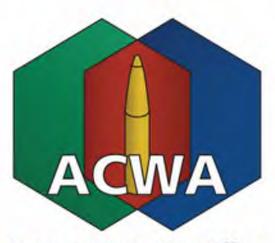
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RCS: DD-A&T(Q&A)823-243



Program Executive Office Assembled Chemical Weapons Alternatives

Chemical Demilitarization-Assembled Chemical Weapons Alternatives (Chem Demil-ACWA)

As of FY 2021 President's Budget

Defense Acquisition Management Information Retrieval (DAMIR)

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance

ACAT - Acquisition Category

ADM - Acquisition Decision Memorandum

APB - Acquisition Program Baseline

APPN - Appropriation

APUC - Average Procurement Unit Cost

\$B - Billions of Dollars

BA - Budget Authority/Budget Activity

Blk - Block

BY - Base Year

CAPE - Cost Assessment and Program Evaluation

CARD - Cost Analysis Requirements Description

CDD - Capability Development Document

CLIN - Contract Line Item Number

CPD - Capability Production Document

CY - Calendar Year

DAB - Defense Acquisition Board

DAE - Defense Acquisition Executive

DAMIR - Defense Acquisition Management Information Retrieval

DoD - Department of Defense

DSN - Defense Switched Network

EMD - Engineering and Manufacturing Development

EVM - Earned Value Management

FOC - Full Operational Capability

FMS - Foreign Military Sales

FRP - Full Rate Production

FY - Fiscal Year

FYDP - Future Years Defense Program

ICE - Independent Cost Estimate

IOC - Initial Operational Capability

Inc - Increment

JROC - Joint Requirements Oversight Council

\$K - Thousands of Dollars

KPP - Key Performance Parameter

LRIP - Low Rate Initial Production

\$M - Millions of Dollars

MDA - Milestone Decision Authority

MDAP - Major Defense Acquisition Program

MILCON - Military Construction

N/A - Not Applicable

O&M - Operations and Maintenance

ORD - Operational Requirements Document

OSD - Office of the Secretary of Defense

O&S - Operating and Support

PAUC - Program Acquisition Unit Cost

PB - President's Budget

PE - Program Element

PEO - Program Executive Officer

PM - Program Manager

POE - Program Office Estimate

RDT&E - Research, Development, Test, and Evaluation

SAR - Selected Acquisition Report

SCP - Service Cost Position

TBD - To Be Determined

TY - Then Year

UCR - Unit Cost Reporting

U.S. - United States

USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

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Chem Demil-ACWA

December 2019 SAR

Program Information

Program Name

Chemical Demilitarization-Assembled Chemical Weapons Alternatives (Chem Demil-ACWA)

DoD Component

DoD

Responsible Office

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Date Assigned: September 10, 2018

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Chem Demil-ACWA

December 2019 SAR

References

Pueblo (PCAPP)

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 22, 2012

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 22, 2012

Blue Grass (BGCAPP)

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 22, 2012

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 22, 2012

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Mission and Description

Chemical Demilitarization-Assembled Chemical Weapons Alternatives (Chem Demil-ACWA) is performing a portion of the chemical warfare materiel elimination mission. In 1996, Congress and the President, responding to public concerns about the safe destruction of chemical weapons, established and later expanded the ACWA program (Public Laws 104-208, 105-261, 106-79, 107-248, and 112-239). The Department of Defense (DoD) was charged with identifying and demonstrating two or more alternative technologies to incineration for the destruction of assembled chemical weapons. The Defense Acquisition Executive assigned Program Manager (PM) ACWA the responsibility for developing neutralization technologies to eliminate the chemical weapons stockpiles located at Pueblo, CO, and Blue Grass, KY (July 16, 2002 and February 3, 2003, respectively). At the time of initiation, the ACWA program was known as the Assembled Chemical Weapons Assessment program. When the assessment phase was complete, the ACWA program shifted its focus from assessing chemical weapons destruction technologies to implementing full-scale pilot testing. As a result, the program was renamed Assembled Chemical Weapons Alternatives in June 2003 to better reflect the new program goals. To raise the program's visibility and obtain the necessary resources, PM ACWA was redesignated as the Program Executive Office (PEO) on October 1, 2012.

Executive Summary

Program Highlights Since Last Report

This December 2019 SAR details changes to cost, schedule, and performance since last reported in the December 2018 SAR for the Chem Demil-ACWA. Chem Demil-ACWA is responsible for the safe destruction of 3,136 tons of mustard and nerve agent stockpiled at the Blue Grass Army Depot in Kentucky and the Pueblo Chemical Depot in Colorado. The Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) and the Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) are in pilot testing, a phase in which munitions are gradually introduced into the plant leading up to full-rate agent destruction operations.

The Program Executive Office, ACWA is focused on continuing to improve performance at each site and completing destruction of the stockpile by the congressionally mandated deadline of December 31, 2023. As of February 10, 2020, the PCAPP has destroyed 1,275.7 U.S. tons out of the original stockpile of 2,613.2 U.S. tons and BGCAPP has destroyed 18.6 U.S. tons out of the original stockpile of 523.4 U.S. tons. Full-scale chemical agent destruction operations at the BGCAPP Main Plant began on January 17, 2020 with the destruction of the first 8-inch projectile containing GB nerve agent. The PCAPP anticipates reaching 50% of the Pueblo Chemical Depot (PCD) chemical agent tonnage stockpile destroyed in March 2020.

On September 10, 2018, Mr. Michael Abaie was named Program Executive Officer (PEO), ACWA. After analysis of various alternatives to accelerate nerve agent munition destruction at BGCAPP, the PEO ACWA determined that the use of Explosive Destruction Technologies (EDT)/Static Detonation Chambers (SDC) would accelerate munitions destruction while enhancing worker and community safety. Chem Demil-ACWA is currently destroying chemical agent munitions through an EDT at BGCAPP and is in the process of procuring a larger SDC-2000, pending permitting application approval to use the system for nerve agent destruction. Chem Demil-ACWA is installing three SDC-1200s at the PCAPP.

Significant schedule improvements are forecasted as the result of the introduction of the EDTs and SDCs to augment Main Plant destruction operations at both sites, and joint ACWA-contractor working groups to develop revised processing strategies to optimize efficiencies. At PCAPP, a Period of Performance extension was negotiated to complete agent destruction operations in April 2023, but the System Contractor (SC) is incentivized to complete operations in December 2022. At BGCAPP the SC submitted a revised operations proposal reflecting completion of operations in November 2023. The PEO ACWA intends to take advantage of the authorities of Public Law 109–364 which authorizes the use of a self-funded incentive clauses to accelerate the safe elimination of the stockpile. The PCAPP accelerated chemical agent destruction completion incentive is currently undergoing final review at OSD.

The cost and schedule estimates provided in this report reflect the changes between the 2017 POE and the 2019 POE, the 2018 POE was not published. When the 2017 POE was created, the PCAPP Main Plant was only a few months into the destruction operation ramp-up phase before operations were stopped to address safety issues and equipment failures in the plant. Prior to the shut-down, processing rate estimates were overly optimistic. In June 2018, PCAPP restarted Operations after completing equipment repairs and increased the daily processing rate of 155mm projectiles. In June 2018, the PCAPP SC estimated completing destruction operations in August 2027. In order to address this issue, the PEO ACWA procured three SDCs to process a portion of the stockpile. The 2019 POE incorporates the actual PCAPP 155mm projectile processing improvements and the future schedule savings of operating three SDCs, resulting in shifting the Complete Operations forecast to June 2023.

BGCAPP

The BGCAPP is using two technologies to safely destroy the stockpile at the Blue Grass Army Depot. The Main Plant is using neutralization followed by Supercritical Water Oxidation (SCWO), and the EDTs/SDCs are using explosive destruction.

On June 7, 2019, the BGCAPP EDT began destroying mustard (H) agent munitions. The SC began a safe, deliberate, and compliant feed rate to the EDT. Operations continue in accordance with the ramp-up plan with workers optimizing the equipment and process, and gaining proficiency as they progress through the plan. Since starting EDT operations,

BGCAPP has experienced expected 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 (H) agent stored within the munitions. The condition of mustard (H) projectiles stored at BGCAPP is worse than anticipated, which has affected the throughput rate by accelerating the deterioration of the detonation chamber seals. The SC continues to work tirelessly assessing different seal materials to increase the longevity of the seals to minimize downtimes. The BGCAPP EDT Emissions Test was successfully conducted the week of January 13, 2020. The EDT successfully completed three 6-hour test runs using 36 H 155mm projectiles per run. A draft test report is being prepared for submittal to the KDEP. The emissions test establishes the maximum processing rate allowable by the Resource Conservation and Recovery Act (RCRA) permit. Full rate processing approval is expected in 3rd quarter FY 2020.

