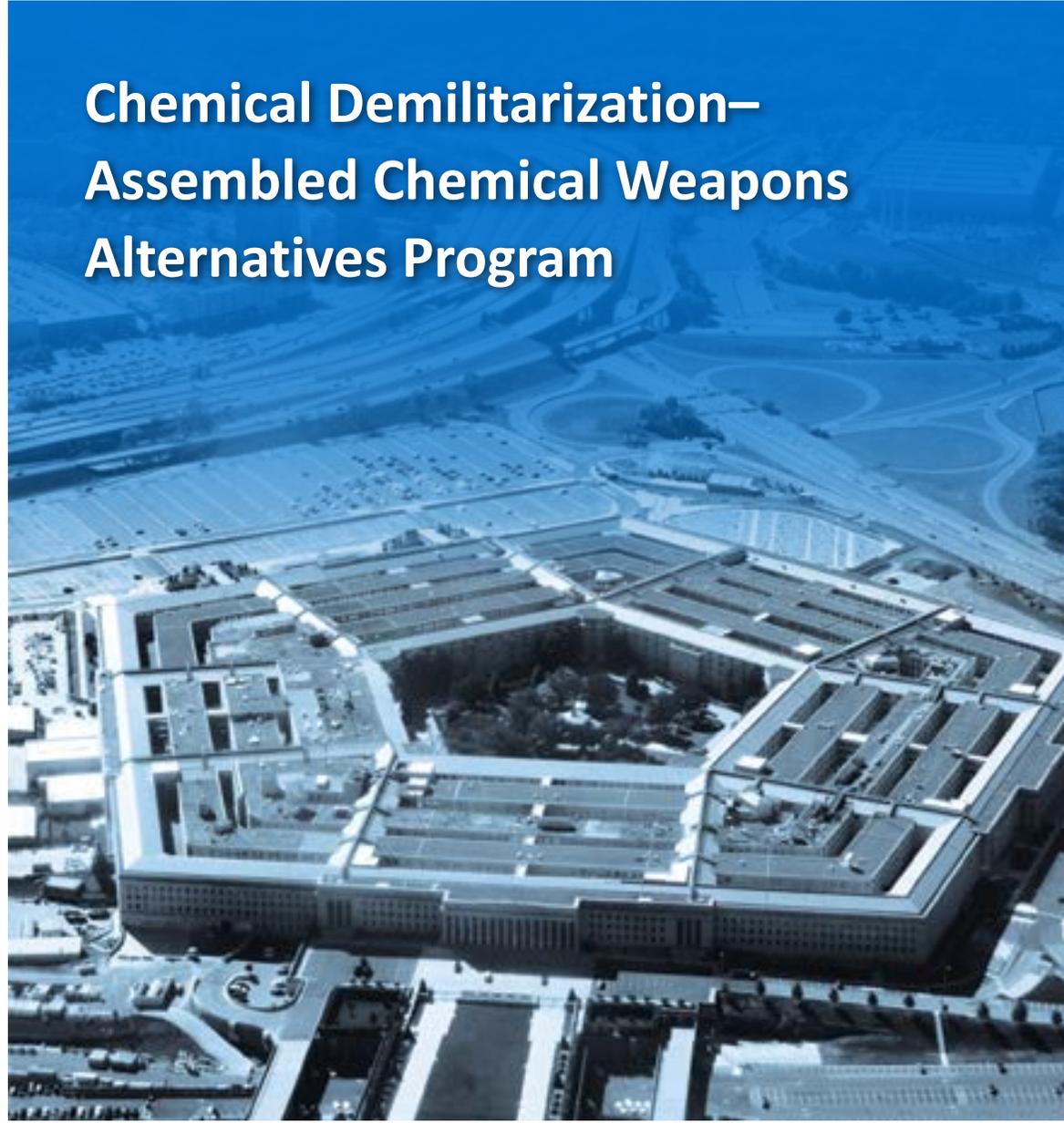




# INSPECTOR GENERAL

*U.S. Department of Defense*

FEBRUARY 22, 2018



## Chemical Demilitarization— Assembled Chemical Weapons Alternatives Program

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# Results in Brief

## *Chemical Demilitarization–Assembled Chemical Weapons Alternatives Program*

February 22, 2018

### Objective

We determined whether the Program Executive Office for Assembled Chemical Weapons Alternatives (PEO ACWA), the executive agent, effectively managed program cost, schedule, and performance for the ACWA program.

### Background

The ACWA program is a major defense acquisition program, estimated to cost \$12.1 billion as of June 2017. Congress tasked the ACWA program with destroying the last 10 percent of U.S.-stockpiled chemical weapons. The PEO ACWA is responsible for the destruction of the final two chemical weapon stockpiles in the United States. The final two stockpiles in the United States are located at Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) in Pueblo, Colorado and Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) in Bluegrass, Kentucky. Army Contracting Command–Rock Island awarded separate contracts for PCAPP and BGCAPP, which required the contractors to destroy the U.S.-stockpiled chemical weapons. As of June 2017, the PCAPP and BGCAPP contracts are valued at \$3.4 billion and \$3.0 billion, respectively. However, the PCAPP Closure phase and the BGCAPP Operations and Closure phases have not been added to the contract.<sup>1</sup> Each contract phase is proposed, negotiated, and awarded before the start of each contract phase.

<sup>1</sup> In the Operations phase, contractors destroy chemical weapons after completing testing and demonstrating compliance with all safety requirements and environmental permits. In the Closure phase, contractors shut down the facilities and dismantle, decontaminate, and remove the equipment in accordance with agreements between the states and the Army.

### Finding

As of May 2017, the PEO ACWA was complying with ACWA program requirements. However, the PEO did not effectively manage the ACWA program cost and schedule of the contract phases. Specifically, as of May 2017, the PEO ACWA contracts were projected to be \$653.9 million over budget.<sup>2</sup> In addition, the PCAPP and BGCAPP contractors may not meet the contract schedule completion dates for the PCAPP Operations phase and BGCAPP Systemization phase because of schedule delays.<sup>3</sup> The ACWA program increase in cost and schedule delays occurred because the PEO ACWA and the PCAPP and BGCAPP contracting officers did not provide adequate contract oversight. Specifically, PEO ACWA officials and the PCAPP and BGCAPP contracting officers:

- did not effectively manage contractor performance through incentive fee and award fee contracts,
- paid about \$23 million to the contractors to correct quality deficiencies, and
- did not provide sufficient quality assurance oversight related to ductwork, boilers, and welds.

As a result, the ACWA program has significantly exceeded (by 21.6 percent) its baseline cost estimate. In addition, PCAPP has deviated (by 16 months) from its approved baseline schedule estimate to complete destruction of all chemical weapons and close PCAPP. Furthermore, the BGCAPP schedule may not meet the congressionally mandated deadline of December 31, 2023, for the destruction of all U.S.-stockpiled chemical weapons because the PEO ACWA used a lower standard of confidence to estimate the time needed to complete destruction.

<sup>2</sup> The total projected cost overrun of \$653.9 million comes from the combined figures at Table 1: PCAPP total cost overrun of \$443,673 (\$443.7 rounded) and Table 2: BGCAPP total cost overrun of \$210,153 (\$210.2 rounded).

<sup>3</sup> In the Systemization phase, contractors operate and test all machinery, equipment, and processes with water or simulants, which encompasses all the planning, technical work, training, and testing activities required to make sure destruction operations run safely and smoothly.



# Results in Brief

## *Chemical Demilitarization–Assembled Chemical Weapons Alternatives Program*

### Recommendations

We recommend that the Program Executive Officer, Assembled Chemical Weapons Alternatives, in coordination with the Executive Director, U.S. Army Contracting Command–Rock Island:

- a. Determine award fees based on the contractor’s actual performance during the award fee period, not on projected cost, schedule, and performance in later periods as required by the award fee plan.
- b. Convene a working group of DoD subject matter experts to help determine the best way to structure the additional incentive to motivate the contractors to reduce costs at PCAPP and BGCAPP and achieve an accelerated safe destruction of the remaining chemical weapons.
- c. Analyze all of the rework performed at PCAPP and BGCAPP to determine the cost of additional rework.
- d. Based on the cost of additional construction rework, either recoup funds paid by the Government or obtain other appropriate consideration.
- e. Increase quality assurance monitoring and validate the contractors’ test and inspection processes and procedures at PCAPP and BGCAPP.

We also recommend that the Director, Cost Assessment and Program Evaluation prepare an independent cost estimate for the ACWA program.

### Management Comments and Our Response

The PEO ACWA, in coordination with the Executive Director, U.S. Army Contracting Command–Rock Island, agreed with the recommendation and convened a working group to determine the best way to motivate the contractors to reduce costs and accelerate destruction of the remaining chemical weapons and the recommendation to increase quality assurance monitoring and validate contractor processes and procedures. Therefore, these recommendations are resolved but will remain open. We will close these recommendations once we receive confirmation of finalized incentive plan and documentation supporting the increased quality assurance monitoring at PCAPP and BGCAPP.

The PEO ACWA, in coordination with the Executive Director, U.S. Army Contracting Command–Rock Island, disagreed with the recommendations to determine award fees based on the contractor’s actual performance, analyze rework performed at PCAPP and BGCAPP, and either recoup paid funds or obtain other appropriate consideration for additional construction rework.

According to the PEO ACWA, the recommendation to determine award fees based on the contractor’s actual performance during the award fee period would only allow the Government to consider the impact of actions taken by the contractor during the current period, and would provide little motivation for the contractor to pursue innovative cost and schedule savings measures. However, as stated in our report, the ACWA Deputy Program Executive Officer increased the contractor’s BGCAPP evaluation period rating based on a projected



# Results in Brief

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## *Chemical Demilitarization–Assembled Chemical Weapons Alternatives Program*

reduction to the contractor's performance schedule that PEO ACWA later determined was unaffordable. This not only increased the contractor's overall rating from satisfactory to good, but allowed the contractor to receive a bonus that increased the total award fee from \$2.8 million to \$4.9 million. This is not in accordance with the award fee plan.

In addition, the PEO ACWA, in coordination with the Executive Director, U.S. Army Contracting Command-Rock Island, stated that payments to correct quality deficiencies were not erroneous, but allowable costs. However, the PCAPP and BGCAPP contracts contain Federal Acquisition Regulation clauses for supplies, services, and construction, and the construction clause states the contractor will replace or correct items free of charge.

Therefore, the recommendations to determine award fees based on the contractor's actual performance, analyze rework performed at PCAPP and BGCAPP, and

either recoup paid funds or obtain other appropriate consideration for additional construction rework are unresolved and remain open.

The Director, Cost Assessment and Program Evaluation, agreed with the recommendation to prepare an independent cost estimate for the ACWA program. Specifically, the Director, Cost Assessment and Program Evaluation, agreed to perform an independent cost estimate of the ACWA program in 2018. This recommendation is resolved but will remain open. We will close this recommendation once the independent cost estimate is complete.

Please see the Recommendations Table on the next page for the status of the recommendations.

## Recommendations Table

Management	Recommendations Unresolved	Recommendations Resolved	Recommendations Closed
Program Executive Officer, Assembled Chemical Weapons Alternatives	1.a, 1.c, and 1.d	1.b and 1.e	
Executive Director, U.S. Army Contracting Command–Rock Island	1.a, 1.c, and 1.d	1.b and 1.e	
Director, Cost Assessment and Program Evaluation		2	

Please provide Management Comments by March 22, 2018.

Note: The following categories are used to describe agency management’s comments to individual recommendations.

- **Unresolved** – Management has not agreed to implement the recommendation or has not proposed actions that will address the recommendation.
- **Resolved** – Management agreed to implement the recommendation or has proposed actions that will address the underlying finding that generated the recommendation.
- **Closed** – OIG verified that the agreed upon corrective actions were implemented.



**INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
4800 MARK CENTER DRIVE  
ALEXANDRIA, VIRGINIA 22350-1500**

February 22, 2018

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION,  
TECHNOLOGY, AND LOGISTICS  
AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Chemical Demilitarization–Assembled Chemical Weapons Alternatives Program  
(Report No. DODIG-2018-076)

We are providing this report for review and comment. We determined the Program Executive Office for Assembled Chemical Weapon Alternatives contractors' May 2017 estimates show projected contract cost overruns of \$653.9 million. Furthermore, the Blue Grass Chemical Agent-Destruction Pilot Plant schedule may not meet the congressionally mandated deadline of December 31, 2023, for the destruction of all U.S.-stockpiled chemical weapons. We conducted this audit in accordance with generally accepted government auditing standards.

