Department of Defense Report

Chemical Demilitarization Program

Semi-Annual Report to Congress

May 2009

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Department of Defense (DoD) Chemical Demilitarization Program (CDP) Semi-Annual Report to Congress for May 2009

Executive Summary

As required by section 8119 of the Department of Defense Appropriations Act, 2008 (Public Law (PL) 110-116) and section 922(c) of the National Defense Authorization Act for Fiscal Year 2008 (PL 110-181), the May 2009 Department of Defense (DoD) Chemical Demilitarization Program (CDP) Semi-Annual Report to Congress presents information describing DoD's progress toward destruction of the U.S. stockpile of lethal chemical agents and munitions by the Chemical Weapons Convention (CWC) deadline of April 29, 2012, and not later than December 31, 2017. This report provides the results of the review by the DoD from assessments conducted to identify options to accelerate destruction of the remaining chemical weapons stockpile, and the current path forward resulting from that review. In addition, as required by section 922 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (PL 110-417), this report provides the results from a recent assessment on on-site and off-site treatment and disposal of secondary wastes, including hydrolysates, conducted by the Program Manager, Assembled Chemical Weapons Alternatives (PM ACWA).

As of April 25, 2009, 60.0 percent of the U.S. stockpile declared under the CWC has been destroyed. The U.S. Army Chemical Materials Agency (CMA) is responsible for the destruction of 90 percent of the U.S. stockpile located at seven locations: Johnston Atoll; Aberdeen, Maryland; Anniston, Alabama; Tooele, Utah; Pine Bluff, Arkansas; Newport, Indiana; and Umatilla, Oregon. Destruction operations at Johnston Atoll; Aberdeen, Maryland; and Newport, Indiana were completed in 2000, 2006 and 2008, respectively. CMA continues to show encouraging progress toward completing its mission ahead of estimates reported in the September 2008 Exception Selected Acquisition Report. The ACWA Program is responsible for destroying the remaining 10 percent of the original chemical weapons stockpile located at Pueblo Chemical Depot, Colorado, and Blue Grass Army Depot, Kentucky. Destruction facilities at these two locations are currently under construction.

In 2008, the DoD conducted assessments to define alternatives for destroying the remaining chemical weapons stockpile by the 2012 CWC deadline, but not later than the 2017 congressional deadline. The June 2008 Semi-Annual Report identified three options to destroy the remaining chemical weapons stockpile. The options were to: 1) provide performance incentives to ensure destruction is complete by 2012 at CMA sites; 2) transport portions of the stockpile to operational chemical weapons destruction facility locations; and 3) accelerate the ACWA Program sites' destruction schedules. The DoD review has concluded that there are no realistic options available to destroy the complete U.S. stockpile by the CWC deadline of April 2012. To achieve the congressional

destruction mandate of 2017, only transporting portions of the stockpile to currently operating destruction facilities showed any reasonable probability of success, and this option is precluded by law.

As part of the DoD assessment, the DoD incorporated the results from two recent studies on treatment and disposal of secondary waste hydrolysate. The studies conducted by the National Research Council and the Noblis Corporation concluded that a decrease in the life-cycle cost estimates at both facilities is possible with a decision to use off-site treatment and disposal of hydrolysate. However, the potential exists to extend the completion dates from one to five months at both sites.

The DoD's proposed plan is to seek additional resources to: 1) aim toward CMA completing destruction operations of all the U.S. chemical stockpile under their purview (90 percent of the U.S. stockpile) by 2012 utilizing performance incentives and risk mitigation actions; and 2) accelerate the ACWA Program schedule toward completing destruction of an additional eight percent of the U.S. stockpile at Pueblo in 2017 and the remaining two percent of the U.S. stockpile at Blue Grass in 2021, resulting in an acceleration in destruction of 3 years at Pueblo and 2 years at Blue Grass. On-site destruction of hydrolysate at Pueblo and Blue Grass will continue, unless technical difficulties arise. As such, the President's FY10 Budget request reflects an increase in funding for the ACWA Program.

The DoD will continue down the proposed path by continuing to progress with successful destruction operations at CMA facilities and by accelerating the ACWA program activities at the Pueblo and Blue Grass facilities. In addition, the DoD will continue working to minimize the time required to complete destruction of the remaining chemical weapons stockpile without sacrificing safety and security, through the continued use of performance incentives, risk mitigation, application of lessons learned from on-going operations, and effective stewardship of available fiscal resources.