The SC completed Integrated Operations Demonstrations (IOD) for BGCAPP Main Plant destruction activities in October 2019. The Main Plant completed the Operational Readiness Review (ORR) and the Joint Venture declared readiness to begin agent operations on November 15, 2019, with Government agreement on November 20, 2019. The State Department provided a Notification Letter to the Organisation for the Prohibition of Chemical Weapons (OPCW) on December 2, 2019, informing them of the intent to start agent destruction operations in the Main Plant. The PEO ACWA delayed the start of agent operations to allow time to stage rocket processing equipment that is key to the revised rocket destruction strategy to drain and treat the GB and VX agents from the rockets in the Main Plant. Rocket processing equipment installation will continue in non-agent areas of the Main Plant while GB projectile processing is ongoing. Final preparations and installation will occur when the GB projectile campaign is complete. USD(A&S) provided approval to begin chemical agent destruction operation at the BGCAPP Main Plant on January 8, 2020 and full-scale agent destruction began January 17, 2020, with the destruction of the first 8-inch projectile containing GB nerve agent. This is the first time that the U.S. Army has destroyed nerve agent in over 10 years, so the PEO ACWA is proceeding in disciplined, deliberate, safe and compliant manner.

The PEO ACWA commissioned a series of SCWO system studies to be conducted by National Academies of Science, Engineering, and Medicine (NASEM), Systems Engineering and Research Center (SERC), and Edison Welding Institute (EWI) to identify any safety issues associated with SCWO operations and maintenance. These studies will be used to establish metrics, in collaboration with the community, to ensure the SCWO system meets operational requirements while being operated and maintained safely.

The SCWO and Reverse Osmosis (RO) systems completed system demonstrations on January 17, 2020. The SCWO and RO began a one-month system shakedown on January 31, 2020, which will be followed by a four-month pre-operational trial using hydrolysate simulant. After successful completion of these tests and a thorough review of the results by the PEO, the systems will be subjected to a six-month operational assessment of GB hydrolysate processing.

PCAPP

PCAPP Main Plant destruction rates continue to improve as a result of the PEO ACWA actions. Prior to the 2018 shutdown, PCAPP averaged 120 projectiles per day. For 1st quarter FY 2020, PCAPP averaged 345 projectiles per day. In late 2018, the contract was modified to codify the organizational structure to define the roles, responsibilities and authorities of the Plant Manager (PM) to include management of engineering resources, spare parts, waste management, and process improvements. The PCAPP PM has driven the improvements made to the facility (i.e. Munition Wash Station (MWS) hydraulic system, MWS Cavity Access Machine, and Explosive Containment Room), which has allowed the PCAPP to capitalize on the permitted increase in processing rates. 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 was commissioned and became operational in February 2020.

The PCAPP Main Plant continues to operate at the Colorado Department of Public Health and Environment (CDPHE) approved munitions processing rate of 32 projectiles per hour. The Multi Pathway Health Risk Assessment (MPHRA) was approved in late January 2020. The implementation of the increased production rate based on the MPHRA approval will be through Permit Modification Request (PMR) 286, which is planned to be submitted in February 2020. In addition to the processing parameters established in the MPHRA Report, PMR 286 is the final permit modification prior to the RCRA Part B submission. PEO ACWA expects CDPHE to issue the RCRA Part B permit in 4th quarter FY 2020.

Baseline reconfiguration, the process of opening storage boxes and separating the munitions and energetics, continues on

the 4.2-inch mortars. The PCAPP has reconfigured 70,871 of the 97,001 4.2-inch mortars as of February 10, 2020.

Installation of the three SDCs is ongoing. The plant has received all six Temporary Authorizations (TA) from the CDPHE to allow completion of SDC site construction and installation. The SC will continue to work with CDPHE to receive the remaining TAs necessary for Systemization and the RCRA Part B Modification for Operations. The three SDC pads are complete, and the units have been placed and are being installed. The sprung structures for the SDCs are currently being built. The balance of SDC equipment has been received and is being installed. The SDC installation is on-track to support start of agent operation in October 2020. The CDPHE requires the PEO ACWA to permit the SDCs as incinerators under the RCRA. This decision is contrary to how the Environmental Protection Agency and the States of Kentucky, Texas, and Alabama have previously permitted SDCs (permitted as "miscellaneous processing units"). The decision by Colorado regulators will most likely result in more restrictive controls that will limit the final operating throughput rate. PEO ACWA continues to engage with CDPHE to ensure the permit is not overly restrictive.

PEO ACWA Headquarters

The PEO ACWA continues to install processes and set expectations to unify Government and Contractor efforts. Execution plans for the PCAPP and the BGCAPP were completed and are being implemented. The PEO ACWA continues to refine the programmatic Integrated Master Plan and programmatic Integrated Master Schedule (IMS) to track key events and coordinate activities. The PEO ACWA uses a single risk register to inform the IMS and the Program Office Estimate (POE). Also, in the 4th quarter FY 2019, the PEO ACWA finalized the format for a weekly operational dashboard and transmitted it to external stakeholders in 1st quarter FY 2020. The ACWA Program 2019 POE was approved on January 3, 2020, and forwarded by the USD(A&S) to the congressional defense committees.

OPCW issued a facility agreement stating a certificate of destruction would be issued for the M55/56 rockets after the rocket motor has been separated from the warhead, the warhead is punched and drained of agent, the agent is sent to the Agent Neutralization System (ANS), and the warhead is sent to the Energetics Neutralization System (ENS). In the fall of 2019, OPCW issued a statement that accounted for the use of other technology to destroy the empty warhead. The PEO ACWA is coordinating with OPCW to formalize this statement in the facility agreement.

The PEO ACWA commissioned NASEM to conduct a closure study for the BGCAPP and the PCAPP, based on lessons learned from the closure of the chemical demilitarization incineration sites, which is scheduled for completion in March 2020. The PEO ACWA is independently defining and estimating the facility closure efforts. Most importantly, the PEO ACWA is partnering with the depots, chemical activities and states/communities to define the desired end state of both sites.

There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

	History of Significant Developments Since Program Initiation
Date	Significant Development Description
September 1996	Assembled Chemical Weapons Assessment (ACWA) Established (Public Law 104-208)
April 1997	The Chemical Weapons Convention (aka chemical weapons treaty) Signed by U.S. and Entered Into Force
September 2002	Bechtel Pueblo Team Awarded Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) Contract
October 2002	ACWA Assigned Responsibility for Destruction of Chemical Agent Stockpiles at Blue Grass Army Depot and Pueblo Chemical Depot (Public Law 107-248)
June 2003	Bechtel Parsons Blue Grass Team Awarded Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) Contract
June 2003	ACWA Redesignated as Assembled Chemical Weapons Alternatives
August 2006	Critical Nunn-McCurdy Breach Reported by ACWA
January 2007	ACWA Program Certified to Congress
April 2007	DAE Approved Revised APB
September 2010	Significant Nunn-McCurdy Breach Reported by ACWA
December 2010	Critical Nunn-McCurdy Breach Reported by USD(AT&L)
January 2011	ACWA Program Certified to Congress
March 2012	DAE Approved Revised APB
October 2012	ACWA Designated as a Program Executive Office (PEO)
April 2013	PEO ACWA Decision to use Explosive Destruction System (EDS) at PCAPP
November 2013	PEO ACWA Decision to use Static Detonation Chamber (SDC) at BGCAPP
March 2015	PCAPP EDS Overpack Campaign Begins
March 2016	PCAPP EDS Overpack Campaign Complete
September 2016	PCAPP Main Plant Operations Begin (Pilot Testing)
April 2017	Significant Nunn-McCurdy Breach Reported
September 2017	PCAPP Main Plant Temporary Pause in Operations
June 2018	PCAPP Main Plant Operations Resume
June 2018	PCAPP SDCs Ordered
June 2018	PCAPP EDS Reject Campaign Begins
December 2018	PCAPP EDS Reject Campaign Complete
March 2019	PEO ACWA Decision to Procure BGCAPP SDC 2000
June 2019	BGCAPP SDC Operations Begin
June 2019	PEO ACWA Decision to Revise Rocket Processing Strategy
January 2020	BGCAPP Main Plant Operations Begin

Threshold Breaches

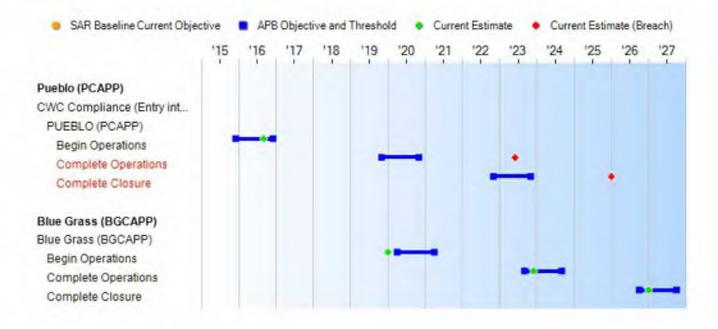
Pueblo (PCAPP)

APB Breach	ies		
Schedule Performanc Cost O&S Cost Unit Cost		ement 🗆	Explanation of Breach The schedule, RDT&E, and PAUC breaches were reported in the December 2016 SAR.
Nunn-McCu			
Current UC	R Baselin	e	
Original UC	PAUC APUC R Baselin PAUC APUC	Significant None e None None	
		6.500	

Blue Grass (BGCAPP)

APB Breach	es		
O a la a de al a		-	Explanation of Breach
Schedule			
Performance	е		The RDT&E and PAUC breaches were reported in the December
Cost	RDT&E	~	2016 SAR.
	Procurement		-14.4.14
	MILCON		
	Acq O&M		
O&S Cost			
Unit Cost	PAUC	V	
	APUC		
Nunn-McCu	rdy Breaches		
Current UCI	R Baseline		
	PAUC Sign	nificant	
	APUC	None	
Original UC	R Baseline		
100	PAUC	None	
	APUC	None	

Schedule



Pueblo (PCAPP)

Sched	dule Events			
Events	SAR Baseline Development Estimate	Develo	nt APB opment /Threshold	Current Estimate
CWC Compliance (Entry into Force April 29, 1997 PUEBLO (PCAPP)	7)			
Begin Operations	Dec 2015	Dec 2015	Dec 2016	Sep 2016
Complete Operations	Nov 2019	Nov 2019	Nov 2020	Jun 2023
Complete Closure	Nov 2022	Nov 2022	Nov 2023	Jan 2026

[†] APB Breach

Change Explanations

(Ch-1) The Complete Operations current estimate changed from March 2022 to June 2023, and Complete Closure current estimate changed from March 2025 to January 2026 to reflect the current destruction operations estimate and mitigations employed by the PEO ACWA.