We considered management comments on a draft of this report when preparing the final report. DoD Instruction 7650.03 requires that recommendations be resolved promptly. Comments from the Program Executive Officer, Assembled Chemical Weapon Alternatives in coordination with the Executive Director, U.S. Army Contracting Command-Rock Island addressed all specifics for Recommendations 1.b and 1.e, and the Director, Cost Assessment and Program Evaluation addressed all specifics for Recommendation 2 and conformed to the requirements of DoD Instruction 7650.03; therefore, we do not require additional comments. Comments from the Program Executive Officer, Assembled Chemical Weapons Alternatives and the Executive Director, U.S. Army Contracting Command–Rock Island, commented on the positive and negative impacts when making award fee determinations and paying the contractors to correct quality deficiencies, but did not agree with all the recommendations. Therefore, we request the Program Executive Officer Assembled Chemical Weapons Alternatives and the Executive Director, U.S. Army Contracting Command–Rock Island reconsider their positions and provide additional comments on Recommendations 1.a, 1.c, and 1.d by March 22, 2018.

Please send a PDF file containing your comments to [audasm@dodig.mil](mailto:audasm@dodig.mil). Copies of your comments must have the actual signature Comments from of the authorizing official for your organization. We cannot accept the /Signed/ symbol in place of the actual signature. If you arrange to send classified comments electronically, you must send them over the SECRET Internet Protocol Router Network (SIPRNET). We appreciate the courtesies extended to the staff. Please direct questions to Mr. Patrick Nix at (703) 604-9332 (DSN 664-9332).

A handwritten signature in black ink that reads "Troy M. Meyer".

Troy M. Meyer  
Principal Assistant Inspector  
General for Audit

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# Introduction

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## Objective

We determined whether the Program Executive Office for Assembled Chemical Weapons Alternatives (PEO ACWA), the executive agent, effectively managed program cost, schedule, and performance for the ACWA program. See Appendix A for scope and methodology and prior audit coverage related to the objective.

## Chemical Demilitarization History

In 1985, Public Law No. 99-145, “Department Of Defense Authorization Act for Fiscal Year 1986,” directed the Secretary of Defense to destroy the existing stockpile of chemical weapons from World War II and after and set an initial completion deadline of September 30, 1994. The Army formed an organization called the Program Manager for Chemical Demilitarization, later re-designated the U.S. Army Chemical Materials Agency (renamed U.S. Army Chemical Materials Activity in 2012), to carry out this mission. Chemical weapons destruction became an international mission when at the 1993 Chemical Weapons Convention, the United States and other nations agreed to destroy their stockpiled chemical weapons.<sup>4</sup> The Chemical Weapons Convention treaty went into effect in 1997, with over 180 nations agreeing to destroy all their chemical weapons by April 2007 with an extension allowed to April 2012, if it could be justified.

The DoD originally had nine Army depots that stockpiled U.S. chemical weapons. Public Law No. 104-208, “Omnibus Consolidated Appropriations Act, 1997,” enacted in September 1996, established the ACWA program and tasked it with the responsibility of demonstrating alternative technologies for the destruction of chemical weapons.<sup>5</sup> In 2002, after the ACWA program demonstrated several alternative technologies, Congress reassigned responsibility for the destruction of the chemical weapons at Pueblo, Colorado, and Blue Grass, Kentucky, to the ACWA program. Both sites will eliminate chemical weapons through neutralization.<sup>6</sup> The United States did not meet the April 2012 Chemical Weapons Convention treaty deadline. Public Law No. 110-116, “Department Of Defense Appropriations Act, 2008,” mandated that the DoD complete the destruction no later than December 31, 2017.

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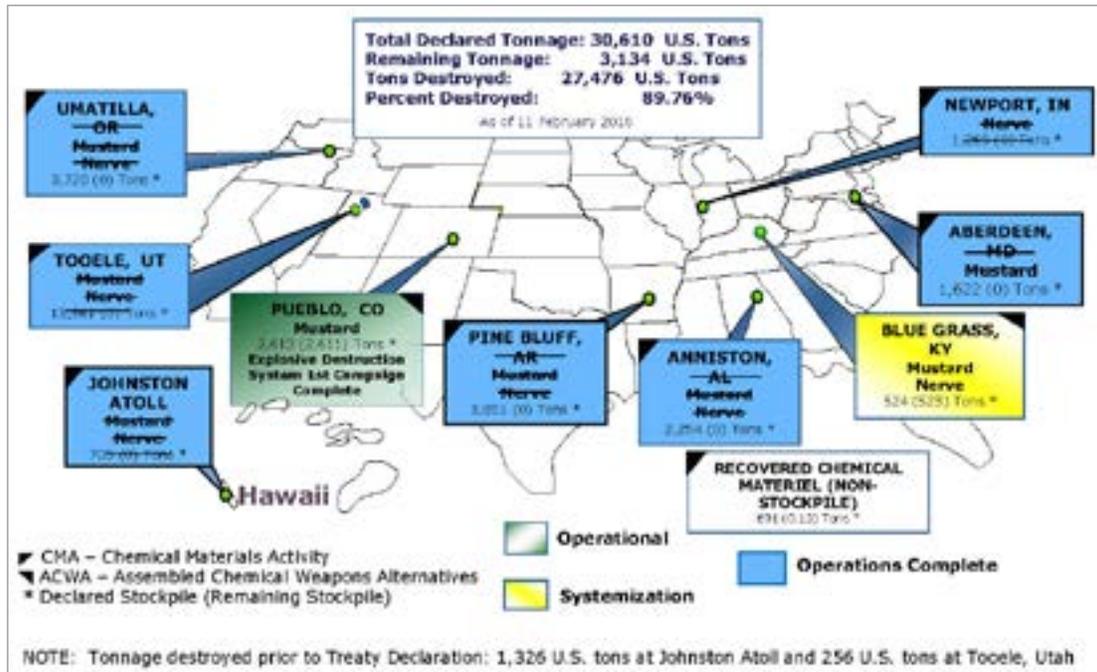
<sup>4</sup> The Chemical Weapons Convention took place in Paris, France, from January 13 through January 15, 1993. Each country participating agreed to destroy chemical weapons it owns or possesses, or that are located in any place under its jurisdiction or control.

<sup>5</sup> ACWA originally stood for “Assembled Chemical Weapons Assessment” but was renamed “Assembled Chemical Weapons Alternatives” in June 2003.

<sup>6</sup> The neutralization process applies hot water to the chemical agent, effectively destroying the chemical agent molecules.

As of January 2012, the U.S. Army Chemical Materials Activity had destroyed, at a cost of \$15.4 billion, chemical weapons at seven of the nine Army depots, which accounted for 90 percent of the U.S.-stockpiled chemical weapons.<sup>7</sup> The United States is still at 90 percent completion, with the remaining 10 percent of chemical weapons stockpiled at the Pueblo, Colorado, and Blue Grass, Kentucky, Army depots. Figure 1 shows the status of the U.S. chemical weapon stockpiles at the nine Army depots. In November 2015, Congress passed Public Law No. 114-92, “National Defense Authorization Act for Fiscal Year 2016,” extending the deadline to destroy all U.S.-stockpiled chemical weapons until December 31, 2023.

Figure 1. U.S. Chemical Weapon Stockpiles



Source: PEO ACWA.

## Assembled Chemical Weapons Alternatives Program

The Under Secretary of Defense for Acquisition, Technology, and Logistics is the milestone decision authority and designated the ACWA program an acquisition category ID major defense acquisition program.<sup>8</sup> The ACWA program includes the Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) and Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) chemical destruction sites in Pueblo, Colorado, and Bluegrass, Kentucky, respectively. The PEO ACWA manages

<sup>7</sup> The Army’s Chemical Materials Activity program also has authority over the safe and secure storage of the entire chemical weapons stockpile, including weapons stored in Colorado and Kentucky.

<sup>8</sup> The milestone decision authority is the designated individual with overall responsibility for a program and is accountable for cost, schedule, and performance reporting to higher authority, including congressional reporting. Acquisition Category ID programs are major defense acquisition programs estimated to require an eventual total expenditure for research, development, and test and evaluation of more than \$480 million in FY 2014 constant dollars or, for procurement, of more than \$2.8 billion in FY 2014 constant dollars.

the ACWA program and is responsible for the destruction of the remaining 10 percent of the chemical weapons stockpile. The PEO duties include being accountable for credible cost, schedule, and performance reporting to the milestone decision authority. ACWA Government Field Office sites at each location provide a level of review. In addition, the ACWA site project managers at the field offices have contracting officer's representative authority to provide contract oversight. Army Contracting Command–Rock Island administers the ACWA contracts.

The Under Secretary of Defense for Acquisition, Technology, and Logistics approved the original ACWA acquisition program baseline (APB) on April 2, 2003, at a cost of \$4.5 billion.<sup>9</sup> However, as of June 1, 2017, the ACWA program estimated cost was \$12.1 billion, with neither the PCAPP nor BGCAPP sites fully operational. The ACWA program costs are higher because the DoD will use neutralization to destroy the chemical stockpiles at the Pueblo and Blue Grass Army depots. Neutralization facilities are more complex than the previous incineration facilities in terms of both materials and labor.

PCAPP is responsible for destroying mustard agent in 780,078 munitions, while BGCAPP is responsible for destroying sarin, VX, and mustard agents in 101,764 munitions.<sup>10</sup> Each site has its own destruction process as well as unique state regulations. For example, PCAPP uses a method called Biotreatment following neutralization, which uses microbes to digest and further breakdown the chemical agent. BGCAPP uses Supercritical Water Oxidation to destroy organic materials by using very high temperatures and pressures to break them down into carbon dioxide, water and salts. See Figure 2 for a breakout of the chemical weapon stockpiles at PCAPP and BGCAPP.

*Figure 2. Chemical Weapon Stockpiles at PCAPP and BGCAPP*

	Pueblo Chemical Depot, CO	Blue Grass Army Depot, KY
% of Stockpile	8.5%	1.7%
Agents	Mustard	Sarin, VX, Mustard
Original Stockpile Amount	780,078	101,764
Original Amounts by Types of Munitions	97,106 4.2-in Mortars 383,418 105mm Projectiles 299,554 155mm Projectiles	69,479 M55 Rockets 28,308 155mm Projectiles 3,977 8-in Projectiles

Source: PEO ACWA.

<sup>9</sup> The program's current estimate is expressed in base year 2011 dollars. We expressed the original APB in base year 2011 dollars to display an accurate comparison.

<sup>10</sup> VX is an extremely toxic synthetic chemical compound.

## Contracts Awarded to Fulfill Program Mission

Army Contracting Command–Rock Island awarded a cost-plus-incentive contract to Bechtel National Incorporated for PCAPP in September 2002 and awarded a similar contract to Bechtel Parsons Joint Venture Group for BGCAPP in June 2003.<sup>11</sup> ACWA program officials required the contractors to develop and obtain appropriate permits, design and construct buildings and structures, acquire and install equipment, make sure equipment functions together as an integrated system, operate the plant, and close the facilities. Both the PCAPP and BGCAPP sites operate under the following five phases defined by the program office.

- **Design.** Contractors design facilities to destroy chemical weapons safely and efficiently.
- **Construction.** Contractors construct complex facilities at the locations where chemical weapons are stored.
- **Systemization.** Contractors operate and test all machinery, equipment, and processes with water or simulants, which encompasses all the planning, technical work, training, and testing activities required to make sure destruction operations run safely and smoothly.
- **Operations.** Contractors gradually destroy chemical weapons before increasing up to full operations. The contractors move to full operations to destroy the remaining chemical weapons once the contractor completes testing and demonstrates compliance with all safety requirements and environmental permits.
- **Closure.** Contractors shut down the facilities and dismantle, decontaminate, and remove the equipment in accordance with agreements between the states and the Army.

Each contract phase is proposed, negotiated, and awarded before the start of each contract phase. As of June 2017, the PCAPP and BGCAPP contracts were valued at \$3.4 billion and \$3.0 billion, respectively. The PEO ACWA stated that the safe, secure destruction of the chemical weapons stockpiles is the number one priority. Section 1521, title 50, United States Code, requires maximum protection for the environment, general public, and personnel who are involved in the destruction of the lethal chemical agents and munitions. To comply with the United States Code, the PCAPP and BGCAPP contracting officers encouraged the contractors to maintain high safety and environmental standards and culture by prioritizing these areas in the contract award fee plans. PCAPP and BGCAPP both use first-of-a-kind

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<sup>11</sup> The PCAPP and BGCAPP contract numbers were DAAA09-02-D-0025 and DAAA09-03-D-0023 but were administratively changed to W52P1J-09-C-0012 and W52P1J-09-C-0013, respectively.

technology that the contractor has not previously operated in a chemical agent environment, adding uncertainty about the resources necessary to achieve contract requirements.

