independent third party engineering evaluation and certification of the third hydrolysate storage tank. With CDPHE concurrence, PCAPP resumed operations on June 12, 2019, with one hydrolysate storage tank while repairing the other two tanks. Subsequently, PCAPP completed the repairs on the two storage tanks in July and September, 2019. There was no threat to the workforce or the surrounding community.

The PCAPP EDS completed its second campaign conducted between June 25, 2018, and December 5, 2018, destroying 391 munitions. The EDS has been closed and shipped off site. The PEO ACWA is now planning to install three SDCs to augment PCAPP's destruction capability. PCAPP will use these SDCs to destroy the 4.2-inch mustard mortars and problematic 155mm and 105mm projectiles. On June 6, 2019, PCAPP received two of six Temporary Authorizations from the CDPHE to begin limited SDC site construction. Workers broke ground on June 18, 2019, and delivery of the initial components for the SDCs began on August 6, 2019. The SDCs are anticipated to begin operations in October 2020 pending environmental permit approval.

#### BGAD and BGCAPP, Kentucky

As of September 30, 2019, the BGCAPP has destroyed over 1,275 of the 15,492 155mm mustard-filled projectiles in the SDC. This accounts for 7.5 U.S. tons of mustard agent destroyed.

With the start of mustard agent destruction operations, BGCAPP began a safe, deliberate, and compliant feed rate to the SDC. The goal was to optimize the process and gain proficiency across all crews. During this ramp up phase of SDC operations, BGCAPP experienced expected operational pauses to adjust the pollution abatement system, replace the locking ring seals, perform maintenance on the Off-gas Treatment System, etc. In each case, the Systems Contractor placed the facility into a safe condition, investigated, and resolved the issue. The SDC mustard agent destruction operations will continue through FY 2020.

The PEO ACWA identified safety and technical issues with processing M55 rocket energetics through the neutralization area of the BGCAPP Main Plant. To mitigate these issues, the PEO ACWA is pursuing a rocket destruction strategy to drain the rockets in the Main Plant and transport the empty warheads to the SDC for final destruction. This revised strategy will require major modifications to the BGCAPP Main Plant, an enhanced pollution abatement system for the existing SDC, and a second SDC that is larger and able to handle overpacked rockets.

The BGCAPP Main Plant plans to begin destruction operations with GB projectiles. In order to ensure the maximum protection of the workforce and to allow for enhanced productivity, ACWA changed the start of Main Plant operations to January 29, 2020, with an incentivized date of November 15, 2019. This change allows the BGCAPP Main Plant to address facility modifications prior to the start of destruction operations.

## **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, 2019, the CSEPP is only active at the PCD and BGAD storage sites. 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 2019 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 (KY) to support: 1) life cycle replacement of 800 MHz mobile radios and Emergency Operations Center (EOC) repairs and interoperability in Madison County, KY; 2) Estill County KY decontamination capabilities; and 3) life cycle replacement of KY State EOC communications and audio visual equipment.

Operations and Maintenance (O&M) funds were awarded to Kentucky's CSEPP jurisdictions for emergency preparedness activities in each of the 12 program benchmarks. Kentucky communities maintained alert and notification systems, interoperable communications systems, and chemical

decontamination equipment and trained staff to support each program benchmark. This year, a specific effort was made to assist the Commonwealth and its jurisdictions to update and revalidate all coordinated emergency plans for the start of operations. 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 18, 2019, the BGAD and Blue Grass Chemical Activity (BGCA) conducted its joint, annual and externally evaluated CSEPP exercise.

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

The DHS/FEMA used FY 2019 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 (CO) to support: 1) Pueblo County, CO, decontamination capabilities, and 2) CO State EOC audio visual equipment upgrades. Operations and Maintenance (O&M) funds were awarded to Colorado for emergency preparedness activities in each of the 12 program 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 the Colorado the communities in maintaining coordinated emergency plans and cross training 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 May 28, 2019, the PCD and Pueblo Community conducted its joint annual externally evaluated CSEPP exercise.

The CMA and DHS/FEMA common programmatic support efforts to both sites included 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, worked to update 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 will be available in November 2019. Of high note and significance, the CSEPP automation systems, WebPuff and the Chemical Stockpile Wide Area Network, received an Authorization to Operate effective May 30, 2019. This security authorization decision is valid through May 1, 2021.

To coordinate activities locally, the CMA and DHS/FEMA participated in community Integrated Process Team meetings held regularly at both sites in 2019. At the national level, Program Management Team meetings were held in January 2019 in Arlington, Virginia, and in July 2019 in Richmond, Kentucky. Attendees included personnel from CMA, ACWA, FEMA headquarters and Regions IV and VIII, Kentucky Emergency Management and Colorado Division of Homeland Security and Emergency Management, the BGCA, BGAD, PCD, and CSEPP counties surrounding the installations.