Notes

The schedule estimate provided in this report reflect the changes between the 2017 POE and the 2019 POE, the 2018 POE was not published. In June 2018, the PCAPP Systems Contractor estimated completing destruction operations in August 2027. In order to address this issue, the PEO ACWA procured three SDCs to process a portion of the stockpile. The 2019 POE incorporates processing improvements and the future schedule savings of operating three SDCs, resulting in estimating to Complete Operations in June 2023.

Acronyms and Abbreviations

PCAPP - Pueblo Chemical Agent-Destruction Pilot Plant PEO ACWA - Program Executive Office, Assembled Chemical Weapons Alternatives SDC - Static Detonation Chamber

Blue Grass (BGCAPP)

Schedule Events								
Events	SAR Baseline Development Estimate			Current Estimate				
Blue Grass (BGCAPP)								
Begin Operations	Apr 2020	Apr 2020	Apr 2021	Jan 2020				
Complete Operations	Sep 2023	Sep 2023	Sep 2024	Dec 2023				
Complete Closure	Oct 2026	Oct 2026	Oct 2027	Jan 2027				

Change Explanations

(Ch-1) The Begin Operations current estimate changed from March 2020 to January 2020 to reflect the actual start date of Main Plant operations.

(Ch-2) The Complete Closure current estimate changed from November 2026 to January 2027 due to assuming a more conservative approach to closure that did not overlap the end of operations as was assumed in the 2017 POE.

Notes

The Complete Operation and Complete Closure current estimates reflect the 2019 POE. The PEO ACWA is conducting a closure study and the updated closure estimate will be incorporated into the 2020 POE.

Acronyms and Abbreviations

BGCAPP - Blue Grass Chemical Agent-Destruction Pilot Plant PEO ACWA - Program Executive Office, Assembled Chemical Weapons Alternatives

Performance

Pueblo (PCAPP)

	Per	formance Characteristic	s	
SAR Baseline Development Estimate	Deve	rent APB elopment re/Threshold	Demonstrated Performance	Current Estimate
Environmental Law	s and Regulations			
Meets DoD, State, and/or Federal Requirements	Meets DoD, State, and/or Federal Requirements	Meets DoD, State, and/or Federal Requirements	On Track	Meets DoD, State, and/or Federal Requirements
Safety and Occupat	ional Health Laws and	Regulations		
Meets DoD, State, and/or Federal Requirements	Meets DoD, State, and/or Federal Requirements	Meets DoD, State, and/or Federal Requirements	On Track	Meets DoD, State, and/or Federal Requirements
Chemical Agent Re	lease			
0	0	0	0	0
Chemical Agent Exp	oosure			
0	0	0	0	0

Requirements Reference

ORD dated September 2, 1994

Change Explanations

None

Notes

Environmental Laws and Regulations: The facility is operating in compliance with all conditions specified in environmental permits and applicable laws and regulations. The threshold is breached if violation of law or regulation warrants a stop-work order issued by the DoD, the State, the Department of Health and Human Services, or the Environmental Protection Agency and causes a schedule delay of more than 12 months.

Safety and Occupational Health Laws and Regulations: The facility is operating in compliance with the conditions specified in safety and occupational health laws and regulations. The threshold is breached if a violation warrants a stop-work order issued by the DoD, the State, or the Occupational Safety and Health Administration and causes a schedule delay of more than 12 months.

Chemical Agent Release: An event involving chemical agent-destruction pilot plants or EDTs where the following occurs:

- a. Confirmed chemical agent release above the General Population Limit at the installation boundary measured in accordance with the approved monitoring and/or modeling plan with the pilot plant as the identified source.
- b. Confirmed chemical agent release from the pilot plant's exhaust air filter stack above the allowable threshold limit. Allowable threshold limits are calculated as vapor screening level ceiling values.

Chemical Agent Exposure: Department of the Army Implementation Guidance Policy for Revised Airborne Exposure Limits (June 18, 2004) Appendices A and B, defines a chemical agent exposure as an event when an individual exhibits clinical signs or symptoms of being exposed to chemical agent.

Acronyms and Abbreviations

EDT - Explosive Destruction Technology

Blue Grass (BGCAPP)

	Perf	formance Characteristic	s	
SAR Baseline Development Estimate	Deve	rent APB elopment re/Threshold	Demonstrated Performance	Current Estimate
Environmental Law	s and Regulations			
Meets DoD, State, and/or Federal Requirements	Meets DoD, State, and/or Federal Requirements	Meets DoD, State, and/or Federal Requirements	On Track	Meets DoD, State, and/or Federal Requirements
Safety and Occupat	tional Health Laws and	Regulations		
Meets DoD, State, and/or Federal Requirements	Meets DoD, State, and/or Federal Requirements	Meets DoD, State, and/or Federal Requirements	On Track	Meets DoD, State, and/or Federal Requirements
Chemical Agent Re	lease			
0	0	0	0	0
Chemical Agent Ex	posure			
0	0	0	0	0

Requirements Reference

Operational Requirements Document (ORD) dated September 2, 1994

Change Explanations

None

Notes

Environmental Laws and Regulations: The facility is operating in compliance with all conditions specified in environmental permits and applicable laws and regulations. The threshold is breached if violation of law or regulation warrants a stop-work order issued by the DoD, the State, the Department of Health and Human Services, or the Environmental Protection Agency and causes a schedule delay of more than 12 months.

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- b. Confirmed chemical agent release from the pilot plant's exhaust air filter stack above the allowable threshold limit.
 Allowable threshold limits are calculated as vapor screening level ceiling values.

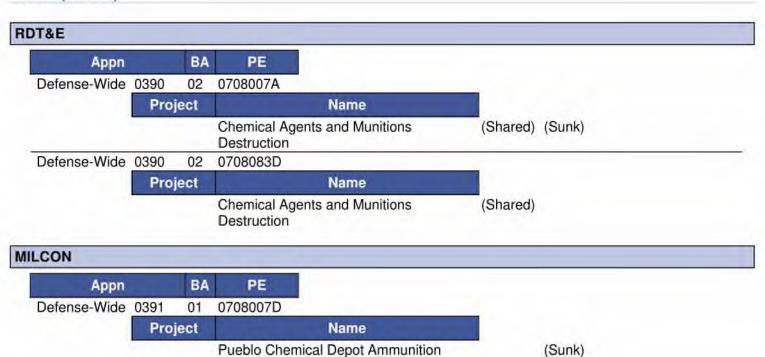
Chemical Agent Exposure: Department of the Army Implementation Guidance Policy for Revised Airborne Exposure Limits (June 18, 2004) Appendices A and B, defines a chemical agent exposure as an event when an individual exhibits clinical signs or symptoms of being exposed to chemical agent.

Acronyms and Abbreviations

EDT - Explosive Destruction Technology

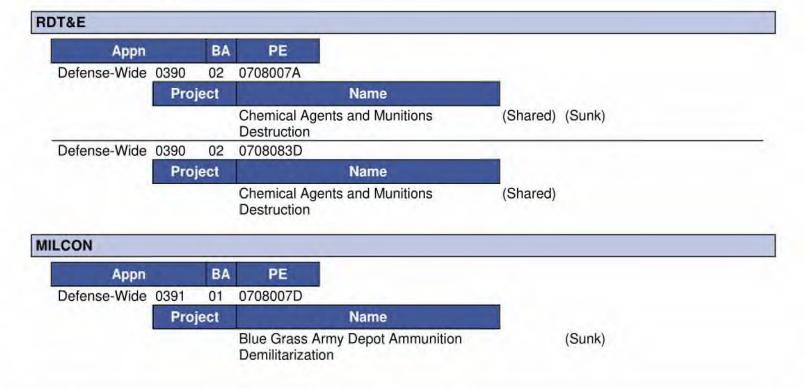
Track to Budget

Pueblo (PCAPP)



Demilitarization Facility

Blue Grass (BGCAPP)