## Review of Internal Controls

DoD Instruction 5010.40 requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance that programs are operating as intended and to evaluate the effectiveness of the controls.<sup>12</sup>

We identified internal control weaknesses in the PEO ACWA's management and oversight, which resulted in contractors being over budget and behind schedule. In addition, the PEO ACWA and the contracting officers paid the contractors to correct quality deficiencies. We will provide a copy of the report to the senior official responsible for internal controls in the Office of the Secretary of Defense.

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<sup>12</sup> DoD Instruction 5010.40, "Managers' Internal Control Program Procedures," May 30, 2013.

## Finding

### The PEO ACWA Did Not Effectively Manage Contractors' Cost and Schedule Performance

As of May 2017, the PEO ACWA was complying with ACWA program requirements. However, the PEO did not effectively manage the ACWA program cost and schedule of the contract phases. Specifically, as of May 2017, the PEO ACWA contracts were projected to be \$653.9 million over budget. In addition, the PCAPP and BGCAPP contractors may not meet the contract schedule completion dates for the PCAPP Operations phase and BGCAPP Systemization phase because of schedule delays. The ACWA program increase in cost and schedule occurred because the PEO ACWA and the PCAPP and BGCAPP contracting officers did not provide adequate contract oversight. Specifically, PEO ACWA officials and the PCAPP and BGCAPP contracting officers:

- did not effectively manage contractor performance through incentive fee and award fee contracts,
- paid about \$23 million to the contractors to correct quality deficiencies, and
- did not provide sufficient quality assurance oversight related to ductwork, boilers, and welds.

As a result, the ACWA program has significantly exceeded (by 21.6 percent) its baseline cost estimate. In addition, PCAPP has deviated (by 16 months) from its approved baseline schedule estimate to complete destruction of all chemical weapons and close PCAPP. Furthermore, the BGCAPP schedule may not meet the congressionally mandated deadline of December 31, 2023, for the destruction of all U.S.-stockpiled chemical weapons because PEO ACWA used a lower standard of confidence to estimate the time needed to complete destruction.

### ACWA Program Meeting Performance Requirements

As of May 2017, the PEO ACWA was meeting ACWA program performance requirements. The performance requirements in the APB are the same for both PCAPP and BGCAPP. The performance requirements address:

- environmental laws and regulations,
- safety and occupational health laws and regulations,
- chemical agent release, and
- chemical agent exposure.

The PEO ACWA was on track to meet the desired performance requirements that pertain to the compliance of environmental and safety laws and regulations. PCAPP had entered the Operations phase in September 2016 and was meeting the desired performance requirements for chemical agent release and chemical agent exposure at the time of the audit. However, BGCAPP has not yet started destroying chemical weapons. When BGCAPP does, its compliance with the chemical agent release and chemical agent exposure desired performance requirements will be monitored.

## ACWA Program Contracts Over Cost and Behind Schedule

The PEO ACWA contractors' May 2017 estimates show projected contract costs of \$6.9 billion, with cost overruns of \$653.9 million.<sup>13</sup> In addition, the PCAPP and BGCAPP contractors may not meet the contract completion dates for the PCAPP Operations phase and the BGCAPP Systemization phase.

### ***PCAPP Contract Cost Overruns and Schedule Delays***

The PCAPP contractor has experienced contract cost overruns and schedule delays. The PCAPP contractor's May 2017 contract estimate is \$3.6 billion, which includes a projected cost overrun of \$443.7 million or 14 percent. The Design, Construction, Systemization, and Operations phases are on contract. The PCAPP contracting officer has not awarded the Closure phase. We calculated the cost to complete the PCAPP contract is \$4.1 billion (\$513.2 million over budget) by adding the Closure phase costs from the June 2017 program office estimate and applying the PCAPP contract cost variance of 14 percent.<sup>14</sup> Table 1 shows the PCAPP cost overrun using the contract cost variance of 14 percent. See Appendix A for a discussion of our methodology.

*Table 1. PCAPP Cost Overrun Variance (in Thousands)*

PCAPP	Budget	Estimate at Completion	Variance
Contract	\$3,125,319	\$3,568,992	-\$443,673
Closure Phase	490,000	559,561	-69,561
<b>Total Project</b>	<b>\$3,615,319</b>	<b>\$4,128,553</b>	<b>-\$513,234</b>

Source: PEO ACWA.

<sup>13</sup> The total projected cost overrun of \$653.9 million comes from the combined figures at Table 1: PCAPP total cost overrun of \$443,673 (\$443.7 rounded) and Table 2: BGCAPP total cost overrun of \$210,153 (\$210.2 rounded).

<sup>14</sup> The contract cost variance comes from the May 2017 PCAPP contractor's earned value management report.

The PCAPP contractor also experienced contract schedule delays. The PCAPP contractor completed the Systemization phase on September 6, 2016, which was 352 days behind schedule. The PCAPP contractor started the Operations phase on September 7, 2016. As of May 2017, the contractor forecasts show the Operations phase to complete on January 1, 2021, 173 days behind schedule, which means the start and completion of the Closure phase will be delayed. As of June 1, 2017, the PCAPP Closure phase was not on contract.

The PCAPP calculated total contract cost and schedule completion date are based on the contractor's estimate at completion. These calculations do not reflect the additional cost and schedule increases identified in both the 2017 program office estimate and the Office of the Director, Cost Assessment and Program Evaluation preliminary assessment.

### ***BGCAPP Contract Cost Overruns and Schedule Delays***

The BGCAPP contractor has experienced contract cost overruns and schedule delays. The BGCAPP contractor's March 2017 contract estimate was \$3.3 billion, which included a projected cost overrun of \$656.3 million or 24 percent. On April 18, 2017, the PEO ACWA and the BGCAPP contractor agreed that additional funds were necessary to complete the BGCAPP Systemization phase. While the agreement with PEO ACWA and the BGCAPP contractor for additional funds has not been added to the contract, the BGCAPP contractor has revised their projected cost overrun estimate to reflect the additional funds needed to complete the Systemization phase. The BGCAPP contractor's May 2017 contract estimate was \$3.3 billion, which includes a projected cost overrun of \$210.2 million or 7 percent. The Design, Construction, and Systemization phases are on contract. The BGCAPP contracting officer has not awarded the Operations and Closure phases. We calculated the cost to complete the BGCAPP contract is \$5.6 billion (\$356.9 million over budget) by adding the Operations and Closure phase costs from the June 2017 program office estimate and applying the BGCAPP contract cost variance of 7 percent.<sup>15</sup> Table 2 shows the BGCAPP cost overrun using the contract cost variance of 7 percent.

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<sup>15</sup> The contract cost variance comes from the March and May 2017 BGCAPP contractor's earned value management system report.

Table 2. BGCAPP Cost Overrun Variance (in Thousands)

BGCAPP	Budget	Estimate at Completion	Variance
Contract	\$3,104,024	\$3,314,177	-\$210,153
Operations Phase	1,590,000	1,697,648	-107,648
Closure Phase	577,000	616,065	-39,065
<b>Total Project</b>	<b>\$5,271,024</b>	<b>\$5,627,890</b>	<b>-\$356,866</b>

Source: PEO ACWA.

The BGCAPP contractor also experienced contract schedule delays. The BGCAPP contractor started the Systemization phase in October 2012. As of March 2017, the contractor forecasts show the Systemization phase to complete on December 21, 2019, 689 days behind schedule.<sup>16</sup> On April 18, 2017, the BGCAPP contracting officer modified the BGCAPP contract to change the BGCAPP Systemization phase completion date to November 21, 2019, changing the forecast to 30 days behind schedule. The percentage of completion for the Systemization phase decreased from 74 percent to 46 percent complete based on the contractor's April 18, 2017 replan. Delays in the BGCAPP Systemization phase will delay the start and completion of the Operations and Closure phases, which were not on a contract as of June 1, 2017.

The BGCAPP calculated total contract costs and schedule completion dates are based on the contractors estimate at completion. These calculations do not reflect the additional cost and schedule increases identified in both the 2017 program office estimate and the Office of the Director, Cost Assessment and Program Evaluation preliminary assessment.

## Insufficient Contract Oversight

The ACWA program increases in cost and schedule occurred because PEO ACWA officials and PCAPP and BGCAPP contracting officers did not provide adequate contract oversight. Specifically, PEO ACWA officials and the PCAPP and BGCAPP contracting officers:

- did not effectively manage contractor performance through incentive fee and award fee contracts,
- paid about \$23 million to the contractors to correct quality deficiencies, and
- did not provide sufficient quality assurance oversight related to ductwork, boilers, and welds.

<sup>16</sup> The original BGCAPP Systemization phase completion date was January 31, 2018.

### ***Contractor Performance Not Effectively Managed***

PEO ACWA officials and the PCAPP and BGCAPP contracting officers did not effectively manage contractor performance through incentive fee and award fee contracts. Federal Acquisition Regulation Subpart 16.4 “Incentive Contracts,” states that incentive fee and award fee contracts should motivate contractor efforts and discourage contractor inefficiency and waste. The PCAPP and BGCAPP contracts are over cost and behind schedule.

#### ***Contractor Performance at PCAPP and BGCAPP***

PEO ACWA officials and the contracting officers did not effectively manage the PCAPP and BGCAPP contractor performance through incentive fee and award fee contracts. ACWA contractor performance reports showed both the PCAPP and BGCAPP contractor performance included poor planning and execution, with ineffective management of project work. The PCAPP and BGCAPP contractors were ineffective in identifying and correcting plant design deficiencies in a timely manner. The Chemical Weapons Convention treaty requires destruction of all U.S.-stockpiled chemical weapons; consequently, there is little possibility that the DoD will cancel the ACWA program for cost overruns and schedule delays.

The contracting officer should design incentives to relate profit or fee to contractor-achieved results against specified targets. PEO ACWA officials and the contracting officers used both incentive fee and award fee contracts to manage the PCAPP and BGCAPP contractor performance. PEO ACWA officials approved and the contracting officers awarded the contractors significant incentive and award fees even with cost, schedule, and performance shortcomings. As structured, the ACWA program does not effectively incentivize the contractor and the Government to control costs. The fee structure of the PCAPP and BGCAPP contracts allowed the contractor to receive millions of dollars even though poor contract performance resulted in contract cost overruns and schedule delays. ACWA officials approved and the contracting officers paid fixed fees of \$129 million, incentive fees of \$168 million, and award fees of \$49 million for a total of \$346 million as of June 2017. Table 3 shows the types of fees and the amounts paid to the PCAPP and BGCAPP contractors.

Table 3. PCAPP and BGCAPP Contract Fees Earned

Fee Type	PCAPP Fees Earned	BGCAPP Fees Earned	Total ACWA Contract Fees Earned
Fixed Fees <sup>1</sup>	\$55,480,254	\$73,576,076	\$129,056,330
Incentive Fees	39,203,263	128,795,320	167,998,583
Award Fees	39,401,152	9,638,583	49,039,735
<b>Total<sup>2</sup></b>	<b>\$134,084,669</b>	<b>\$212,009,980</b>	<b>\$346,094,648</b>

<sup>1</sup> Fixed fees were based on a negotiated percentage of the task order costs, not on contract performance.

<sup>2</sup> The totals may be off due to rounding.

Source: Rock Island Contracting Office.

### Incentive Fees

PEO ACWA officials prematurely declared PCAPP and BGCAPP construction substantially complete and approved payment of incentive fees. Contracting officers paid incentive fees related to cost, schedule, and performance without proper documentation. Table 4 shows the premature declarations of construction substantially complete.

Table 4. Fees Paid for Construction Declared Substantially Complete

	PCAPP	BGCAPP
Construction Declared Substantially Complete	December 12, 2012	July 31, 2015
Outstanding Construction Tasks	1,541	1,120
Completion of Construction Tasks	July 9, 2014	FY 2017 <sup>1</sup>
Number of Days Elapsed	574	670 <sup>2</sup>
Incentive Fees Paid	\$3.7 Million	\$7.3 Million

<sup>1</sup> PEO ACWA officials estimate BGCAPP will complete the remaining construction tasks in 2017 with the exception of the Electronic Security System.