Chemical Demilitarization Program
Semi-Annual Report to Congress
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INTRODUCTION

This report provides: 1) DoD's progress toward destruction of the U.S. stockpile of lethal chemical agents and munitions by the Chemical Weapons Convention (CWC) deadline of April 29, 2012, but not later than December 31, 2017; 2) the results of the assessment review to accelerate destruction; and 3) the incorporation of the results of the cost benefit analysis for off-site treatment and disposal of hydrolysate at Pueblo, Colorado, and Blue Grass, Kentucky as part of the assessment review.

REPORTING REQUIREMENTS

- Section 8119(b) of the Department of Defense Appropriations Act, 2008 (PL 110-116) requires that not later than December 31, 2007, and every 180 days thereafter, the Secretary of Defense shall submit a report on the progress of the DoD toward compliance with destruction of the U.S. stockpile of lethal chemical agents and munitions, including those stored at Blue Grass Army Depot, Kentucky, and Pueblo Chemical Depot, Colorado, by the deadline established by the CWC, and in no circumstances later than December 31, 2017.

- Section 922(c) of the National Defense Authorization Act for Fiscal Year 2008, (PL 110-181) requires not later than March

Section 8119(b) of Public Law 110-116

The report shall include:

- Updated and projected annual funding levels necessary to achieve full compliance with this section
- Projected funding levels for each report shall include a detailed accounting of the complete life-cycle costs for each of the chemical disposal projects.

Section 922(c) of Public Law 110-181

The report shall include:

- Projected funding levels for each report shall include a detailed accounting of the complete life-cycle costs for each of the chemical disposal projects. The anticipated schedule at the time of such report for the completion of destruction of chemical agents, munitions, and materiel at each chemical weapons demilitarization facility in the U.S.
- A description of the options and alternatives for accelerating the completion of chemical weapons destruction at each such facility, particularly in time to meet the destruction deadline of April 29, 2012, currently provided by the CWC, and by December 31, 2017.
- A description of the funding required to achieve each of the options for destruction described under paragraph (2), and a detailed life-cycle cost estimate for each of the affected facilities included in each such funding profile.
- A description of all actions being taken by the U.S. to accelerate the destruction of its entire stockpile of chemical weapons, agents, and materiel in order to meet the current destruction deadline under the CWC of April 29, 2012, or as soon thereafter as possible.

15, 2008, and every 180 days thereafter until the year in which the U.S. completes the destruction of its entire stockpile of chemical weapons under the terms of the CWC, the Secretary of Defense shall submit a report on the implementation by the U.S. of its chemical weapons destruction obligations under the CWC.

- Section 922 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (PL 110-417) requires that Secretary of Defense submit a report in support of the Department of Defense budget for fiscal year 2010.

Section 922 of Public Law 110-417
Directs the Secretary of Defense:
- Perform a cost-benefit analysis of future on-site and off-site options for treatment and disposal of hydrolysate expected to be produced at the Pueblo Chemical Depot, Colorado.
- Submit the cost-benefit analysis to congress.

On January 24, 2008, the DoD submitted the first semi-annual report in accordance with section 8119 of PL 110-116. The DoD submitted the first semi-annual report in accordance with section 922 of PL 110-181 on April 3, 2008. The April 2008 semi-annual report informed Congress that the DoD would consolidate PLs 110-116 and 110-181 report requirements into a single report and report every six months beginning with the June 2008 submission. This is the second consolidated report submitted to Congress. Tables 1 and 2 below are the program cost and schedule estimates as reflected in the CMA and ACWA September 2008 Exception Selected Acquisition Reports (SARs) and as reported to Congress in previous Semi-Annual Reports and do not reflect acceleration options reviewed by the DoD.

Table 1. CDP September 2008 SAR Cost Estimate *(Then Year $M)*

Project/FY	Prior Years	FY09	FY10	Total
CMA	17,019.8	1,222.3	1,265.2	27,422.6
ACWA*	1,821.9	427.5	298.5	7,991.9
Total	18,841.7	1,649.8	1,563.7	35,414.5

CMA– U.S. Army Chemical Materials Agency ACWA – Assembled Chemical Weapons Alternatives
* Includes congressional increase of $30M in FY09

Table 2. CDP September 2008 SAR Schedule Estimate

	TOCDF	ANCDF	UMCDF	PBCDF	PCAPP	BGCAPP
Begin Construction	Oct-89	Feb-96	Feb-97	Feb-99	Aug-04	Sep-05
Begin Operations	Aug-96	Aug-03	Sep-04	Mar-05	Dec-16	Feb-21
Complete Operations	Jun-15	Nov-14	Aug-14	Apr-13	Nov-20	Oct-23