Cost and Funding

Cost Summary - Total Program

		Total Acquisi	tion Co	st - Total Prog	ıram			
Appropriation	В	/ 2011 \$M		BY 2011 \$M	TY \$M			
	SAR Baseline Development Estimate	Current AF Developme Objective/Thre	nt	Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate	
RDT&E	8615.5	8615.5	- 42	10558.6	9246.6	9246.6	11731.8	
Procurement	0.0	0.0		0.0	0.0	0.0	0.0	
Flyaway				0.0	- 4		0.0	
Recurring	4-			0.0			0.0	
Non Recurring	39	**		0.0			0.0	
Support			122	0.0	- 33		0.0	
Other Support				0.0	-		0.0	
Initial Spares	**	**	11	0.0	.11		0.0	
MILCON	1365.3	1365.3	144	1354.4	1370.5	1370.5	1351.2	
Acq O&M	0.0	0.0	144	0.0	0.0	0.0	0.0	
Total	9980.8	9980.8	N/A	11913.0	10617.1	10617.1	13083.0	

Cost and Funding

Cost Summary - Pueblo (PCAPP)

		Total Acqu	isition Cos	t - Pueblo (PC	APP)			
	B	Y 2011 \$M		BY 2011 \$M	TY \$M			
Appropriation	SAR Baseline Development Estimate	The second secon		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate	
RDT&E	4096.7	4096.7	4506.4	5098.91	4353.2	4353.2	5631.9	
Procurement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flyaway		-		0.0			0.0	
Recurring				0.0			0.0	
Non Recurring			77	0.0	++		0.0	
Support		1 1	1.2	0.0			0.0	
Other Support				0.0		-	0.0	
Initial Spares		1-2		0.0	-22		0.0	
MILCON	606.5	606.5	667.2	558.9	593.1	593.1	541.4	
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	4703.2	4703.2	N/A	5657.8	4946.3	4946.3	6173.3	

APB Breach

Cost Notes

The APB value references in the table above are from the March 22, 2012 Defense Acquisition Executive (DAE) approved APB.

In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is For Official Use Only:

	Total Quantity	- Pueblo (PCAPP)	
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	2613	2613	2613
Procurement	0	0	0
Total	2613	2613	2613

Quantity Notes

The unit of measure for total quantity is U.S. tons of agent.

Cost Summary - Blue Grass (BGCAPP)

		Total Acquisit	tion Cost - I	Blue Grass (B	GCAPP)			
	B	Y 2011 \$M		BY 2011 \$M	TY \$M			
Appropriation	SAR Baseline Development Estimate	Curren Develor Objective/1	pment	Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate	
RDT&E	4518.8	4518.8	4970.7	5459.7	4893.4	4893.4	6099.9	
Procurement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flyaway		1		0.0			0.0	
Recurring				0.0			0.0	
Non Recurring				0.0			0.0	
Support			145	0.0			0.0	
Other Support				0.0			0.0	
Initial Spares				0.0			0.0	
MILCON	758.8	758.8	834.7	795.5	777.4	777.4	809.8	
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	5277.6	5277.6	N/A	6255.2	5670.8	5670.8	6909.7	

APB Breach

Cost Notes

The APB value references in the table above are from the March 22, 2012 Defense Acquisition Executive (DAE) approved APB.

In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is For Official Use Only.

Total Quantity - Blue Grass (BGCAPP)									
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate						
RDT&E	523	523	523						
Procurement	0	0	0						
Total	523	523	523						

Quantity Notes

The unit of measure for total quantity is U.S. tons of agent.

Cost and Funding

Funding Summary - Total Program

			App	ropriation S	Summary				- 1			
FY 2021 President's Budget / December 2019 SAR (TY\$ M)												
Appropriation	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total			
RDT&E	7157.5	869.4	775.7	689.5	699.6	725.3	783.0	31.8	11731.8			
Procurement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
MILCON	1351.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1351.2			
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
PB 2021 Total	8508.7	869.4	775.7	689.5	699.6	725.3	783.0	31.8	13083.0			
PB 2020 Total	8760.3	869.4	781.1	694.9	703.5	725.5	522.0	277.7	13334.4			
Delta	-251.6	0.0	-5.4	-5.4	-3.9	-0.2	261.0	-245.9	-251.4			

Cost and Funding

Funding Summary - Pueblo (PCAPP)

			Арр	ropriation S	Summary							
FY 2021 President's Budget / December 2019 SAR (TY\$ M)												
Appropriation	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total			
RDT&E	3596.5	417.7	372.7	334.3	329.7	317.8	259.2	4.0	5631.9			
Procurement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
MILCON	541.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	541.4			
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
PB 2021 Total	4137.9	417.7	372.7	334.3	329.7	317.8	259.2	4.0	6173.3			
PB 2020 Total	4228.5	417.7	378.7	327.5	308.2	394.0	172.8	44.0	6271.4			
Delta	-90.6	0.0	-6.0	6.8	21.5	-76.2	86.4	-40.0	-98.1			

			Qu	antity Su	mmary					
	FY 202	1 Preside	ent's Bu	dget / De	ecember	2019 S	AR (TYS	M)		
Quantity	Undistributed	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Development	2613	0	0	0	0	0	0	0	0	2613
Production	0	0	0	0	0	0	0	0	0	0
PB 2021 Total	2613	0	0	0	0	0	0	0	0	2613
PB 2020 Total	2613	0	0	0	0	0	0	0	0	2613
Delta	0	0	0	0	0	0	0	0	0	0

Funding Summary - Blue Grass (BGCAPP)

				ropriation S								
FY 2021 President's Budget / December 2019 SAR (TY\$ M)												
Appropriation	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total			
RDT&E	3561.0	451.7	403.0	355.2	369.9	407.5	523.8	27.8	6099.9			
Procurement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
MILCON	809.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	809.8			
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
PB 2021 Total	4370.8	451.7	403.0	355.2	369.9	407.5	523.8	27.8	6909.7			
PB 2020 Total	4531.8	451.7	402.4	367.4	395.3	331.5	349.2	233.7	7063.0			
Delta	-161.0	0.0	0.6	-12.2	-25.4	76.0	174.6	-205.9	-153.3			

	EV 000	4 Description		antity Su		0010 0	D (TVA	MAN		
Quantity	Undistributed	1 Preside Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Development	523	0	0	0	0	0	0	0	Complete 0	523
Production	0	0	0	0	0	0	0	0	0	0
PB 2021 Total	523	0	0	0	0	0	0	0	0	523
PB 2020 Total	523	0	0	0	0	0	0	0	0	523
Delta	0	0	0	0	0	0	0	0	0	0

Cost and Funding

Annual Funding By Appropriation - Pueblo (PCAPP)

	039	0 RDT&E Che	mical Agents an		truction, Defe	ense					
		TY \$M									
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program				
1997			1.00	244	-		19.				
1998					-		2.				
1999						122	16.				
2000		4.	122				54.				
2001							39.				
2002				Li,	- 22		12.				
2003		**					73.				
2004		**	-	5.	100		75.				
2005	044			**			91.				
2006				-		(Ge)	2.				
2007					**		105.				
2008							199.				
2009	0.44		24				130.				
2010							196.				
2011	-				44		179.				
2012	0.44	4-				44	197.				
2013	24		16-6	44	14		292.				
2014			44				251.				
2015			-				318.				
2016	-		(44)	2	-		307.				
2017	-	1.2					293.				
2018			/	4-			421.				
2019	-		1-2				315.				
2020							417.				
2021		44		-	44		372.				
2022							334.				
2023		**			124		329.				
2024				**			317.				
2025							259.				
2026	14						4.				
Subtotal	2613	-	144	**	44	-	5631.				

	039	An 0 RDT&E Che	nual Funding - P	ueblo (PCAPP)	truction Defe	ense	
		o His Tale one	iniour rigonio an	BY 2011 \$		1100	
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1997	(+6)		100	4	122	-	24.
1998					-		2.
1999		**					19.
2000	-	**	-	**	**		65.
2001				**			46.
2002		**					14.
2003	***						85.
2004	04		724	+-	44	(22	86.
2005	124		- 14	-	144		102.
2006		11					2.
2007			144				111.
2008					- 4		206.
2009	-	**	44	4			133.
2010							198.
2011							174.
2012			14		4-		192.
2013							280.
2014	-	- 22			22		236.
2015					-		295.
2016		**	(**		2		280.
2017				**			262.
2018		**		-			369.
2019					-		271.
2020	***	**			**		351.
2021	+	3-3					307.
2022							270.
2023							261.
2024				-			247.
2025	144	}-					197.
2026			122				3.
Subtotal	2613		(+4)	4	(44)		5098.