<sup>2</sup> BGCAPP's number of days elapsed is based on the BGCAPP Monthly Status Report dated May 31, 2017.

Source: Rock Island Contracting Office.

The contractors did not complete the construction tasks in a timely manner despite being paid \$11 million in incentives. Table 4 shows the number of elapsed days between when the construction was declared substantially completed and the actual completion.

On November 18, 2015, the PEO ACWA and the BGCAPP contracting officer negotiated an additional incentive fee of \$15 million for advancement in Systemization schedule efforts and cost avoidances to the BGCAPP contract. On December 23, 2015, the BGCAPP contracting officer paid the BGCAPP contractor

\$15 million for \$14.1 million of potential cost savings in the Systemization phase. Therefore, the PEO ACWA approved and the BGCAPP contracting officer awarded the contractor a greater amount in incentive fees than the estimated savings to the taxpayer.

The contracting officers stated that predetermined objective incentive targets applicable to cost, schedule, and technical performance were ineffective and not feasible for the contracted work. The PCAPP and BGCAPP contracting officers determined that the incentive fee contracts did not properly motivate contractor performance and control costs. Believing an award fee contract would motivate the contractor to control costs and meet all performance requirements, the PCAPP and BGCAPP contracting officers converted the incentive fee contracts to award fee contracts on October 1, 2013, and September 29, 2015, respectively.

*Award Fees*

PEO ACWA officials continue to reward the PCAPP and BGCAPP contractors even though the contracts are over cost and behind schedule. Due to the lethal nature of the materials being destroyed, technical performance counts for 70 percent of the evaluation, while cost and schedule each count for 15 percent. The award fee breakdown allows the contractors to receive unsatisfactory scores for cost and schedule but still receive an award fee. See Table 5 for the breakout of the performance evaluation factors and weights the PCAPP and BGCAPP Award Fee Evaluation Boards used.

*Table 5. Performance Metrics and Weights*

Performance Metric Categories	
Performance Metric Category	Weighting
Technical Performance	
Management Performance	25%
Safety and Surety Performance	25%
Environmental Performance	20%
Cost Performance	15%
Schedule Performance	15%
<b>Total</b>	<b>100%</b>

Source: Rock Island Contracting Office.

The Award Fee Evaluation Board provides a recommendation on the award fee rating and amount. The ACWA Deputy Program Executive Officer reviews and approves the award fee rating and amount but also has the authority to increase or decrease the award fee with justification. Table 6 shows the ACWA Deputy Program Executive Officer's increase in the award fees for PCAPP's award fee period of October 1, 2015, through March 31, 2016, and BGCAPP's award fee period of April 1, 2016, through September 30, 2016.

*Table 6. ACWA Deputy Program Executive Officer's Increase in Award Fee Payment*

Award Fees	PCAPP FY2016-01*	BGCAPP FY2016-02*
Original Award Fee	\$4.5 Million	\$2.8 Million
Increase In Award Fee	2.0 Million	2.1 Million
<b>Total Award Fee</b>	<b>\$6.5 Million</b>	<b>\$4.9 Million</b>

\*FY 2016-01 is the rating period covering October 1, 2015, through March 31, 2016. FY 2016-02 is the rating period covering April 1, 2016, through September 30, 2016.

Source: Rock Island Contracting Office.

The ACWA Deputy Program Executive Officer justified the PCAPP award fee increase based on technical performance while acknowledging that cost and schedule continued to present challenges during the period of October 1, 2015, to March 31, 2016. The ACWA Deputy Program Executive Officer increased the award fee by \$2 million for technical performance even though technical performance already holds the highest weight of the performance metric categories.

The ACWA Deputy Program Executive Officer justified the increase in the BGCAPP award fee based on the reduction of the contractor's projected schedule extension from 18 months to 3 months, which may lower forecasted life-cycle cost. However, the PEO ACWA determined the cost to reduce the schedule to 3 months was unaffordable in FY 2017. The PEO ACWA should calculate award fees based on actual contractor performance instead of projected cost savings or projected reductions in the schedule.

### *Additional Incentive Fees*

The PEO ACWA has tried to incentivize the contractors with incentive fees and award fees; neither has seemed to effectively control PCAPP and BGCAPP contract costs or schedules. The PEO ACWA and the BGCAPP contracting officer added additional incentives to the BGCAPP contract due to the BGCAPP Systemization replan, and Congress has authorized additional funding to incentivize the PCAPP and BGCAPP contractors to complete the destruction of the U.S.-stockpiled chemical weapons and close the facilities.

On April 18, 2017, PEO ACWA and Government Field Office personnel determined that even though there is no change to the scope of the Systemization phase effort, the remaining balance of the award fee pool and base fee would be insufficient to effectively incentivize the contractor to move the project forward. Therefore, the BGCAPP contracting officer modified the BGCAPP contract to add an additional \$39 million to the BGCAPP contract for new incentives, with \$24 million for interim milestones and \$15 million to incentivize early completion of the Systemization phase.

Furthermore, Congress has authorized additional funding to incentivize the PCAPP and BGCAPP contractors to complete the destruction of the U.S.-stockpiled chemical weapons and close the facilities. Section 923 of Public Law 109-364, “The John Warner National Defense Authorization Act for Fiscal Year 2007,” (the Act) authorized up to an additional \$330 million in funding for ACWA contract schedule incentives. The objective of the additional incentive fees is to eliminate the continued storage of the aging and deteriorating chemical munitions stockpile by accelerating safe destruction and reduce costs at PCAPP and BGCAPP. For the PCAPP and BGCAPP contracts Operations and Closure phases, Public Law 109-364 authorized:

- up to \$110 million per facility for completion of destruction operations within target,
- up to \$55 million per facility for completion of facility closure activities within target, and
- a proportionate reduction in the maximum incentive payment for exceeding a target cost.

The Act requires the Secretary of Defense to determine whether the contractor satisfactorily performed its duties under the clause for payment, and payment is subject to availability of appropriations. As of May 2017, the PEO ACWA does not have an approved plan to implement the additional incentive fees of \$330 million. Furthermore, PCAPP and BGCAPP contracting officers have not modified the contract to include the additional incentives. The PEO ACWA has struggled to motivate the PCAPP and BGCAPP contractors to control costs and schedules; therefore, the PEO ACWA must ensure that if implemented, the additional \$330 million in incentives achieve the desired results. The PEO ACWA should convene a working group of DoD subject matter experts to help determine the best way to structure the additional incentive to motivate the contractors to reduce costs at PCAPP and BGCAPP and achieve an accelerated safe destruction of the remaining chemical weapons.

### ***Contractors Compensated for Quality Deficiencies***

The contracting officers paid the contractors to correct quality performance deficiencies, and the PEO ACWA officials approved these payments.

Federal Acquisition Regulation Subpart 46.407, "Nonconforming Supplies or Services," states that the contracting officer should reject supplies or services not conforming in all respects to contract requirements. Both PCAPP and BGCAPP have various inspection clauses for their contracts; see Appendix B for a list of those clauses.

#### ***PCAPP Building Rework Estimated at up to \$3 Million***

In 2010, the site program manager declared that the PCAPP contractor substantially completed construction of the agent processing building. However, the building did not conform to contract requirements. Between the completion of construction and spring of 2014, various building leaks were found and repaired. After these initial repairs, additional substantial leaks were identified in July 2014 and spring of 2015. Finally, in May 2015, after another significant rainstorm resulted in more leaks, the PCAPP Field Office revised its approach. According to a June 2015 briefing, the contractor repaired all of the identified leaks, and the contractor recoated the entire roof to conform to contract requirements. The PCAPP Field Office estimated that the rework would cost between \$1 million and \$3 million. However, the PCAPP Field Office and the contractor stated that they could not quantify the final cost or schedule impact to the project. The PCAPP Field Office does not plan to direct the contracting officer to seek consideration from the contractor for the quality deficiencies with the roof.

#### ***BGCAPP Nonconforming Welds Increased Costs by \$20 Million***

In 2014, the BGCAPP contractor relied on a subcontractor's inspection procedures for the welds in the supercritical water oxidation processing building. In 2015, the contractor discovered that the welds were defective. The contracting officer estimated the cost was approximately \$20 million to repair the welds. Of that \$20 million, the contracting officer plans to recoup \$1 million from the contractor.

The PCAPP and BGCAPP contractors have completed extensive rework on roofs and welds to correct quality deficiencies to comply with the contract specification. However, PEO ACWA officials and the contracting officers have not analyzed all of the rework performed at PCAPP and BGCAPP to determine the final cost or schedule impact to the projects and did not plan to obtain consideration for the full amount of construction rework at both sites. PEO ACWA officials and the contracting officers should analyze all of the rework performed at PCAPP and BGCAPP to determine the cost of additional rework and either recoup funds paid by the Government or obtain other appropriate consideration for the construction rework.

***Insufficient Quality Assurance Oversight of the Contractors***

PCAPP officials did not adequately communicate with the contractor on multiple occasions, and this led to insufficient quality assurance oversight. In one instance, according to a root cause analysis performed by the PCAPP contractor, ACWA engineering officials did not provide the contractor with the correct standard testing procedures for welded ductwork. As a result, the contractor conducted invalid leak tests that did not identify nonconforming ductwork. In another instance, PCAPP supervisors did not provide clear direction on procedures for boiler hazard controls for natural gas and fuel oil. The work order did not identify all of the potential boiler hazards, and supervisors provided conflicting processes and procedures that made it difficult to determine whether the maintenance workers properly mitigated these hazards. In a third instance, the Colorado Department of Public Health and Environment picked an independent third-party contractor to conduct an audit of the facilities. During this audit, the contractor discovered noncompliant welds. PCAPP officials put together a team to investigate these claims, and the team identified 23 noncompliant pipe welder lots consisting of 117 welds. According to the team, these noncompliant welds occurred at PCAPP because of the high turnover of contractor welding engineers. High turnover led to a lack of clarity during the inspection process on the requirements for tracking welds.

BGCAPP officials did not provide proper oversight during the welds inspection process. BGCAPP officials assumed the contractor followed the inspection procedures in the contract and that welds conformed to the contract specifications. A contractor-prepared report dated August 28, 2014, states that BGCAPP contractor officials realized welds provided by their subcontractor were nonconforming and rejected multiple welds. BGCAPP contractor officials formed a team to investigate the apparent cause of inadequate welds that could result in leaks and spills. The team found that the contractor relied on its subcontractors' inspections and that the subcontractors used different inspection and quality tests. As a result, the BGCAPP officials accepted welds before realizing that the welds did not conform to the contract specifications. PEO ACWA officials should increase quality assurance monitoring and validate the contractor's test and inspection processes and procedures at PCAPP and BGCAPP.

## ACWA Acquisition Program Baseline Cost and Schedule Overages

The ACWA program has significantly deviated from the approved cost and exceeded schedule estimates in its APB dated March 2012. For example, PCAPP deviated from its approved schedule for completion of the Operations and Closure phases. Similarly, BGCAPP may not meet the congressionally mandated deadline of December 31, 2023, for the destruction of all U.S.-stockpiled chemical weapons. On March 21, 2012, the Under Secretary of Defense for Acquisition, Technology, and Logistics approved a revised APB permitting the ACWA program to continue. See Appendix C for a history of the APB for the ACWA program.

DoD Instruction 5000.02 describes the APB as an agreement with program management and the milestone decision authority. The APB includes the objective (desired) and threshold (minimum acceptable) program cost and schedule estimates and its primary performance parameters.<sup>17</sup> A program can deviate from its approved APB cost estimate by exceeding the desired cost by 10 percent or by exceeding the program acquisition unit cost by 15 percent and 25 percent, which the Instruction identifies as significant and critical cost breaches (deviations), respectively.<sup>18</sup> Schedule deviations occur when a program exceeds its estimated schedule over the minimal acceptable dates from the APB. The PEO ACWA is required to report deviations from the approved APB to the milestone decision authority immediately detailing the reason for the deviation and actions planned going forward.

Section 2433, title 10, United States Code, directs the program management to prepare a unit cost report when there is reasonable cause to believe that program cost has increased by a percentage equal to or greater than the significant (15 percent) cost growth threshold. The DoD must notify Congress in writing when a significant cost deviation occurs.

## ACWA Program Deviated from Its Cost for the Third Time

In April 2017, the PEO ACWA reported to the official performing the duties of the Under Secretary of Defense for Acquisition, Technology, and Logistics that the ACWA program has significantly deviated from its APB cost objective. Specifically,

<sup>17</sup> DoD Instruction 5000.02, "Operation of the Defense Acquisition System", January 7, 2015.