TOCDF – Toole Chemical Agent Disposal Facility
ANCDF – Anniston Chemical Agent Disposal Facility
UMCDF – Umatilla Chemical Agent Disposal Facility
PBCDF – Pine Bluff Chemical Agent Disposal Facility
PCAPP – Pueblo Chemical Agent-Destruction Pilot Plant
BGCAPP – Blue Grass Chemical Agent-Destruction Pilot Plant

DoD PROPOSED PATH FOR DESTRUCTION COMPLETION

The DoD reviewed options presented in the June 2008 Semi-Annual Report to Congress, those being: 1) to provide performance incentives to ensure destruction is complete by 2012 at CMA sites; 2) to transport portions of the stockpile to operational chemical weapons destruction facility locations; and 3) to accelerate the ACWA Program sites' destruction schedules. The DoD also incorporated results from two recent studies conducted by the National Research Council (NRC) on treatment and disposal of hydrolysate and the Noblis Corporation on associated cost and schedule impacts for the ACWA sites. The studies meet the requirements established by Congress in section 922 of PL 110-417 to report the cost-benefit analysis results of on-site and off-site options for treatment and disposal of hydrolysate produced at the ACWA Program facilities.

Based on the review, the DoD proposed path forward, as reflected in the FY10 President's Budget Request, is to: 1) aim towards CMA completing destruction operations by 2012 utilizing performance incentives and risk mitigation actions; and 2) accelerate the ACWA Program schedule from its Acquisition Program Baseline and work toward completing destruction of the Colorado stockpile on-site by 2017 and the Kentucky stockpile on-site by 2021. On-site destruction of hydrolysate at Pueblo and Blue Grass will continue, unless technical difficulties arise. This proposed path forward is expected to accelerate destruction at Pueblo by three years and at Blue Grass by two years.

Table 3 reflects funding realignment in FY 2010 of $150M annually to ACWA, and an additional $100M per year realigned from CMA to ACWA in FY10 based on the successes of the CMA program and commensurate risk mitigation. The CDP Schedule at Table 4 indicates the projected destruction completion dates for each remaining CWDF under the Table 3 funding profile.

Table 3. CDP FY10 President's Budget Request

Project/FY	Prior Years	FY09	FY10	Total
CMA	17,019.8	1,222.4	1,162.1	27,422.6
ACWA	1,822.4	427.5	545.2	8,426.9
Total	18,842.2	1,649.9	1,707.3	35,849.5

Table 4. CDP FY10 Schedule

	TOCDF	ANCDF	UMCDF	PBCDF	PCAPP	BGCAPP
Begin Construction	Oct-89	Feb-96	Feb-97	Feb-99	Aug-04	Sep-05
Begin Operations	Aug-96	Aug-03	Sep-04	Mar-05	May-14	Oct-18
Complete Operations	*	*	*	*	Sep-17	May-21

* CMA sites have continually exceeded the plan established in successive Current Working Estimates due to a concerted effort to identify and mitigate risks, leverage successes from one site to another and implement congressionally approved performance incentives to achieve specific operational milestones. As a result of these achievements and expected continuation of accelerated operations, CMA facilities remain on track to complete destruction operations of 90 percent of the U.S. chemical agent stockpile by the CWC 2012 deadline, provided technical, legal, and personnel risks continue to be successfully mitigated.

DoD REVIEW OF OTHER OPTIONS TO COMPLETE DESTRUCTION OPERATIONS BY 2012, BUT NOT LATER THAN 2017

Treatment And Disposal Of Secondary Waste Studies

Two studies on treatment and disposal of hydrolysate from the ACWA sites were commissioned by the PM ACWA and conducted by the National Research Council (NRC) and the Noblis Corporation. The following is a summary of the results of the NRC and Noblis studies and were incorporated in the options reviewed by DoD.

NRC Review of Secondary Waste Disposal Planning Report

On September 30, 2008, the NRC published a report[1] on secondary waste disposal planning. The NRC was charged to examine the environmental, regulatory and permit requirements for treatment, storage, and/or handling and shipping of secondary wastes to which CWDFs are subject on a federal and state basis. The NRC compared the requirements for CWDFs to those of similar facilities in industry that also treat, store, and/or handle and ship secondary wastes, with particular emphasis on industrial best practices. The study considered all secondary waste generated from the disposal processes and focused on the wastes that could be considered for off-site shipment.

The NRC recommendations included the following:

- *Because experience shows that off-site shipment and treatment of agent hydrolysates from Kentucky and Colorado are safe and technically viable, and in view of better analytical methods being developed, the PM ACWA should consider this option now, before the plants are built and operating, to maximize the benefit from such a change.*

- *The shipment offsite to an appropriate permitted treatment, storage and disposal facility (TSDF) of all types of wastes, including spent activated carbon and closure wastes, should be examined and given serious consideration in light of*

[1] National Research Council, *Review of Secondary Waste Disposal Planning for the Blue Grass and Pueblo Chemical Agent Destruction Pilot Plants*, 2008 (www.pmacwa.army.mil/ip/nrc_public_forum.html)

past experience showing that it is a technically viable and safe method of disposing of these wastes.