Annual Funding - Pt 0391 MILCON Chemical Der Defens	militarization Construction,		
- Territoria	TY \$M		
Fiscal Year	Total Program		
2001	10.7		
2002	18.0		
2003	38.0		
2004	88.0		
2005	44.8		
2006	-		
2007	41.8		
2008	35.2		
2009	65.1		
2010	92.5		
2011	65.4		
2012	15.4		
2013	26.5		
Subtotal	541.4		

0391 MILCON Chemical I	Pueblo (PCAPP) Demilitarization Construction, ense		
- Constant	BY 2011 \$M		
Fiscal Year	Total Program		
2001	12.7		
2002	20.9		
2003	43.0		
2004	96.9		
2005	47.9		
2006			
2007	43.1		
2008	35.8		
2009	65.0		
2010	90.8		
2011	63.2		
2012	14.7		
2013	24.9		
Subtotal	558.9		

Annual Funding By Appropriation - Blue Grass (BGCAPP)

		0 RDT&E Che		TY SM		-	
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1997	144	44	-		4	169	19.
1998					44		2.
1999	1,440		44				16.
2000	12	44				42	54.
2001		**	144	**	44		39.
2002			-	22	22	124	10.
2003			(4)	4-			24.
2004		4-		144	2.2		92.
2005					-		82.
2006	(24)	14.	1-2	0.2	-		49.
2007							110.
2008		4	(4.4)				106.
2009							153.
2010	-		· ·	4-	100		256.
2011				**			206.
2012							204.
2013	-	44	1.72	**		22	334.
2014							340.
2015					144		258.
2016							261.
2017							214.
2018	1.00						410.
2019	44					.1.	312.
2020			22	124			451.
2021		<u> </u>		-			403.
2022			(44)	144			355.
2023	_	12			1		369.
2024				144	-		407.
2025							523.
2026				-			23.
2027							4.
Subtotal	523	14		-			6099.

		0 RDT&E Che					
				BY 2011 \$	M		
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1997		39	(8)	.44	يدر	-	24.
1998				**			2.
1999							19.
2000		**	-	**	-		65.
2001				**			46.
2002		-					11.
2003	***						28.
2004	0.44				- 44	77	105.
2005	-						92.
2006	44					11	54.
2007	-		144				116.
2008						-11	110.
2009			4	-	-		156.
2010	-					44.	257.
2011	100						200.
2012	24			-			198
2013							321.
2014	-				122		320.
2015				-	-		239.
2016		45	-	-	2		238.
2017				**			192.
2018							359.
2019		34			**		268.
2020	-						380.
2021				44			332.
2022							287.
2023							293
2024							316.
2025							399.
2026			44				17.
2027	44		-	**	44		2.
Subtotal	523			14			5459.

Annual Funding - Blue Grass (BGCAPP) 0391 MILCON Chemical Demilitarization Construction, Defense	
	TY \$M
Fiscal Year	Total Program
2000	2.0
2001	1.1
2002	11.3
2003	18.6
2004	16.2
2005	37.1
2006	
2007	89.2
2008	69.0
2009	79.2
2010	95.4
2011	59.3
2012	59.9
2013	110.3
2014	122.5
2015	38.7
Subtotal	809.8

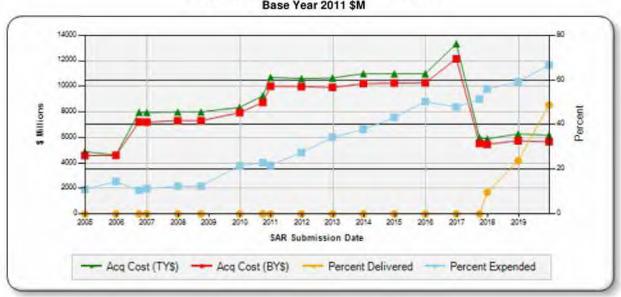
Annual Funding - Blue Grass (BGCAPP) 0391 MILCON Chemical Demilitarization Construction, Defense	
Fiscal Year	BY 2011 \$M
	Total Program
2000	2.4
2001	1.3
2002	13.1
2003	21.1
2004	17.8
2005	39.7
2006	
2007	92.0
2008	70.3
2009	79.1
2010	93.6
2011	57.3
2012	57.1
2013	103.7
2014	112.1
2015	34.9
Subtotal	795.5

Charts

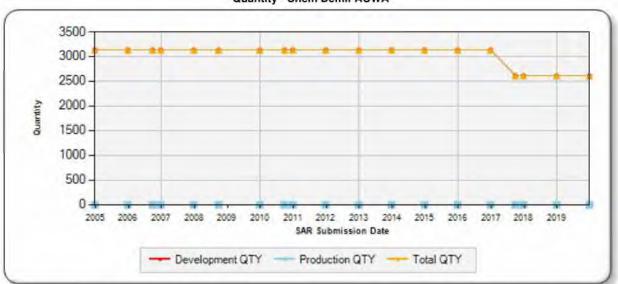
Pueblo (PCAPP)

Chem Demil-ACWA first began SAR reporting in December 2004



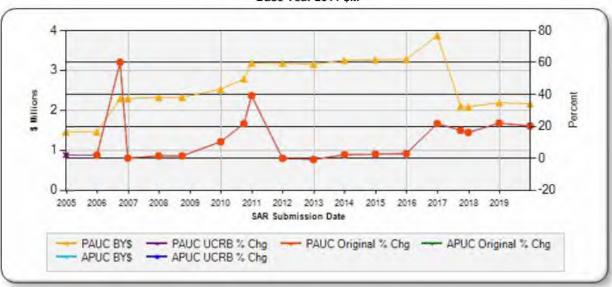


Quantity - Chem Demil-ACWA



This chart is not applicable to PEO ACWA. It is auto-populated from DAMIR. The PEO ACWA's mission is to destroy not produce.

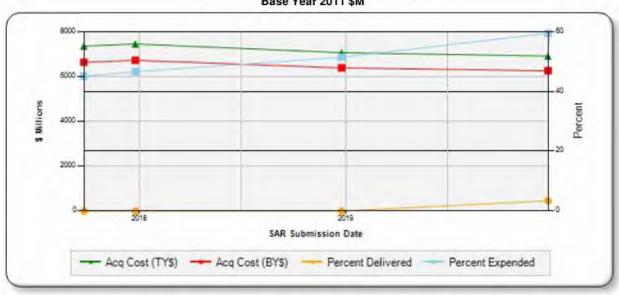
Unit Cost - Chem Demil-ACWA Base Year 2011 \$M



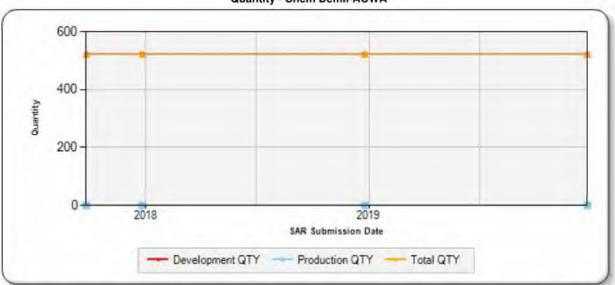
Blue Grass (BGCAPP)

Chem Demil-ACWA first began SAR reporting in December 2004

Program Acquisition Cost - Chem Demil-ACWA Base Year 2011 \$M

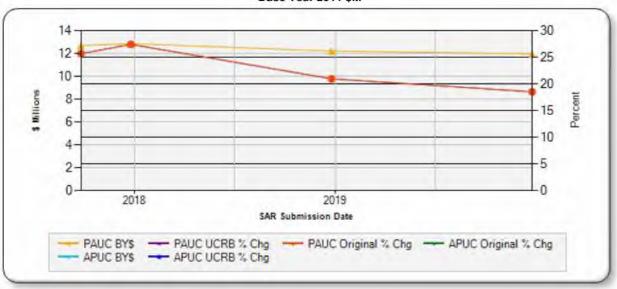


Quantity - Chem Demil-ACWA



This chart is not applicable to PEO ACWA. It is auto-populated from DAMIR. The PEO ACWA's mission is to destroy not produce.

Unit Cost - Chem Demil-ACWA Base Year 2011 \$M



UNCLASSIFIED

Chem Demil-ACWA

December 2019 SAR

Risks

Significant Schedule and Technical Risks - Pueblo (PCAPP)

Significant Schedule and Technical Risks

Current Estimate (December 2019)

If the permits to install and operate the static detonation chambers are not timely or are too restrictive, then
operations will take longer than expected.

Significant Schedule and Technical Risks - Blue Grass (BGCAPP)

Significant Schedule and Technical Risks

Current Estimate (December 2019)

- If the Blue Grass stockpile condition is significantly degraded, then unpredicted challenges to demilitarization will be realized resulting in schedule extension.
- 2. If on-site hydrolysate processing at Blue Grass proves to be unreliable or inefficient, then processing the hydrolysate on-site will take longer than expected and increase program costs.

UNCLASSIFIED

Chem Demil-ACWA

December 2019 SAR

Risks

Risk and Sensitivity Analysis - Pueblo (PCAPP)

	Risks and Sensitivity Analysis	
	Current Baseline Estimate (March 2012)	
1. N/A		
	Original Baseline Estimate (April 2003)	
1. N/A		
	Revised Original Estimate (March 2012)	
1. N/A		
	Current Procurement Cost (December 2019)	
1. Permitting limitat	ions for the static detonation chamber throughput rates.	

Risk and Sensitivity Analysis - Blue Grass (BGCAPP)

	Risks and Sensitivity Analysis
	Current Baseline Estimate (March 2012)
1.	N/A
	Original Baseline Estimate (March 2012)
1.	N/A
	Revised Original Estimate (N/A)
1.	N/A
	Current Procurement Cost (December 2019)
1.	Static Detonation Chamber (SDC) Permitting Delays - Approval to use SDCs for munitions containing GE and VX could result in delays that would increase the schedule duration and cost.
2.	Main Plant Operations - Plant is in the initial phases of operations and processes have not been fully demonstrated in a continuous production environment.
3.	Main Plant Design Changes - Higher-than-planned design changes could result in extension of schedule duration and increased cost.