<sup>18</sup> A significant breach, referred to as Nunn-McCurdy breach, occurs when the cost growth threshold, as it relates to the current APB, increases at least 15 percent over the program acquisition unit cost for the current program as shown in the current Baseline Estimate. A critical Nunn-McCurdy breach occurs when the cost growth increases at least 25 percent over the APB.

the June 2017 program office estimate shows a program cost growth increase of 21.6 percent from the approved APB cost estimate of \$9.98 billion to \$12.1 billion base year dollars. On April 27, 2017, the PEO ACWA prepared a program deviation report stating that the ACWA program cost growth is attributable to explosive destruction technology, systemization and operations activities at PCAPP and BGCAPP, and technical issues impacting the completion of pilot testing at PCAPP.

### ***ACWA Program Continues to Fall Behind Schedule***

The PEO ACWA's June 2017 program office estimate shows that PCAPP has deviated from its 2012 APB schedule estimate. As of April 2017, the PEO ACWA estimates that the PCAPP completion of Operations and Closure phases will be March 2022 and March 2025, respectively, which is 16 months past the minimum acceptable date in the 2012 APB. See Table 7 for PCAPP schedule milestones.

*Table 7. PCAPP Schedule Milestones*

PCAPP Milestones	2012 APB Objective	2012 APB Threshold	PEO ACWA Estimate June 2017
Begin Operations	December 2015	December 2016	September 2016
Complete Operations	November 2019	November 2020	March 2022
Closure	November 2022	November 2023	March 2025

Source: June 2017 Program Office Estimate submission.

The BGCAPP schedule may not meet the congressionally mandated deadline of December 31, 2023, for the destruction of all U.S.-stockpiled chemical weapons. In 2013, the PEO ACWA accelerated the BGCAPP schedule to begin and complete the Operations phase and complete the Closure phase. However, because of ongoing construction tasks and unplanned repair expenses during the Construction and Systemization phases, the PEO ACWA could no longer financially support contract target costs at both the main plant and explosive destruction technology facility. As a result, the PEO ACWA stopped the construction and systemization of the explosive destruction technology facility and will resume when additional funding becomes available. The unplanned repairs and expenses affected the date by delaying the completion of the Operations phase for BGCAPP. According to the PEO ACWA, BGCAPP will complete the Operations phase in December 2023; however, the PEO ACWA relied on a 13-percent confidence level for BGCAPP in the 2017 program office estimate instead of the routinely used 50 percent confidence.<sup>19</sup> If the PEO ACWA were to use the 50-percent confidence schedule for BGCAPP, the

<sup>19</sup> The confidence level represents the probability that the PEO ACWA determined it could meet in the estimated schedule from its 2017 program office estimate.

estimate to complete Operations would be June 2024, several months beyond the congressionally mandated deadline of December 31, 2023, for the destruction of all U.S.-stockpiled chemical weapons. See Table 8 for BGCAPP schedule milestones.

*Table 8. BGCAPP Schedule Milestones*

BGCAPP Milestones	2012 APB Objective	2012 APB Threshold	PEO ACWA Estimate June 2017
Begin Operations	April 2020	April 2021	March 2020
Complete Operations	September 2023	September 2024	December 2023
Closure	October 2026	October 2027	November 2026

Source: June 2017 Program Office Estimate submission.

The Office of the Director, Cost Assessment and Program Evaluation informally reviewed the ACWA program 2017 cost estimate submission but plans to perform an independent cost estimate.<sup>20</sup> The review suggests that the PEO ACWA would need more funding than identified in its preliminary 2017 estimate. The review also determined that it will take the PEO ACWA longer to complete destruction at PCAPP and BGCAPP. The Director, Cost Assessment and Program Evaluation should prepare an independent cost estimate after the PEO ACWA finalizes its 2017 program office estimate.

## Conclusion

To comply with Section 1521, title 50, United States Code, the PCAPP and BGCAPP contracting officers used award and incentive fees to encourage the contractors to maintain high safety and environmental standards. The PEO ACWA contractors are currently meeting environmental laws and regulations and safety and occupational health laws and regulations. However, PEO ACWA contractors have experienced contract cost overruns and schedule delays. As of May 2017, we calculated the projected PCAPP and BGCAPP total project contract costs to be \$9.7 billion, which is \$870.1 million over the budgeted cost. The PCAPP contract is forecasted as 173 days behind schedule. The May 2017 BGCAPP contract schedule delay of 689 days was reduced to 30 days by the April 2018 replan agreement. The PCAPP and BGCAPP calculated total contract costs and schedule completion dates are based on the contractors estimate at completion and do not reflect the additional cost and schedule increases identified in both the 2017 program office estimate and the Office of the Director, Cost Assessment and Program Evaluation preliminary assessment. Despite significant cost and schedule increases, the PEO ACWA

<sup>20</sup> The Director, Cost Assessment and Program Evaluation is the principal DoD official for independent cost estimate analysis, ensuring that the cost estimation and cost analysis processes of the DoD provide accurate information and realistic estimates for DoD acquisition programs.

approved and the contracting officers awarded significant incentive and award fees to the contractors. In some cases, PEO ACWA's justification for increasing the fees was based on potential cost or schedule savings in future periods instead of the actual cost and schedule performance during the rating period.

The PEO ACWA approved and the contracting officers paid for significant rework that added to the ACWA program's cost and schedule. The PEO ACWA did not track the cost of rework at PCAPP or try to recoup funds expended. The PEO ACWA estimated the cost of rework at BGCAPP to be \$20 million and planned to recoup \$1 million. Furthermore, PCAPP officials did not properly communicate their policies and procedures to the contractor, and BGCAPP officials and the primary contractor relied on their subcontractors' test and inspection policies. As a result, BGCAPP officials discovered nonconforming welds, leading to additional cost, schedule, and performance problems.

The PEO ACWA is complying with environmental laws and regulations and safety and occupational health laws and regulations to meet ACWA program requirements and has not experienced an incident of chemical agent release or exposure above allowable limits. However, the ACWA program deviated from its APB cost estimates for the third time. In April 2017, the PEO ACWA reported a significant cost deviation of 21.6 percent from its APB cost objective. The program cost estimate increased from the approved APB cost estimate of \$9.98 billion to \$12.1 billion base year dollars. In addition, the PEO ACWA now estimates that PCAPP will complete the Operations and Closure phases in March 2022 and March 2025, respectively, which is 16 months past the APB's minimum acceptable date. The PEO ACWA relied on a lower confidence schedule than routinely used when determining when BGCAPP would complete the Operations phase. Therefore, BGCAPP may not meet the congressionally mandated deadline of December 31, 2023, for the destruction of all U.S.-stockpiled chemical weapons.

The Chemical Weapons Convention treaty requires destruction of all U.S.-stockpiled chemical weapons; consequently, there is little possibility that the DoD will cancel the ACWA program for cost overruns and schedule delays.

## **Management Comments on the Finding and Our Response**

### *Office of the Office of the Director, Cost Assessment and Program Evaluation Comments on Contract Cost*

The Director, Cost Assessment and Program Evaluation, stated that the report's forecasted total contract costs of \$9.7 billion are lower than the 2017 program office estimate of \$12.7 billion because the estimate accounts for realized growth

in schedule duration, increased staffing requirements, and utilization of explosive detonation technology. The ACWA program schedule performance has deteriorated since completion of the 2017 program office estimate. The Director recommended that the report cost and schedule be updated.

### *Our Response*

We agree that the report forecasts for total contract costs for PCAPP and BGCAPP do not take into consideration all cost and schedule increases identified in the 2017 ACWA program office estimate. Our intent was to show that the current PCAPP and BGCAPP contracts were over cost and behind schedule and when all phases are added to the contract the PCAPP and BGCAPP, contract cost overruns and schedule delays will most likely increase. We added a statement in the report that the calculations do not include the additional cost and schedule increases identified in both the 2017 program office estimate and the Office of the Director, Cost Assessment and Program Evaluation preliminary assessment. Because our report is based on a period in time, we did not update the cost and schedule variances within the report.

We also agree the ACWA program schedule performance has deteriorated since the 2017 program office estimate. The October 2017 PCAPP contractor estimate at completion shows an Operations phase completion date of December 2026, which is past the Congressional mandate of December 31, 2023. The October 2017 PCAPP contractor estimate at completion also shows a cost overrun of \$2.3 billion. This does not include the cost for the PCAPP Closure phase.

The October 2017 BGCAPP contractor estimate at completion shows an Operations phase completion date of March 2023, which is within the Congressional mandate of December 31, 2023. However, BGCAPP is in the Systemization phase and not expected to start the Operations phase until December 2019. The October 2017 BGCAPP contractor estimate at completion shows a cost overrun of \$217.4 million. This does not include the cost for the BGCAPP Operations or Closure phases.

### *Program Executive Officer, Assembled Chemical Weapons Alternatives and Executive Director, U.S. Army Contracting Command-Rock Island Comments*

The PEO ACWA stated that the complexity and uniqueness of the Chemical Demilitarization Program, especially as it pertains to the ACWA program's first-of-a-kind pilot plants, should be clearly articulated up front in order to provide the proper perspective. In addition, the cornerstone of the program is maximum protection of the workforce, the public, and the environment. The PEO ACWA further stated that the program has an outstanding safety culture and

has not experienced an incident of chemical agent release or exposure, which is significant as either would have significant cost and schedule ramifications. The PEO ACWA stated the evaluation of that portion of the review should be outlined at the beginning of the report to clearly portray that life, safety, and health are of utmost importance to the program and are absolutes with respect to meeting those performance requirements.

### *Our Response*

We recognize that the safe, secure destruction of chemical weapons stockpiles is PEO ACWA's number one priority, and that the contractors' are using first-of-a-kind equipment in a chemical agent environment. As such, we reorganized the finding to acknowledge that the PEO ACWA has complied with environmental, safety, and occupational health laws and regulations and has not experienced an incident of chemical agent release or exposure. However, the PCAPP is the only plant destroying chemical agents and as of May 2017, contractors' performance has primarily consisted of the plants' complying with laws and regulations. According to the PEO ACWA program office estimate, the BGCAPP is scheduled to begin destroying chemicals by March 2020.

## **Recommendations, Management Comments, and Our Response**

### ***Revised Recommendation***

We revised Recommendation 1.a to clarify that PEO ACWA was not following the award fee plan. We revised Recommendation 1.d to clarify that for any additional rework classified as construction, the PEO ACWA should either recoup the funds paid or obtain other appropriate consideration.

### ***Recommendation 1***

**We recommend that the Program Executive Officer, Assembled Chemical Weapons Alternatives, in coordination with the Executive Director, U.S. Army Contracting Command-Rock Island:**

- a. Determine award fees based on the contractor's actual performance during the award fee period, not on projected cost, schedule, and performance in later periods as required by the award fee plan.**

### *Program Executive Officer, Assembled Chemical Weapons Alternatives and Executive Director, U.S. Army Contracting Command-Rock Island Comments*

The PEO ACWA, in coordination with the Executive Director, U.S. Army Contracting Command-Rock Island, disagreed with our recommendation, stating

that the guiding concept for specific criteria in the current award fee plans is to motivate the contractor to achieve timely execution of all phases of the project in a cost effective manner. It is not in the program's best interest to disregard, during award fee determinations, current contractor performance that could result in positive or negative future impacts to all phases of the program. The recommendation would only allow the Government to consider the impact of actions taken by the contractor during the current period. This would provide little motivation for the contractor to pursue innovative cost and schedule savings measures, while motivating the contractor to engage in short-term positive impacts that may have long-term implications.

### *Our Response*

Although we agree that the guiding concept of an award fee plan is to motivate the contractor, the PEO ACWA did not follow the award fee plan. The award fee plan states that the performance evaluation periods are every 6 months and review all pertinent data from the performance period. The award fee plan includes a bonus incentive that allows for performance that is anticipated to provide substantial, quantifiable future benefit, but is only available in periods where the contractor's performance rating is good or higher. As shown in the report, the ACWA Deputy Program Executive Officer increased the contractor's BGCAPP FY 2016-02 evaluation period rating based on a projected reduction to the contractor's performance schedule that PEO ACWA later determined was unaffordable. This not only increased the contractor's overall rating from satisfactory to good, but allowed the contractor to receive a bonus that increased the total award fee from \$2.8 million to \$4.9 million. It is important to motivate the contractor, but to increase the total award fee by \$2.1 million or seventy-five percent for projected performance that the PEO could not afford to implement is inappropriate. If following the award fee plan as written does not provide motivation for the contractor to pursue innovative cost and schedule savings measures or engage in short-term positive impacts that may have long-term implications, then consider revising the award fee plans to better motivate the contractors.