Noblis Study on the Off-Site Disposal of ACWA Hydrolysates[2]

The objective of November 2008 Noblis study was to determine the impacts on overall life cycle costs and schedules from disposal of Kentucky and Colorado facilities' hydrolysates at off-site, commercial TSDFs. The impacts on life cycle costs and stockpile destruction schedules were determined as a function of when such a decision is made. This study also assessed the affects on public safety associated with changes in the duration of stockpile storage and provided some perspectives on the local community risks of hazardous material shipments.

The major findings from the Noblis study were:

- *Off-site disposal of ACWA hydrolysates reduces Kentucky and Colorado equipment, facilities, and labor, as well as the overall project and process complexity.*

- *Off-site disposal could result in cost savings at both Kentucky and Colorado facilities. The magnitude of the cost savings depends on when the decision is made (the sooner the better) and the off-site disposal technology used. If an off-site decision is made in FY09, the maximum cost savings is about $52 million for Colorado and $202 million for Kentucky.*

- *The impacts on schedule from offsite disposal of hydrolysates vary from small decreases to very small increases. If an off-site decision is made in FY09, the potential exists to extend the completion dates from 1 to 5 months at both sites.*

- *Facilities are currently available for disposal of the hydrolysates, with deep-well injection the most economical. Although future availability of deep-well injection is not certain, some type of TSDF will be available.*

- *Many stakeholders would accept offsite disposal, but some opposition is inevitable, regardless of TSDF location or choice of off-site disposal technology.*

2012 CWC Mandate

The DoD review reaffirms the Secretary of Defense position of April 2006 that there are no options to achieve 100 percent destruction of the national stockpile by the 2012 deadline. However, operational CMA destruction facilities have continually exceeded

[2] www.pmacwa.army.mil/ip/nrc_public_forum.html

the planned rates due to a concerted effort to identify and mitigate risks, leverage successes from one site to another, and implement performance incentives to achieve specific operational milestones. As such, the CDP should be able to complete destruction operations of 90 percent of the U.S. stockpile before the CWC 2012 deadline, provided technical risks continue to be successfully mitigated and program funding remains stable.

2017 Congressional Mandate

Details of other options reviewed by DoD are discussed below in order of their ability to meet the 2017 mandate and reflect the funding profiles required to execute the option. In consultation with the systems contractors, the details include overall findings, the cost and the schedule estimate for completion.

- *Transport Portions of the Stockpile to Operational Chemical Weapons Destruction Facility (CWDF) Locations* - Transport the Kentucky stockpile to operational CWDF locations and accelerate Colorado to meet 2017.

  Findings:
  - Destruction of the entire stockpile by December 2017 does appear possible. Achieving this goal requires the following:
    - Change to section 1512a of title 50 United States Code, part of the National Defense Authorization Act for Fiscal Year 1995 (PL 103-337), to allow transportation of stockpile chemical munitions across state borders
    - Change in the law to address certain Federal and State environmental requirements
    - Modification of hazardous waste permits for the operating CWDFs receiving munitions from other sites
    - Substantial planning and preparation for movement of the Kentucky stockpile to Alabama and Arkansas over a period of three years
    - Cancellation of the military construction project at the Kentucky site
    - Increases in near-term staffing at the Colorado site for the construction phase and early start of the systemization phase
    - CMA facilities in Alabama and Arkansas to re-install and/or purchase dismantled equipment from previous weapons destruction campaigns and resume destruction operations for at least two (2) years.
  - Reduces program life-cycle costs approximately $2.1 billion as compared to the FY10 President's Budget Request (Tables 3 and 5 Total Program Cost comparison).
  - Shortens storage at the Kentucky site by six (6) years and thus reduces the potential risk to the Kentucky community; but extends destruction operations in Alabama and Arkansas by two and three years respectively (Tables 4 and 6 ANCDF and PBCDF completion date comparison).