Lastly, both Colorado and Kentucky and their surrounding communities remain prepared to respond in the event of a chemical accident/incident. Both Blue Grass and Pueblo communities remain in compliance with the 12 CSEPP benchmarks that establish the capabilities that enable the communities to respond effectively to a chemical accident/incident at the stockpile storage sites. The CMA DHS/FEMA will continue to support sustainment and maintain state-of-the-art capabilities for both the depots and the communities until the chemical weapons stockpiles are eliminated.

## 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, 2019.

**FY 2019 Disbursements**  
(Includes disbursement amounts for all active FYs)  
(\$ IN THOUSANDS)

Purpose	Funds Disbursed
Construction of and equipment for CWDFs (includes systemization)	301,134
Operation of CWDFs	383,082
Dismantling and closure of CWDFs	226
Program Management (includes Chemical Demilitarization Training Facility)	76,440
Non-Stockpile Chemical Materiel	
CSEPP	64,618
Travel and associated travel costs for CAC members (detailed in the following paragraphs)	-
<b>TOTAL</b>	<b>887,019</b>

Note: Total ±1 thousand dollars due to rounding

Sources: (1) General Fund Enterprise Business System Reconciliation reports with data as of September 30, 2019  
(2) Corps of Engineers Financial Management System data as of September 30, 2019

The table at Appendix B shows a detailed listing of funds disbursed by project and location as of September 30, 2019.

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. 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 2019, two vapor leaks were detected in GB rockets in storage magazines at BGAD; and eleven vapor leaks of mustard were detected during maintenance (reconfiguration) operations at PCD. 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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**ABBREVIATIONS AND SYMBOLS**

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
CDP	Chemical Demilitarization Program
CDPHE	Colorado Department of Public Health and Environment
Chem Demil	Chemical Demilitarization
CO	State of Colorado
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]
IFD	Integrated Facility Demonstration
IPAWS	Integrated Public Alert and Warning System
JACADS	Johnston Atoll Chemical Agent Disposal System
KY	Commonwealth of Kentucky
NECD	Newport Chemical Depot
NECDF	Newport Chemical Agent Disposal Facility
O&M	Operational and Maintenance
OPCW	Organisation for the Prohibition of Chemical Weapons

PBCA	Pine Bluff Chemical Activity
PBCDF	Pine Bluff Chemical Disposal Facility
PCAPP	Pueblo Chemical Agent-Destruction Pilot Plant
PCD	Pueblo Chemical Depot
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
RDT&E	Research, Development, Test, and Evaluation
SDC	Static Detonation Chamber
SUPLECAM	Surveillance Program, Lethal Chemical Agents and Munitions
TOCDF	Tooele Chemical Agent 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 2019 DISBURSEMENTS SUMMARY – AS OF SEPTEMBER 30, 2019**  
**(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)	-	-	(69,106)	(69,106)	-
Program Management (PMCSE)	-	-	-	-	-
Chemical Demilitarization Training Facility	-	-	-	-	-
CAMDS (Closure)	-	-	-	-	-
JACADS (Closure)	-	-	-	-	-
TOCDF (Operations)	-	-	-	-	-
TOCDF (Closure)	-	-	-	-	-
ANCDF (Operations)	-	-	-	-	-
ANCDF (Closure)	-	-	(541)	(541)	-
UMCDF (Operations)	-	-	-	-	-
UMCDF (Closure)	-	-	89,388	89,388	-
PBCDF (Operations)	-	-	-	-	-
PBCDF (Closure)	-	-	129,175	129,175	-
ABCDF (Closure)	8,160	-	-	8,160	-
NECDF (Closure)	-	-	-	-	-
NECDF (Operations)	-	-	-	-	-
Non-Stockpile Chemical Materiel	7,253,4229	670,973	53,513,372	61,437,767	-
Other	-	-	81,183	81,183	-
Program Management (ACWA)	76,509,408	-	-	76,509,408	-
PCAPP (Construction, Equipment, & Systemization)	-	-	-	-	204,418
PCAPP (Operations)	383,081,893	-	-	383,081,893	-
BGCAPP (Construction, Equipment, & Systemization)	297,767,091	-	-	297,767,091	3,162,412
Chemical Stockpile Emergency Preparedness	-	10,611,878	54,005,645	64,617,523	-
<b>TOTAL</b>	<b>764,619,974</b>	<b>11,282,851</b>	<b>107,749,116</b>	<b>883,651,941</b>	<b>3,366,830</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
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/f</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>j</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>j</sup>	11	17	136 <sup>i</sup>	66	0	0	0	0	1	0	13	55	0
1994	146 <sup>j</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.