UNCLASSIFIED

Chem Demil-ACWA

December 2019 SAR

Low Rate Initial Production

There is no LRIP for this program.

Foreign Military Sales	Forei	gn	Mil	itary	Sal	les
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Pueblo (PCAPP)

None

Blue Grass (BGCAPP)

None

Nu	cl	ear	Cos	ts
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Pueblo (PCAPP)

None

Blue Grass (BGCAPP)

None

Unit Cost

Pueblo (PCAPP)

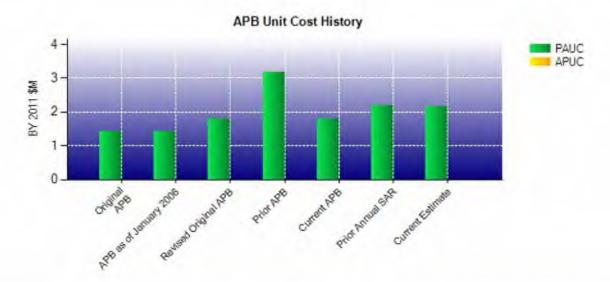
Current UCR Bas	eline and Current Estimate	(Base-Year Dollars)	
	BY 2011 \$M	BY 2011 \$M	% Change
Item	Current UCR Baseline (Mar 2012 APB)	Current Estimate (Dec 2019 SAR)	
Program Acquisition Unit Cost			
Cost	4703.2	5657.8	
Quantity	2613	2613	
Unit Cost	1.800	2.165	+20.28
Average Procurement Unit Cost			
Cost	0.0	0.0	
Quantity	0	0	
Unit Cost		**	

Original UCR Base	eline and Current Estimate	(Base-Year Dollars)		
	BY 2011 \$M	BY 2011 \$M	% Change	
Item	Revised Original UCR Baseline (Mar 2012 APB)	Current Estimate (Dec 2019 SAR)		
Program Acquisition Unit Cost				
Cost	4703.2	5657.8		
Quantity	2613	2613		
Unit Cost	1.800	2.165	+20.28	
Average Procurement Unit Cost				
Cost	0.0	0.0		
Quantity	0	0		
Unit Cost		1.00	1	

Nunn McCurdy Unit Cost Breach and APB Unit Cost Breach

A significant Nunn-McCurdy against the APB was previously reported in the December 2016 SAR.

PCAPP is showing a PAUC increase of 20.3%. The PEO ACWA APB baseline is at the program level. Based on the 2019 POE, the Program Acquisition Unit Cost (PAUC) for the overall program is \$3.798M (BY 2011\$), which exceeds the APB by 19.3%.



APB Unit Cost History							
i i	Barra	BY 201	1 \$M	TY \$M			
Item	Date	PAUC	APUC	PAUC	APUC		
Original APB	Apr 2003	1.434	N/A	1.355	N/A		
APB as of January 2006	Apr 2003	1.434	N/A	1.355	N/A		
Revised Original APB	Mar 2012	1.800	N/A	1.893	N/A		
Prior APB	Mar 2012	3.183	N/A	3.386	N/A		
Current APB	Mar 2012	1.800	N/A	1.893	N/A		
Prior Annual SAR	Dec 2018	2.197	N/A	2.400	N/A		
Current Estimate	Dec 2019	2.165	N/A	2.363	N/A		

SAR Unit Cost History

		Current	OAN Das	ellile to C	urrent Es	limate (1	ι φινι)		
PAUC				Chan	ges				PAUC Current
Development Estimate	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	Estimate
1.893	-0.019	0.000	0.499	0.000	-0.010	0.000	0.000	0.470	2.3

Initial APUC				Chan	iges				APUC Current
Development Estimate	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	Estimate

An APUC Unit Cost History is not available, since no Initial APUC Estimate had been calculated due to a lack of defined quantities.

Chem Demil-ACWA currently has no Procurement requirement.

SAR Baseline History							
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate			
Milestone I	N/A	N/A	N/A	N/A			
Milestone II	N/A	N/A	N/A	N/A			
Milestone III	N/A	N/A	N/A	N/A			
IOC	N/A	N/A	N/A	N/A			
Total Cost (TY \$M)	N/A	N/A	2430.4	6173.3			
Total Quantity	N/A	N/A	0	2613			
PAUC	N/A	N/A	N/A	2.363			

Blue Grass (BGCAPP)

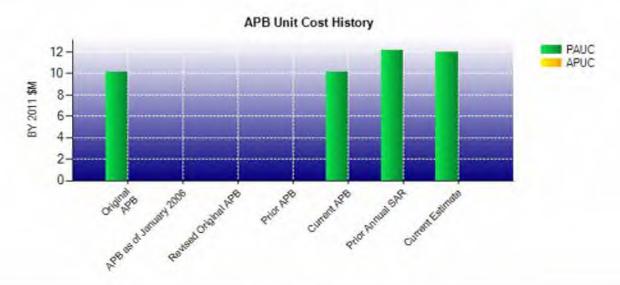
Current UCR Ba	seline and Current Estimate	(Base-Year Dollars)		
	BY 2011 \$M	BY 2011 \$M		
Item	Current UCR Baseline (Mar 2012 APB)	Current Estimate (Dec 2019 SAR)	% Change	
Program Acquisition Unit Cost				
Cost	5277.6	6255.2		
Quantity	523	523		
Unit Cost	10.091	11.960	+18.52	
Average Procurement Unit Cost				
Cost	0.0	0.0		
Quantity	0	0		
Unit Cost		-		

Original UCR Base	eline and Current Estimate	(Base-Year Dollars)		
	BY 2011 \$M	BY 2011 \$M		
Item	Original UCR Baseline (Mar 2012 APB)	Current Estimate (Dec 2019 SAR)	% Change	
Program Acquisition Unit Cost				
Cost	5277.6	6255.2		
Quantity	523	523		
Unit Cost	10.091	11.960	+18.52	
Average Procurement Unit Cost				
Cost	0.0	0.0		
Quantity	0	0		
Unit Cost				

Nunn McCurdy Unit Cost Breach and APB Unit Cost Breach

A significant Nunn-McCurdy against the APB was previously reported in the December 2016 SAR.

BGCAPP is showing a PAUC increase of 18.5%. The PEO ACWA APB baseline is at the program level. Based on the 2019 POE, the Program Acquisition Unit Cost (PAUC) for the overall program is \$3.798M (BY 2011\$), which exceeds the APB by 19.3%.



APB Unit Cost History							
No.	D.I.	BY 201	1 \$M	TY \$M			
Item	Date	PAUC APUC		PAUC	APUC		
Original APB	Mar 2012	10.091	N/A	10.843	N/A		
APB as of January 2006	N/A	N/A	N/A	N/A	N/A		
Revised Original APB	N/A	N/A	N/A	N/A	N/A		
Prior APB	N/A	N/A	N/A	N/A	N/A		
Current APB	Mar 2012	10.091	N/A	10.843	N/A		
Prior Annual SAR	Dec 2018	12.206	N/A	13.505	N/A		
Current Estimate	Dec 2019	11.960	N/A	13.212	N/A		

SAR Unit Cost History

PAUC Changes				
Development Estimate Econ Qty Sch Eng Est Oth Spt Total	Current Estimate			

Initial APUC		Changes						APUC		
Development Estimate	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	Current Estimate	

An APUC Unit Cost History is not available, since no Initial APUC Estimate had been calculated due to a lack of defined quantities.

SAR Baseline History							
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate			
Milestone A	N/A	N/A	N/A	N/A			
Milestone B	N/A N/A		N/A	N/A			
Milestone C	N/A	N/A	N/A	N/A			
IOC	N/A	N/A	N/A	N/A			
Total Cost (TY \$M)	N/A	5670.8	N/A	6909.7			
Total Quantity	N/A	523	N/A	523			
PAUC	N/A	10.843	N/A	13.212			

Cost Variance

Pueblo (PCAPP)

	Sui	mmary TY \$M		
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	4353.2	100	593.1	4946.3
Previous Changes				
Economic	-5.5	14	-44.1	-49.6
Quantity	44	122		
Schedule	+1302.5	1	4-	+1302.5
Engineering		750		-
Estimating	+79.8	14-	-7.6	+72.2
Other		44		
Support				
Subtotal	+1376.8		-51.7	+1325.1
Current Changes				
Economic	-0.8	1-		-0.8
Quantity				**
Schedule	**		-	
Engineering			/42	
Estimating	-97.3	1		-97.3
Other		7-4	4-	
Support				
Subtotal	-98.1			-98.1
Total Changes	+1278.7		-51.7	+1227.0
Current Estimate	5631.9	-	541.4	6173.3

	Summ	ary BY 2011 \$M		
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	4096.7		606.5	4703.2
Previous Changes				
Economic	(**	199		-
Quantity	4-	G-6	42	-
Schedule	+1014.1	144		+1014.1
Engineering	4-	-	4	
Estimating	+70.8	ine.	-47.6	+23.2
Other			1	-
Support				-
Subtotal	+1084.9	-	-47.6	+1037.3
Current Changes				
Economic	***	***		-
Quantity				-
Schedule		(44)	44	
Engineering		1	44	-
Estimating	-82.7	144		-82.7
Other		120	128	_
Support	4-			
Subtotal	-82.7			-82.7
Total Changes	+1002.2	1,44	-47.6	+954.6
Current Estimate	5098.9		558.9	5657.8