This recommendation is unresolved and remains open. We request that the PEO ACWA and Executive Director, U.S. Army Contracting Command-Rock Island reconsider their response in light of our revision to the recommendation to follow the award fee plan and determine award fees based on actual performance during the award fee period and use the bonus incentive if available when awarding projected performance.

- b. Convene a working group of DoD subject matter experts to help determine the best way to structure the additional incentive to motivate the contractors to reduce costs at the Pueblo Chemical Agent-Destruction Pilot Plant and the Blue Grass Chemical Agent-Destruction Pilot Plant and achieve an accelerated safe destruction of the remaining chemical weapons.**

*Program Executive Office, Assembled Chemical Weapons Alternatives and Executive Director, U.S. Army Contracting Command-Rock Island Comments*

The PEO ACWA, in coordination with the Executive Director, U.S. Army Contracting Command-Rock Island, agreed with our recommendation, stating that the overall incentive plan has already been crafted and staffed. The PEO ACWA and Executive Director presented the incentive approach to the Director, Defense Policy of the Defense Procurement and Acquisition Policy, in July 2017 with a positive endorsement. The incentive plan was developed by a team of Industry and Government experts and in consultation with DoD subject matter experts. Better Buying Power concepts and Defense Procurement and Acquisition Policy incentive training concepts were considered and incorporated.

*Our Response*

We agree that PEO ACWA and the Executive Director is working with DoD subject matter experts, however, the incentive plan is not complete. Personnel from the Defense Procurement and Acquisition Policy office stated they determined that the ACWA pre-negotiation documentation was mature enough for the contracting officer to enter into negotiations. Once negotiations are complete, the Director, Defense Pricing/Defense Procurement and Acquisition Policy will perform a review prior to the contract award to assess the final negotiated price to include all incentives. Therefore, the recommendation is resolved and will remain open until the incentive plan is finalized.

- c. Analyze the rework performed at the Pueblo Chemical Agent-Destruction Pilot Plant and the Blue Grass Chemical Agent-Destruction Pilot Plant to determine the cost of additional rework.**
- d. Based on the cost of additional construction rework, either recoup funds paid by the Government or obtain other appropriate consideration.**

*Program Executive Office, Assembled Chemical Weapons Alternatives and Executive Director, U.S. Army Contracting Command-Rock Island Comments*

The PEO ACWA, in coordination with the Executive Director, U.S. Army Contracting Command-Rock Island, did not agree with Recommendations 1.c and 1.d, stating that payments to correct quality deficiencies were not erroneous. PCAPP and BGCAPP are both cost reimbursable contracts. As such, the PEO ACWA and Executive Director stated that the correct applicable Federal Acquisition Regulation contract clauses are Part 52.246-3, "Inspection of Supplies-Cost Reimbursement" and Part 52.246-5, "Inspection of Services-Cost Reimbursement," and that both clauses do not provide for the contractual remedies the recommendation would require. The clauses allow the Government to require the contractor to replace or correct any supplies and services that are nonconforming at the time of delivery or specified amount of time after delivery. However, the costs for rework are allowable costs with no additional fees.

The PEO ACWA and Executive Director further stated that the only instance that would provide for recoupment as recommended would be under Federal Acquisition Regulation Part 52.246-3, based on a determination that the original nonconforming items are due to: (1) fraud, lack of good faith, or willful misconduct on the part of the contractor's managerial personnel; or (2) the conduct of one or more of the contractor's employees selected or retained by the contractor after any of the contractor's managerial personnel has reasonable grounds to believe that the employee is habitually careless or unqualified. The PEO ACWA and Executive Director state that no such allegations have been made.

*Our Response*

We agree that under cost reimbursement contracts, the Government pays for the additional cost of rework as it pertains to supplies and services. However, Appendix B of this report shows that the current versions of the cost reimbursement contracts cite multiple Federal Acquisition Regulation clauses, including Federal Acquisition Regulation Part 52.246-12. According to Federal Acquisition Regulation Part 52.246-12, "Inspection of Construction," the contractor will replace or correct nonconforming items free of charge. Federal Acquisition Regulation Part 52.246-12 applies to cost reimbursement contracts, and since both contracts include Part 52.246-3, Part 52.246-5, and Part 52.246-12 for supplies, services, and construction, respectively, the PEO ACWA and Executive Director cannot state that only Part 52.246-3 and Part 52.246-5 apply to the rework.

To ensure the Government pays contractors a fair and equitable price, the Government must identify, track, and document the cost of any rework as well as whether the rework applies to supplies, services, or construction. Therefore, these recommendations are unresolved. We request that the PEO ACWA and Executive Director, U.S. Army Contracting Command-Rock Island reconsider their position and consider analyzing the rework performed at PCAPP and BGCAPP and either recoup the cost or obtain other appropriate consideration for the additional construction rework.

- e. Increase quality assurance monitoring and validate the contractor's test and inspection processes and procedures at the Pueblo Chemical Agent-Destruction Pilot Plant and the Blue Grass Chemical Agent-Destruction Pilot Plant.**

*Program Executive Office, Assembled Chemical Weapons Alternatives and Executive Director, U.S. Army Contracting Command-Rock Island Comments*

The PEO ACWA, in coordination with the Executive Director, U.S. Army Contracting Command-Rock Island, agreed with our emphasis on the importance of quality assurance based on their statements on increased focus of quality assurance from the Construction phase to the Systemization phase. However, the quality assurance issues pointed out in the report with respect to the Agent Processing Building roof and the Super Critical Water Oxidation welds occurred during both project's Construction phase. The PEO ACWA increased quality assurance during the transition from the Construction phase to the Systemization phase, with a focus on the plant equipment, plant workforce, and plant documentation for both projects. In addition, Government Field Office staffing increased to support the additional scope. A significant increase in quality associated oversight by the PCAPP Field Office has been clearly evident during the Systemization phase of the project and continues to be refined in the Operations phase.

*Our Response*

Although PEO ACWA stated that they have made and will continue to make quality assurance improvements, documentation to support improvements were not provided as part of the management response, the improvements do not negate the fact that quality assurance was insufficient, did not meet contract requirements, and led to rework costing nearly \$23 million. Additionally, for the BGCAPP site, the Construction phase is ongoing and not complete. The recommendation is resolved but will remain open. We will close this recommendation when we verify that additional staffing has been added to assist with the quality assurance monitoring and validate the contractors' test and inspection processes and procedures.

## ***Recommendation 2***

**We recommend that the Director, Cost Assessment and Program Evaluation prepare an independent cost estimate for the ACWA program.**

### *Office of the DoD Cost Assessment and Program Evaluation Comments*

The Director, Cost Assessment and Program Evaluation, agreed with our recommendation, stating that Cost Assessment and Program Evaluation will add the ACWA program to the list of planned independent cost estimates to be completed in calendar year 2018.

### *Our Response*

The Director, Cost Assessment and Program Evaluation, agreed with the recommendation to prepare an independent cost estimate; therefore, the recommendation is resolved but will remain open. We will close this recommendation once the independent cost estimate is complete.

## Appendix A

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### Scope and Methodology

We conducted this performance audit from August 2016 through October 2017 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We interviewed the following DoD agencies to gather our audit documentation.

- PEO ACWA Headquarters
- Director, Cost Assessment and Program Evaluation
- PCAPP, Pueblo, Colorado
- BGCAPP, Blue Grass, Kentucky
- Rock Island Contracting Command
- Under Secretary of Defense for Acquisition, Technology, and Logistics
- Deputy Assistant Secretary of Defense for Developmental Test and Evaluation

From these sites and agencies, we gathered earned value management reports, program office estimates, contracts and contract modifications, the APB, defense acquisition executive summaries, and selected acquisition reports. We calculated the cost to complete the PCAPP and BGCAPP contracts using the May 2017 contractors' most likely estimate at completion contract variance. Because the contractors' estimate does not include unawarded contract phases, to estimate the total contract cost we applied the contractors' variance (PCAPP variance of 14 percent and BGCAPP variance of 7 percent) to the June 2017 program office cost estimate for the unawarded phases.<sup>21</sup> The PCAPP and BGCAPP calculated total contract costs and schedule completion dates are based on the contractors estimate at completion and do not reflect the additional cost and schedule increases identified in both the 2017 POE and the Office of the Director, Cost Assessment and Program Evaluation preliminary assessment. Also, we reviewed relevant Federal and DoD guidance related to program cost, schedule and performance and the destruction of U.S.-stockpiled chemical weapons.

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<sup>21</sup> PCAPP has awarded four out of five phases (Design, Construction, Systemization, and Operations). BGCAPP has awarded three of the five phases (Design, Construction, and Systemization).

## Use of Computer-Processed Data

We used computer-processed data provided by PEO ACWA officials. PEO ACWA officials provided monthly earned value management reports that track the contractor's performance in terms of cost and schedule on the PCAPP and BGCAPP contracts. The Defense Contract Management Agency validated the contractor's earned value management system; therefore, we determined that the data was sufficiently reliable to support our findings and conclusions.

## Use of Technical Assistance

We requested assistance from the Technical Assessment Division to review quality assurance documents from PCAPP and BGCAPP, including condition reports, quality assurance plans, quality surveillance plans, and statements of work.

## Prior Coverage

During the last 5 years, the Government Accountability Office (GAO) five reports discussing the ACWA program. Unrestricted GAO reports can be accessed at <http://www.gao.gov>.

### **GAO**

Report No. GAO-17-333SP, "Assessments of Selected Weapon Programs," March 30, 2017

The GAO's annual assessment of DoD weapon system acquisitions highlights the cost and schedule performance of several programs, including cost overruns of the ACWA program.

Report No. GAO-16-329SP, "Assessments of Selected Weapon Programs," March 31, 2016

The GAO's annual assessment of DoD weapon system acquisitions highlights the cost and schedule performance of several programs, including cost overruns of the ACWA program.

Report No. GAO-15-342SP, "Assessments of Selected Weapon Programs," April 9, 2015

The GAO's annual assessment of DoD weapon system acquisitions highlights the cost and schedule performance of several programs, including cost overruns of the ACWA program.

Report No. GAO-14-340SP, "Assessments of Selected Weapon Programs," March 31, 2014

The GAO's annual assessment of DoD weapon system acquisitions highlights the cost and schedule performance of several programs, including cost overruns of the ACWA program.

Report No. GAO-13-294SP, "Assessments of Selected Weapon Programs," March 28, 2013

The GAO's annual assessment of DoD weapon system acquisitions highlights the cost and schedule performance of several programs, including cost overruns of the ACWA program.

## Appendix B

### PCAPP and BGCAPP Contract Inspection Clauses

Inspection Clauses	PCAPP Contract DAAA09-02-D-0025	PCAPP Contract W52P1J-09-C-0012	BGCAPP Contract DAAA09-03-D-0023	BGCAPP Contract W52P1J-09-C-0013	Current Version
52.246-1 Contractor Inspection Requirement	<b>Not Included</b>	Included	<b>Not Included</b>	<b>Not Included</b>	Yes, April 1984 Version
52.246-2 Inspection of Supplies – Fixed Price	<b>Not Included</b>	Included	Included	Included	Yes, August 1996 Version
52.246-3 Inspection of Supplies – Cost Reimbursement	Included	Included	Included	Included	Yes, May 2001 Version
52.246-4 Inspection of Services – Fixed Price	<b>Not Included</b>	Included	Included	Included	Yes, August 1996 Version
52.246-5 Inspection of Services – Cost Reimbursement	Included	Included	Included	Included	Yes, April 1984 Version
52.246-11 Higher-Level Contract Quality Requirement	Included	Included	Included	Included	<b>No, Contracts have February 1999 and July 2001 Versions; latest is December 2014</b>
52.246-12 Inspection of Construction	<b>Not Included</b>	Included	<b>Not Included</b>	Included	Yes, August 1996 Version
52.246-13 Inspection – Dismantling, Demolition, or Removal of Improvements	<b>Not Included</b>	Included	<b>Not Included</b>	Included	Yes, August 1996 Version
52.246-15 Certificate of Conformance	Included	Included	Included	Included	Yes, April 1984 Version
52.246-16 Responsibility for Supplies	Included	Included	Included	Included	Yes, April 1984 Version

## Appendix C

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### ACWA Acquisition Program Baseline History

The Under Secretary of Defense for Acquisition, Technology, and Logistics approved the original ACWA program APB on April 2, 2003. The original cost of the program was \$4.5 billion. The PEO ACWA's 2017 program office estimate states the program's cost to be \$12.1 billion.