Previous Estimate: December 2018

RDT&E		ı
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.8
Adjustment for current and prior escalation. (Estimating)	+1.2	+1.3
FY19 Funds identified and returned to the Department as a result of cost underruns at PCAPP. (Estimating)	-77.9	-90.6
Prescribed Fiscal Guidance adjustments. (Estimating)	-6.0	-8.0
RDT&E Subtotal	-82.7	-98.1

Cost Variance

Blue Grass (BGCAPP)

	Sur	nmary TY \$M		
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	4893.4	100	777.4	5670.8
Previous Changes				
Economic	-3.7	-	+41.4	+37.7
Quantity		122		-
Schedule	+862.1	14		+862.1
Engineering	-			-
Estimating	+501.4		-9.0	+492.4
Other	-	44		-
Support				-
Subtotal	+1359.8	p	+32.4	+1392.2
Current Changes				
Economic	-0.9	24		-0.9
Quantity			 /	**
Schedule				-
Engineering			/ 42 /	-
Estimating	-152.4	1-4		-152.4
Other		(**)		-
Support				
Subtotal	-153.3			-153.3
Total Changes	+1206.5		+32.4	+1238.9
Current Estimate	6099.9	(42)	809.8	6909.7

	Summ	ary BY 2011 \$M		
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	4518.8	-	758.8	5277.6
Previous Changes				
Economic		199		-
Quantity			42	-
Schedule	+660.9	122		+660.9
Engineering	-	144	4	-
Estimating	+408.7	ine.	+36.7	+445.4
Other				-
Support		-		-
Subtotal	+1069.6		+36.7	+1106.3
Current Changes				
Economic		**		-
Quantity		.22		-
Schedule		(44)		-
Engineering		124	122	-
Estimating	-128.7	744	22	-128.7
Other		12		-
Support	4-			-
Subtotal	-128.7			-128.7
Total Changes	+940.9	1/4	+36.7	+977.6
Current Estimate	5459.7	-	795.5	6255.2

Previous Estimate: December 2018

RDT&E	\$M		
Current Change Explanations	Base Year	Then Year	
Revised escalation indices. (Economic)	N/A	-0.9	
Adjustment for current and prior escalation. (Estimating)	+1.2	+1.4	
FY19 funds identified and returned to the Department due to cost underruns at BGCAPP. (Estimating)	-138.3	-161.0	
Prescribed Fiscal Guidance (Estimating)	+8.4	+7.2	
RDT&E Subtotal	-128.7	-153.3	

Contracts

Contract Identification

Appropriation: RDT&E

Contract Name: Pueblo

Contractor: Bechtel National Inc.
Contractor Location: Pueblo, CO 81003
Contract Number: DAAA09-02-D-0025/1

Contract Type: Cost Plus Fixed Fee (CPFF), Cost Plus Award Fee (CPAF)

Award Date: September 27, 2002

Definitization Date: September 30, 2002

				Contract P	rice		
Initial Co	ontract Price (\$M) Current Contract Price (\$M) Estimated Pri				Estimated Price	e At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
178.2	N/A	2613	3387.4	N/A	2613	4852.7	4975.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to additional tasks being awarded. The initial contract price only included the initial design effort.

Contract Variance						
ltem	Cost Variance	Schedule Variance				
Cumulative Variances To Date (12/31/2019)	-600.5	+4.6				
Previous Cumulative Variances	-594.7	-11.9				
Net Change	-5.8	+16.5				

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to the overall cost of the 155mm campaign and increased acquisition costs for the Static Detonation Chambers.

The favorable net change in the schedule variance is due to improved Main Plant processing rates.

Notes

This contract was initially a cost plus incentive fee, multi-phase Task Order (TO) contract. The restructured contract transitioned from an incentive fee structure to an award fee structure on September 26, 2013, via Modification 68. The Initial Contract Target Price (\$178.2M) only included the initial design effort. By December 2010, the restructured contract included the original contract (TOs 1 through 6) and a new contract covering Pre-Systemization and Systemization. Operations phase was added via Modification 95 in April 2015, and Closure phase will eventually be added. The Current Contract Target Price of \$3,387.4M incorporates all contract modifications to date.

The TO 1, which was definitized on September 30, 2002, required the Systems Contractor (SC) to develop the Design Build Plan and was awarded for a total contract value of \$3.9M. The revised Budget at Completion (BAC) is \$3.6M. All deliverables are complete.

The TO 2, which was definitized on May 5, 2003, required the SC to design the facility. Design completion is now included in TO 6. This task had a total contract value of \$173.5M when initiated in April 2003. A subsequent Stop Work Order budget adjustment issued in February 2012 resulted in an adjusted total contract value of \$142.1M. The revised BAC for this TO is \$127.8M. All deliverables are complete.

The TO 3, which was definitized on December 14, 2004, required the SC to conduct special studies as required and support design and fabrication of First-Of-A-Kind (FOAK) equipment. This task has a total contract value of \$41.8M. The revised BAC for this TO is \$36.5M. All deliverables are complete.

The TO 4, which was definitized on November 1, 2003, required the SC to provide Project Services support, including public outreach, to the contract. This task, which is complete, has a total contract value of \$52.5M and was primarily level of effort work. The revised BAC for this TO is \$49.4M.

The TO 5 was negotiated and definitized in multiple stages. The first stage was definitized on September 7, 2005, and the final stage being definitized on October 15, 2008. This task required the SC to construct the PCAPP facilities. This task has a current total contract value of \$821.2M. The revised BAC for this TO is \$758.7M. The SC declared construction complete in December 2012 with exclusions. Exclusions were completed in FY 2016.

The TO 6, which was definitized on September 7, 2005, required the SC to complete the optimized redesign. This task has a total contract value of \$97.6M. The revised BAC for this TO is \$87.5M. All deliverables are complete.

Systemization was awarded in two parts: Part 1, Pre-Systemization and Part 2, Systemization. Part 1, which includes work during the Construction phase associated with preparation of the Systemization phase documentation, was awarded in June 2009. Part 2, which includes all the major tasks, was awarded in December 2010. The total contract value of Systemization is \$873.2M. The revised BAC for this task is \$813.8M. All deliverables are complete.

Operations was awarded via Modification 95 on April 9, 2015. The total contract value of Operations is \$1,335.1M. The revised BAC for this task is \$1,235.6M. Estimated price at completion is \$2,482.9M.

Estimate at Completion (EAC) Changes: The Contract Level EAC decreased \$176.9M since last SAR submission, from \$4,759.1M to \$4,782.2M due to recent plant improvements combined with enhanced Government oversight.

Contract Identification

Appropriation: RDT&E

Contract Name: Blue Grass

Contractor: Bechtel Parsons JV
Contractor Location: Richmond, KY 40475
Contract Number: DAAA09-03-D-0023/1

Contract Type: Cost Plus Award Fee (CPAF), Cost Plus Fixed Fee (CPFF)

Award Date: June 13, 2003 Definitization Date: June 13, 2003

				Contract Pr	ice		
Initial Contract Price (\$M) Curr			Current Co	rrent Contract Price (\$M)		Estimated Price At Completion (\$	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
138.0	N/A	523	3995.8	N/A	523	4573.1	4633.

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to additional tasks and CLINs being awarded. The initial contract price only included the initial design effort.

Contract Variance					
Item Cost Variance Schedule Variance					
Cumulative Variances To Date (12/15/2019)	-99.0	-4.0			
Previous Cumulative Variances	-132.7	-8.2			
Net Change	+33.7	+4.2			

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to Systemization level-of-effort (LOE) actual staffing (and non-labor support) requirements below what was planned in Operations, Maintenance, Laboratory Management, Acquisition, Quality, Project Controls, and Training and replanning the EDT Part C Operations phase.

The favorable net change in the schedule variance is due to recovering Systemization schedule in the completion of execution of Punchlist Field Work, Hydrolysate System Systemization tasks, Post Turnover Flushing tasks, Optimization tasks, and Lab Methods Development and replanning the EDT Part C Operations phase.

Notes

The Government awarded Contract W52P1J-09-C-0013 to Bechtel Parsons Blue Grass Team (BPBGT) on March 19, 2009 [(Contract Line Item Number (CLIN) structure)]. The Procuring Contracting Officer established and executed Contract W52P1J-09-C-0013 strictly as an administrative change which restructured and converted Contract DAAA09-03-D-0023 (the original competitively solicited and awarded indefinite delivery, indefinite quantity contract) into Contract W52P1J-09-C-0013 (a multi-year, life cycle, cost reimbursable, systems contract). Contract W52P1J-09-C-0013 permits the Government and BPBGT to complete project life cycle planning and execution. This contract is a CPAF CLIN contract. The total Negotiated Contract Cost for this contract is \$3,590.2M (excluding fees of \$422M). The total contract value [including \$493.8M authorized unpriced work (AUW)] is \$4,012.2M (including fee).

Active CLINS:

CLIN 002 (Construction Phase IV) was definitized via Contract Modification on March 31, 2011, and consists of completing all BGCAPP construction required for plant systemization and operations. Another Contract Modification was issued on July 11, 2013, to incorporate the FY 2013 Continued Resolution Authority impacts to this CLIN, followed by another Contract Modification issued on February 14, 2014, to incorporate transfer of scope to Systemization CLIN 003. This CLIN currently has a total contract value of \$1,489.3M (including fee). The total work under this CLIN was 100 percent complete in December 2019, and has a BAC of \$1,329.9M representing 33.8% of both contracts. The current EAC for this CLIN is \$1,473.1M.

CLIN 003 (Systemization) was partially definitized on June 4, 2011, and consists of planning, scheduling, staffing, supporting, and managing the first FY of plant Systemization (subsequently referred to as FY 2012 Pre-Systemization). The Balance of Systemization proposal was submitted in November 2011 and was awarded in September 2012. A Contract Modification was issued on February 14, 2014 to incorporate transfer of scope from Construction CLIN 002 to Systemization. Another Contract Modification was issued on December 1, 2014, to incorporate a cost avoidance by eliminating the EVM system flow down requirement for Teaming Subcontractors. A Contract Modification was also issued on April 18, 2017 identifying a "reprogrammed Performance Management Baseline" based on an undefinized contract amount (currently identified as AUW in the CBBL). This CLIN currently has a total contract value (including \$493.6M AUW) of \$1,185.1M (including fee). The total work under this CLIN was 97.4 percent complete in December 2019 and has a BAC of \$1,049.7M representing 26.7% of both contracts. The current EAC for this CLIN is \$974.9M.

CLIN 004 (Operations) was awarded on January 30, 2018 establishing a 36 month Operations period, subject to availability of funds. This CLIN currently has a total contract value of \$1,011.4M (including fee). The total work under this CLIN was zero percent complete in December 2019 and has a BAC of \$800.2M representing 20.3% of both contracts. The current EAC for this CLIN is \$821.7M.

CLIN 007 (EDT Part "A") was definitized on May 31, 2011, and consists of conducting a comprehensive feasibility study analysis and comparison of alternate approaches for processing problematic mustard munitions. The EDT Part "A" Extension was awarded in September 2012, and EDT Part "B" was awarded in June 2013. In November 2013, an undefinitized portion of EDT Part "C" was established as AUW based on the incremental proposed value through July 2014. The negotiated EDT Part "C" Extension was awarded via Contract Modification on June 30, 2014. The negotiated EDT Part "C" Acceleration was awarded via Contract Modification on December 27, 2018. This CLIN currently has a total contract value (including \$0.3M AUW) of \$246.6M (including fee). The total work under this CLIN was 90 percent complete in December 2019, and has a BAC of \$210.8M representing 5.4% of both contracts. The current EAC for this CLIN is \$198.9M.

CLIN 008 (Treaty Compliance) was definitized via Contract Modification on February 25, 2015, and consists of all facilities, equipment, documentation services, personnel, and technical and administrative support necessary to destroy the onsite chemical weapons stockpile in accordance with the Chemical Weapons Convention Treaty. This CLIN currently has a total contract value of \$4.3M (including fee). The total work under this CLIN was 78 percent complete in December 2019 and has a BAC of \$3.5M representing 0.1% of both contracts. The current EAC for this CLIN is \$3.3M.

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CLIN 009 (Information Technology) was definitized via Contract Modification on June 17, 2015, and consists of a Cybersecurity Risk Management Framework to ensure the security of the Main Plant Facility Control System and the Customer First Agreement to keep it maintained. This CLIN currently has a total contract value of \$34M (including fee). The total work under this CLIN was 62 percent complete in December 2019, and has a BAC of \$30.3M representing 0.8% of both contracts. The current EAC for this CLIN is \$32.3M.

EAC Changes:

The total EAC increased \$72.1M from the previous SAR from \$3,985.5M to \$4,057.6M due to increased forecasted Systemization LOE staffing (and non-labor support) requirements across variety of functional areas to ensure timely completion of the Systemization phase and replanning the EDT Part C Operations phase with added BAC and EAC.

Deliveries and Expenditures

Pueblo (PCAPP)

Deliveries							
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered			
Development	1211	1275	2613	48.79%			
Production	0	0	0				
Total Program Quantity Delivered	1211	1275	2613	48.79%			

Expended and Appropriated (TY \$M)						
Total Acquisition Cost	6173.3	Years Appropriated	24			
Expended to Date	4116.7	Percent Years Appropriated	80.00%			
Percent Expended	66.69%	Appropriated to Date	4555.6			
Total Funding Years	30	Percent Appropriated	73.80%			

The above data is current as of February 10, 2020.

Notes

The above financial data is updated quarterly.

As of February 10, 2020, the PCAPP has processed 217,801 HD agent-filled 155mm projectiles through the Main Plant and EDS. Cumulatively, the site (the Main Plant + PCAPP EDS) has processed 1,275.7 U.S. tons of mustard agent. The Planned to date is based on the 2019 POE destruction plan

Blue Grass (BGCAPP)

Deliveries						
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered		
Development	41	18	523	3.44%		
Production	0	0	0			
Total Program Quantity Delivered	41	18	523	3.44%		

Expended and Appropriated (TY \$M)						
Total Acquisition Cost	6909.7	Years Appropriated	24			
Expended to Date	4106.1	Percent Years Appropriated	77.42%			
Percent Expended	59.43%	Appropriated to Date	4822.5			
Total Funding Years	31	Percent Appropriated	69.79%			

The above data is current as of February 10, 2020.

Notes

The above financial data is updated quarterly.

As of February 10, 2020, the BGCAPP SDC and Main Plant has processed 3,057 H agent-filled 155mm projectiles and 102 GB agent-filled 8-inch projectiles, respectively. Cumulatively, the site (SDC and Main Plant) has processed 18.6 U.S. tons of chemical agent. The Planned to Date is based on the 2019 POE destruction plan.

Operating and Support Cost

Pueblo (PCAPP)

Cost Estimate Details

Date of Estimate:

Source of Estimate:

Quantity to Sustain:

Unit of Measure:

Service Life per Unit:

Fiscal Years in Service:

Sustainment Strategy

Sustainment Strategy statement from the January 2012 Acquisition Strategy for PEO ACWA approved on February 3, 2012: Unlike other DoD acquisition programs, the PEO ACWA program does not result in fielded items for the warfighter. Upon successful performance of the contractual requirements, all United States chemical agent munitions stockpiles will be eliminated and the destruction facilities will be decontaminated, decommissioned, and demolished. Thus, there are no requirements for future sustainability. As part of the current contracts, the contractors are required to maintain and sustain the facilities until closure of the facilities.

Antecedent Information

No Antecedent.

Annual O&S Costs BY2011 \$M					
Cost Element	Pueblo (PCAPP)	No Antecedent (Antecedent)			
Unit-Level Manpower	0.000	0.000			
Unit Operations	0.000	0.000			
Maintenance	0.000	0.000			
Sustaining Support	0.000	0.000			
Continuing System Improvements	0.000	0.000			
Indirect Support	0.000	0.000			
Other	0.000	0.000			
Total					

	Total O&S Cost \$M						
Item	Pueblo (PCA	Washington and					
Item	Current Development APB Objective/Threshold		Current Estimate	No Antecedent (Antecedent)			
Base Year	N/A	N/A	N/A	N/A			
Then Year	N/A	N/A	N/A	0.0			
	00000	et Varian					

Category	BY 2011 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2018 SAR	0.0	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	0.0	

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2011 \$M): 0.0

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Blue Grass (BGCAPP)

Cost Estimate Details

Date of Estimate:

Source of Estimate:

Quantity to Sustain:

Unit of Measure:

Service Life per Unit:

Fiscal Years in Service:

Sustainment Strategy

Sustainment Strategy statement from the January 2012 Acquisition Strategy for PEO ACWA approved on February 3, 2012: Unlike other DoD acquisition programs, the PEO ACWA program does not result in fielded items for the warfighter. Upon successful performance of the contractual requirements, all United States chemical agent munitions stockpiles will be eliminated and the destruction facilities will be decontaminated, decommissioned, and demolished. Thus, there are no requirements for future sustainability. As part of the current contracts, the contractors are required to maintain and sustain the facilities until closure of the facilities.

Antecedent Information

No Antecedent.

Annual O&S Costs BY2011 \$M					
Cost Element	Blue Grass (BGCAPP)	No Antecedent (Antecedent)			
Unit-Level Manpower					
Unit Operations		-			
Maintenance					
Sustaining Support		. 4			
Continuing System Improvements					
Indirect Support					
Other					
Total					

	Total O&S Cost \$M				
Item	Blue Grass (BGCAPP)			AL CONTROL OF	
Item	Current Development APB Objective/Threshold		Current Estimate	No Antecedent (Antecedent)	
Base Year	N/A	N/A	N/A	N/A	
Then Year	N/A	N/A	N/A	0.0	

	O&S Cost Variance	e
Category	BY 2011 \$M	Change Explanations

Prior SAR Total O&S Estimates - Dec 2018 SAR	0.0	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	0.0	

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2011 \$M):