The APB is an agreement between the PEO and the milestone decision authority that identifies the desired and minimum acceptable cost, schedule, and performance requirements of the program. Funding for the ACWA program is composed of research, development, test and evaluation, and military construction.

#### *Acquisition Program Baseline Cost*

The ACWA program has deviated three times from the APB, which required the PEO and milestone decision authority to adopt a new APB agreement. In 2006, the ACWA program experienced a critical deviation, resulting in the issuance of a second APB in April 2007. The cost deviation related to significant cost drivers from design immaturity, incorporation of lessons learned from other facilities, and funding instability.

In December 2010, the ACWA program experienced another critical deviation, which resulted in the third APB dated March 2012. The leading cost driver for this deviation was the program's process for dealing with uncertainty and risk inherent in large construction projects that develop and use new processes, handle dangerous materials, and are subject to comprehensive regulation. The expanded use of explosive destruction technology at both sites and the plan to run operations on a 24/7 schedule also contributed to cost growth. In April 2017, the ACWA program significantly deviated from the approved cost and exceeded schedule estimates in its APB dated March 2012. For details see report section "ACWA Acquisition Program Baseline Cost and Schedule Overages." Table 9 illustrates the ACWA program cost growth.

Table 9. ACWA Program Acquisition Baseline Cost Growth (Millions in Base Year 2011 Dollars)

	APBH April 2003	APB April 2007	APB March 2012
Research, Development, Test and Evaluation	\$4,025.9	\$6,280.9	\$8,615.5
Military Construction	472.2	910.0	1,365.3
<b>Total</b>	<b>\$4,497.0</b>	<b>\$7,190.0</b>	<b>\$9,980.8</b>

Source: 2015 Selected Acquisition Report.

### Acquisition Program Baseline Schedules

The ACWA program's cost and schedule history illustrates the program's overall struggle to stay within the APB while meeting performance requirements. The following Tables show the ACWA program schedule milestones at each APB update. PCAPP and BGCAPP have separate schedule milestones. Table 10 shows the changes in the ACWA program APB schedule milestones between the three established APBs for PCAPP. The dates represent the desired and minimum acceptable dates for completion.

Table 10. Pueblo Chemical Agent-Destruction Pilot Plant Schedule

PCAPP Events	APB April 2003	APB April 2007	APB March 2012
Submit Permit Applications	March 2003/ March 2004	December 2003*	December 2003*
Begin Construction	August 2003/Aug 2004	August 2004*	August 2004*
Begin Operations	April 2009/April 2010	January 2015/ January 2016	September 2016*
Complete Operations	April 2010/April 2011	November 2020/ Nov 2021	November 2019/ November 2020
Complete Closure	December 2013/ December 2014	October 2024/ October 2025	November 2022/ November 2023

\* We entered the date of completion for phases that have already occurred.

Source: 2004, 2010, and 2016 Selected Acquisition Report.

Table 11 shows the changes in the ACWA program APB schedule milestones between the three established APBs for BGCAPP. The dates represent the desired and minimum acceptable dates for completion.

*Table 11. Blue Grass Chemical Agent-Destruction Pilot Plant Schedule*

BGCAPP Events	APB April 2003	APB April 2007	APB March 2012
Submit Permit Applications	December 2003/ December 2004	September 2004*	December 2003*
Begin Construction	September 2004/ September 2005	September 2005*	August 2004*
Begin Operations	TBD	January 2017/ January 2018	September 2016*
Complete Operations	TBD	October 2023/ October 2024	November 2019/ November 2020
Complete Closure	TBD	August 2027/ August 2028	November 2022/ November 2023

\* We entered the date of completion for phases that have already occurred.

Source: 2004, 2010, and 2016 Selected Acquisition Report.

### *Acquisition Program Baseline Performance Requirements*

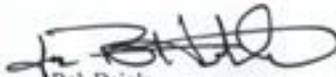
The performance requirements in the APB are the same for both the PCAPP and BGCAPP. The performance requirements address:

- environmental laws and regulations,
- safety and occupational health laws and regulations,
- chemical agent release, and
- chemical agent exposure.

As of May 2017, the ACWA program is on track to meet performance requirements.

## Management Comments

### Director, Cost Assessment and Program Evaluation Office

	<b>OFFICE OF THE SECRETARY OF DEFENSE</b> 1800 DEFENSE PENTAGON WASHINGTON, D.C. 20301-1800
COST ASSESSMENT AND PROGRAM EVALUATION	NOV 13 2017
MEMORANDUM FOR INSPECTOR GENERAL, DEPARTMENT OF DEFENSE	
SUBJECT: CAPE Response on DoD IG Report on Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program (ACWA)	
I concur with comment on the Draft Report "Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program," (Project No. D2016-D000AE-0190.000) (UNCLASSIFIED), and provide the comment below.	
The report forecasts that Pueblo Chemical Agent Destruction Pilot Plant (PCAPP) and Blue Grass Chemical Agent Destruction Pilot Plant (BGCAPP) will have total contracted costs of \$9.7 billion. Unfortunately, the forecast in the report was prepared prior to the more recent 2017 Program Office Estimate (POE) of \$12.7 billion for these activities. The 2017 POE is higher than the contractor's estimate at completion because it accounts for realized growth in schedule duration, increased staffing requirements, and additional scope such as the utilization of explosive detonation technology. You should also be aware that ACWA program schedule performance has deteriorated since completion of the 2017 POE. Therefore, I recommend that you update the report to acknowledge the more recent forecasts of ACWA program costs which are higher than those presented in the report.	
I also concur with recommendation #2 in the report. CAPE will add the ACWA program to the list of planned Independent Cost Estimates (ICEs) to be completed in CY 2018.	
My POC for the review of this report [REDACTED]	
 Bob Daigle Director	

## Program Executive Officer, Assembled Chemical Weapons Alternatives



DEPARTMENT OF THE ARMY  
PROGRAM EXECUTIVE OFFICE  
ASSEMBLED CHEMICAL WEAPONS ALTERNATIVES  
5183 BLACKHAWK ROAD  
ABERDEEN PROVING GROUND, MARYLAND 21010-5424

REPLY TO  
ATTENTION OF:

SFAE-ACW-Z

6 November 2017

MEMORANDUM FOR Ms. Susan Lippolis, Program Director, Acquisition and Sustainment Management, Office of the Department of Defense Inspector General, 4800 Mark Center Drive, Alexandria, VA 22350-1500

SUBJECT: Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program (Project No. D2016-D000AE-0190.000)

1. Reference Report, Department of Defense Inspector General (DoD IG), subject as above, 5 October 2017.
2. The Program Executive Office, Assembled Chemical Weapons Alternatives (PEO ACWA) is in receipt of the subject report and non-concurs with the finding as written. The complexity and uniqueness of the Chemical Demilitarization Program (CDP), especially as it pertains to the ACWA program's first-of-a-kind pilot plants, should be clearly articulated up front in order to provide the proper perspective. In addition, the cornerstone of the program is maximum protection of the workforce, the public, and the environment. As such, your evaluation of that portion of your review should be outlined at the beginning of the report to clearly portray that life, safety, and health are of utmost importance to the program and are absolutes with respect to meeting those performance requirements. The fact that the program has an outstanding safety culture and has not experienced an incident of chemical agent release or exposure, as pointed out in your finding, is extremely significant as either has the potential to shut down the program and would have significant cost and schedule ramifications.
3. I assumed the PEO position in June 2017. I have challenged the team to identify potential initiatives that, if implemented, would put the program on a path to complete destruction in accordance with the Congressionally-mandated date of December 2023. Cost-plus contracts were awarded in 2002 and 2003 requiring the Systems Contractors (SC) to design, construct, systemize, operate and close the chemical agent-destruction pilot plants. This contract type was selected due to the risk associated with the CDP and a design did not exist at the time of the awards. The switch from cost-plus incentive fee to award fee was needed to focus on the total program execution vice focusing on specific incentives which didn't yield the performance execution needed for chemical demilitarization.

## Program Executive Officer, Assembled Chemical Weapons Alternatives Program (cont'd)

SFAE-ACW-Z

SUBJECT: Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program (Project No. D2016-D000AE-0190.000)

4. The responses to recommendations 1a-e follow.

a. Recommendation 1a: Determine award fees based on the contractor's actual performance during the award fee period, not on projected cost, schedule, and performance in later periods.

Response: Non-Concur. The guiding concept for specific criteria in the current award fee plans is "to motivate the Systems Contractor (SC) to achieve timely execution of ALL phases of the project, and ultimately to achieve destruction of the chemical agent materiel stockpile in a cost effective manner utilizing quality management techniques for continuous improvement toward accomplishment of the mission while maintaining excellent performance in safety, surety, environmental compliance, and overall management of the project." It is not in the program's best interest to disregard, during award fee determinations, current contractor performance that could result in positive or negative future impacts to ALL phases of the program. The recommendation would only allow the Government to consider the impact of actions of the contractor during the current period. This would simultaneously provide little motivation for the contractor to pursue thoughtful, innovative cost and schedule savings measures for program success, while motivating them to engage in myopic, short-term behavior that will have short-term, positive impacts but may have longer-term implications. The U.S. Army Contracting Command-Rock Island (ACC-RI) will continue to ensure award fee determinations are made in accordance with the compliant award fee plans incorporated into the contracts.

b. Recommendation 1b: Convene a working group of DoD subject matter experts to help determine the best way to structure the additional incentive to motivate the contractors to reduce costs at the Pueblo Chemical Agent-Destruction Pilot Plant and the Blue Grass Chemical Agent-Destruction Pilot Plant and achieve an accelerated safe destruction of the remaining chemical weapons.

Response: Concur in principle. The overall program incentive plan has already been crafted and staffed. The PEO ACWA and ACC-RI presented the incentive approach to the Director, Defense Policy/Defense Procurement and Acquisition Policy (DPAP) in July 2017 with a positive endorsement. The incentive was developed by a team comprised of both Industry and Government experts. Department of Defense subject matter experts outside of the drafting team were also consulted including, but not limited to, personnel from the Defense Acquisition University, Army Contracting Command price/cost analysts, and other Acquisition Category 1 program key personnel. Better Buying Power concepts and DPAP incentive training concepts were considered and incorporated. Further, the team included members who participated in the crafting of the Incineration Baseline Completion Incentive Agreement. The

## Program Executive Officer, Assembled Chemical Weapons Alternatives Program (cont'd)

SFAE-ACW-Z

SUBJECT: Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program (Project No. D2015-D000AE-0190.000)

incentive had a significant impact by transferring complete ownership to the SCs which resulted in schedule acceleration in destroying the chemical munitions stockpiles, cost savings against the contract, and savings/avoidance against the Incineration Baseline Chemical Demilitarization Acquisition Program Baseline for the facilities in Anniston, AL; Umatilla, OR; Pine Bluff, AR, and Tooele, UT.

c. Recommendation 1c: Analyze the rework performed at the Pueblo Chemical Agent-Destruction Pilot Plant and the Blue Grass Chemical Agent-Destruction Pilot Plant to determine the cost of additional rework.

Response: Non-Concur. Please see comment to recommendation 1d below. There is no legal recourse to recoup funds for rework in the cost reimbursement contracts.

d. Recommendation 1d: Based on the cost of additional rework, obtain the appropriate consideration to recoup funds paid by the Government.

Response: Non-Concur. The statement contained in the report that payments to correct quality deficiencies were erroneous is incorrect. Both Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) and the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) are cost reimbursement contracts. Because of the complex nature of the first-of-a-kind plant and equipment, this research and development program received permission to include the construction requirements on a cost reimbursable basis. As such, the correct applicable contract clauses are those shown in the subject report Appendix B, Federal Acquisition Regulation clauses 52.246-3 Inspection of Supplies-Cost Reimbursement and 52.246-5 Inspection of Services-Cost Reimbursement, which do not provide for the contractual remedies the recommendation would require. The clauses allow for the Government to require the Contractor to replace or correct any supplies and services that are nonconforming at time of delivery or specified amount of time after delivery. However, the costs for rework (replacement, correction, re-performance) are allowable costs, determined as provided in the Allowable Cost and Payment clause, but no additional fee is paid. The only instance that would provide for recoupment as recommended would be under 52.246-3 Inspection of Supplies-Cost Reimbursement; a determination that the original non-conformances are due to: (1) Fraud, lack of good faith, or willful misconduct on the part of the Contractor's managerial personnel; or (2) The conduct of one or more of the Contractor's employees selected or retained by the Contractor after any of the Contractor's managerial personnel has reasonable grounds to believe that the employee is habitually careless or unqualified. For purposes of the clauses, "Contractor's managerial personnel" means any of the Contractor's directors, officers, managers, superintendents, or equivalent representatives who have supervision or

## Program Executive Officer, Assembled Chemical Weapons Alternatives Program (cont'd)

SFAE-ACW-Z

SUBJECT: Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program (Project No. D2016-D000AE-0190.000)

direction of (1) all or substantially all of the Contractor's business; (2) all or substantially all of the Contractor's operation at any one plant or separate location where the contract is being performed; or (3) a separate and complete major industrial operation connected with the performance of this contract. No such allegations have been made.

e. Recommendation 1e: Increase quality assurance monitoring and validate the contractor's test and inspection processes and procedures at the Pueblo Chemical Agent-Destruction Pilot Plant and the Blue Grass Chemical Agent-Destruction Pilot Plant.

Response: Concur; however, we do not agree that quality assurance oversight was insufficient. The quality issues pointed out in the report with respect to Supercritical Water Oxidation welds and the Agent Processing Building Roof occurred during both project's Construction phase. PEO ACWA increased quality assurance during the transition from the construction phase to the systemization phase with a focus on the plant equipment, plant workforce, and plant documentation (standard operating procedures) for both projects. In addition, government field office staffing increased to support the additional scope. The staffing increase includes Government Shift Representatives who will oversee 24/7 operations. A significant increase in quality-associated oversight by the PCAPP Field Office has been clearly evident during the Systemization phase of the project and continues to be refined in the Operations phase.

5. The responses have been coordinated with ACC-RI.

6. My point of contact for this action [REDACTED]

MILCHLING SUZANNE  
NE.S 1229333557

SUZANNE S. MILCHLING  
Program Executive Officer

CF:

Dr. Arthur T. Hopkins, Acting Assistant Secretary of Defense (Nuclear, Chemical, and Biological Defense Programs), 3050 Defense Pentagon, Room 3B883, Washington, DC 20301-3050

Ms. Steffanie B. Easter, Special Advisor to the Acting Assistant Secretary of the Army (Acquisition, Technology and Logistics), 103 Army Pentagon, Room 2E532, Washington, DC 20310-0103

## Program Executive Officer, Assembled Chemical Weapons Alternatives Program (cont'd)

SFAE-ACW-Z  
SUBJECT: Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program (Project No. D2016-D000AE-0190.000)

CF: (CONT)  
Mr. Jay T. Carr, Executive Director, U.S. Army Contracting Command-Rock Island,  
3055 Rodman Avenue, Rock Island, IL 61299-8000  
Ms. Christine K. Berry, U.S. Army Contracting Command-Rock Island, 3055 Rodman  
Avenue, Rock Island, IL 61299-8000

## Executive Director, U.S. Army Contracting Command-Rock Island



**UNCLASSIFIED**  
**DEPARTMENT OF THE ARMY**  
 ARMY CONTRACTING COMMAND – ROCK ISLAND  
 3355 Rodman Avenue  
 ROCK ISLAND, IL 61299-8000

CCRC

7 November 2017

MEMORANDUM FOR U.S. Department of Defense Inspector General (DoDIG), 4800 Mark Center Drive, Alexandria, Virginia 22350-1500

SUBJECT: U.S. Army Contracting Command-Rock Island (ACC-RI) Responses to Recommendations in the U.S. Department of Defense Inspector General Draft Report, Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program

1. Reference: Draft Report, U.S. Department of Defense Inspector General (DoDIG), Subject: Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program, (Project No. D2016-D000AE-0190.000) dated 5 October 2017.
2. We have reviewed the subject audit draft report and recommendations. The requested responses are in the attached document.
3. The ACC-RI acquisition workforce professionals assigned to the Program Executive Office, Assembled Chemical Weapons Alternatives (PEO ACWA) Program are fully engaged in the PEO's directive to identifying potential initiatives to put the program on a path to complete destruction in accordance with the Congressionally-mandated date of December 2023; and to identify potential cost and schedule saving initiatives.
4. The responses to the recommendations have been coordinated with PEO ACWA.
5. The point of contact [REDACTED]

Encl

CARR, JAY THOM  
 AS 1137572326

JAY T. CARR  
 Executive Director

## Executive Director, U.S. Army Contracting Command-Rock Island (cont'd)

### UNCLASSIFIED

SUBJECT: U.S. Army Contracting Command-Rock Island (ACC-RI) Responses to Recommendations in the U.S. Department of Defense Inspector General Draft Report, Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program

Finding: The PEO ACWA did not effectively manage the ACWA program cost, schedule, and performance. The ACWA program increase in cost and schedule occurred because the PEO ACWA and the PCAPP and BGCAPP contracting officers did not provide adequate contract oversight. Specifically, PEO ACWA officials and the PCAPP and BGCAPP contracting officers:

- did not effectively manage contractor performance through incentive fee and award fee contracts,
- erroneously paid about \$23 million to the contractors to correct quality deficiencies, and
- did not provide sufficient quality assurance oversight related to ductwork, boilers, and welds.

#### Recommendation 1:

The DoDIG recommends that the Program Executive Officer Assembled Chemical Weapons Alternatives, in coordination with the Executive Director, U.S. Army Contracting Command-Rock Island:

- a. Determine award fees based on the contractor's actual performance during the award fee period, not on projected cost, schedule, and performance in later periods.

#### ACC-RI COMMENT:

Non-Concur. The guiding concept for specific criteria in the current award fee plans is "to motivate the SC (systems contractor) to achieve timely execution of ALL phases of the project, and ultimately to achieve destruction of the chemical agent material stockpile in a cost effective manner utilizing quality management techniques for continuous improvement toward accomplishment of the mission while maintaining excellent performance in safety, surety, environmental compliance, and overall management of the project." (Emphasis added.) It is not in the PEO ACWA program's best interest to disregard during award fee determinations current contractor performance that could result in positive or negative future impacts to ALL phases of the program. The recommendation would only allow the Government to consider the impact of actions of the contractor during the current period. This would simultaneously provide little motivation for the contractor to pursue thoughtful, innovative cost and schedule savings measures for program success, while motivating them to engage in myopic, short term behavior that will have short term positive impacts but may have longer term implications.

ACC-RI will continue to ensure that Award Fee Determining Official award fee determinations are in accordance with the compliant award fee plans incorporated into the contracts.

## Executive Director, U.S. Army Contracting Command-Rock Island (cont'd)

### UNCLASSIFIED

SUBJECT: U.S. Army Contracting Command-Rock Island (ACC-RI) Responses to Recommendations in the U.S. Department of Defense Inspector General Draft Report, Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program

#### Recommendation 1:

b. Convene a working group of DoD subject matter experts to help determine the best way to structure the additional incentive to motivate the contractors to reduce costs at the Pueblo Chemical Agent-Destruction Pilot Plant and the Blue Grass Chemical Agent-Destruction Pilot Plant and achieve an accelerated safe destruction of the remaining chemical weapons.

#### ACC-RI COMMENT:

Concur, in principle. PEO ACWA and ACC-RI has already crafted and staffed the overall program incentive plan. The PEO ACWA and ACC-RI presented the incentive approach to the Director, Defense Policy/Defense Procurement and Acquisition Policy in July 2017 with a positive endorsement. A team of Industry and Government experts developed the incentive. DoD subject matter experts outside of the drafting team were also consulted, including, but not limited to, personnel from the Defense Acquisition University, Army Contracting Command Price/Cost Analysts, and other ACAT 1 Program Key Personnel. The team considered and incorporated Better Buying Power concepts and DPAP incentive training concepts. Further, the team included members who participated in the crafting of the Incineration Baseline Completion Incentive Agreement. The incentive had a significant impact by transferring complete ownership to the Systems Contractors which resulted in schedule acceleration in destroying the chemical munitions stockpiles, cost savings against the contract, and savings/avoidance against the Incineration Baseline Chemical Demilitarization Acquisition Program Baseline for the facilities in Anniston, AL; Umatilla, OR; Pine Bluff, AK, and Tooele, UT.

#### Recommendation 1:

c. Analyze the rework performed at the Pueblo Chemical Agent-Destruction Pilot Plant and the Blue Grass Chemical Agent-Destruction Pilot Plant to determine the cost of additional rework.

#### ACC-RI COMMENT:

Non-Concur. Please see comment to recommendation 1.d. below. Since there is not a legal recourse to obtain the recoup for rework in the cost reimbursement contracts, it is not necessary to determine an amount to recoup.

#### Recommendation 1:

d. Based on the cost of additional rework, obtain the appropriate consideration to recoup funds paid by the Government.

## Executive Director, U.S. Army Contracting Command-Rock Island (cont'd)

### UNCLASSIFIED

SUBJECT: U.S. Army Contracting Command-Rock Island (ACC-RI) Responses to Recommendations in the U.S. Department of Defense Inspector General Draft Report, Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program

#### ACC-RI COMMENT:

Non-Concur. The statement contained in the report that payments to correct quality deficiencies were erroneous is incorrect. Both BGCAPP and PCAPP are cost reimbursement contracts. Because of the complex nature of the first of a kind plant and equipment, this research and development program executes construction requirements on a cost reimbursable basis. As such, the correct applicable contract clauses are those shown in the subject report Appendix B, Federal Acquisition Regulation clauses 52.246-3 Inspection of Supplies-Cost Reimbursement and 52.246-5 Inspection of Services-Cost Reimbursement, which do not provide for the contractual remedies the recommendation would require.

The clauses allow for the Government to require the Contractor to replace or correct any supplies and services that are nonconforming at time of delivery or specified amount of time after delivery. However, the costs for rework (replacement, correction, and re-performance) are allowable costs, determined as provided in the Allowable Cost and Payment clause, but no additional fee is paid.

The only instance that would provide for recoupment as recommended would be under 52.246-3- Inspection of Supplies- Cost Reimbursement; a determination that the original nonconformances are due to:

- (1) Fraud, lack of good faith, or willful misconduct on the part of the Contractor's managerial personnel; or
- (2) The conduct of one or more of the Contractor's employees selected or retained by the Contractor after any of the Contractor's managerial personnel has reasonable grounds to believe that the employee is habitually careless or unqualified.

For purposes of the clauses, "Contractor's managerial personnel" means any of the Contractor's directors, officers, managers, superintendents, or equivalent representatives who have supervision or direction of—

- (1) All or substantially all of the Contractor's business;
- (2) All or substantially all of the Contractor's operation at any one plant or separate location where the contract is being performed; or
- (3) A separate and complete major industrial operation connected with the performance of this contract.

ACC-RI has not received any such allegations.

## Executive Director, U.S. Army Contracting Command-Rock Island (cont'd)

### UNCLASSIFIED

SUBJECT: U.S. Army Contracting Command-Rock Island (ACC-RI) Responses to Recommendations in the U.S. Department of Defense Inspector General Draft Report, Chemical Demilitarization-Assembled Chemical Weapons Alternatives Program

#### Recommendation 1:

e. Increase quality assurance monitoring and validate the contractor's test and inspection processes and procedures at the Pueblo Chemical Agent- Destruction Pilot Plant and the Blue Grass Chemical Agent-Destruction Pilot Plant.

#### ACC-RI COMMENT:

Concur. This is not an agreement that quality assurance oversight was insufficient. The quality issues pointed out in the report with respect to Supercritical Water Oxidation welds and the Agent Processing Building Roof occurred during both project's Construction phase. PEO ACWA increased quality assurance during the transition from the construction phase to the systemization phase with a focus on the plant equipment, plant workforce, and plant documentation (standard operating procedures) for both projects. In addition, government field office staffing increased to support the additional scope involved with systemizing and operating the plants. The staffing increase includes Government Shift Representatives who will oversee 24/7 operations. A significant increase in quality-associated oversight by the PCAPP Field Office has been clearly evident during the Systemization phase of the project and continues to be refined in the Operations phase.

## Acronyms and Abbreviations

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<b>ACWA</b>	Assembled-Chemical Weapons Alternative
<b>APB</b>	Acquisition Program Baseline
<b>BGCAPP</b>	Blue Grass Chemical Agent-Destruction Pilot Plant
<b>PCAPP</b>	Pueblo Chemical Agent-Destruction Pilot Plant
<b>PEO</b>	Program Executive Office

# **Whistleblower Protection**

## **U.S. DEPARTMENT OF DEFENSE**

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