Table 5. CDP Cost Estimate with Transportation of Blue Grass Stockpile

Project/FY	Prior Years	FY09	FY10	Total
CMA	17,019.8	1,222.4	1,428.8	29,081.8
ACWA	1,822.4	248.8	312.7	4,640.3
Total	18,842.2	1,471.2	1,741.5	33,722.1

Table 6. CDP Schedule Estimate with Transportation of Blue Grass Stockpile

	TOCDF	ANCDF	UMCDF	PBCDF	PCAPP	BGCAPP
Begin Construction	Oct-89	Feb-96	Feb-97	Feb-99	Aug-04	Sep-05
Begin Operations	Aug-96	Aug-03	Sep-04	Mar-05	Jan-15	
Complete Operations	Jun-15	Feb-17	Aug-14	Oct-16	Sep-17	

Note: ANCDF and PBCDF operations extends past 2012 but remain within current APB schedule.

- *Acceleration of ACWA Site Destruction Schedules* - Accelerate the ACWA Colorado and Kentucky CWDFs phases based on unconstrained resources to get as close to 2017 as practicable and treat hydrolysate on-site at PCAPP and BGCAPP.

  Findings:
  - Destruction of the Colorado stockpile by December 2017 does appear possible.
  - Destruction of the Kentucky stockpile by December 2017 does not appear possible, but appears to be possible to accelerate destruction by one year to May 2020 vice the May 2021 completion date identified in DoD's proposed path forward.
  - Requires the use of two destruction technologies for the destruction of the Kentucky stockpile – the explosive destruction technology for the mustard-filled munitions and the neutralization process for the remaining stockpile.
  - Requires significant near-term increases in staffing at Colorado and Kentucky sites for:
    - the construction phase
    - early start of the systemization phase
    - to support 24 hours per day at 7 days per week destruction operations
  - Reduces program life-cycle costs approximately $235 million as compared to the FY10 President's Budget Request (Tables 3 and 7 Total Program Cost comparison).

Table 7. CDP Cost Estimate with Accelerated ACWA and On-Site Hydrolysate Treatment

Project/FY	Prior Years	FY09	FY10	Total
CMA	17,019.8	1,222.4	1,162.1	27,422.6
ACWA	1,822.4	427.5	500.0	8,191.9
Total	18,842.2	1,649.9	1,662.1	35,614.5

Table 8. CDP Schedule Estimate with Accelerated ACWA and On-Site Hydrolysate Treatment

	TOCDF	ANCDF	UMCDF	PBCDF	PCAPP	BGCAPP
Begin Construction	Oct-89	Feb-96	Feb-97	Feb-99	Aug-04	Sep-05
Begin Operations	Aug-96	Aug-03	Sep-04	Mar-05	May-14	Oct-18
Complete Operations	*	*	*	*	Sep-17	May-20

***** CMA sites have continually exceeded the plan established in successive Current Working Estimates due to a concerted effort to identify and mitigate risks, leverage successes from one site to another and implement congressionally approved performance incentives to achieve specific operational milestones. As a result of these achievements and expected continuation of accelerated operations, CMA facilities remain on track to complete destruction operations of 90 percent of the U.S. chemical agent stockpile by the CWC 2012 deadline, provided technical, legal, and personnel risks continue to be successfully mitigated.

- *Acceleration of ACWA Site Destruction Schedules and Transport Hydrolysate Off-site from PCAPP and BGCAPP* - Accelerate the ACWA Colorado and Kentucky CWDFs phases to get as close to 2017 as practicable and transport the hydrolysate off-site for disposal rather than treating it on-site with Super Critical Water Oxidation (SCWO) at BGCAPP or Biotreatment at PCAPP to help off-set the additional funding requirements in the FY10-14 timeframe.

  Findings:
  - Destruction of the Colorado stockpile by December 2017 does appear possible.
  - Destruction of the Kentucky stockpile by December 2017 does not appear possible but accelerates destruction by one year to May 2020 vice the May 2021 completion date identified in DoD's proposed path forward.
  - Requires the use of two destruction technologies for the destruction of the Kentucky stockpile – the explosive destruction technology for the mustard-filled munitions and the neutralization process for the remaining stockpile.
  - Requires significant near-term increases in staffing at Colorado and Kentucky sites for:
    - the construction phase
    - early start of the systemization phase
    - to support 24 hours per day at 7 days per week destruction operations
  - Economic benefits to off-set the additional funding requirements at BGCAPP may not be realized because award of the contract modification for the balance of construction originally planned for December 2009 is now projected for the spring of 2010.
  - Economic benefits for PCAPP cannot be realized as construction of the PCAPP hydrolysate on-site treatment process has already begun.
  - Off-site treatment opposed by several groups.

Table 9. CDP Cost Estimate with Off-Site Disposal of PCAPP and BGCAPP Hydrolysate

Project/FY	Prior Years	FY09	FY10	Total
CMA	17,019.8	1,222.4	1,162.1	27,422.6
ACWA	1,822.4	378.0	451.0	8,177.7
Total	18,842.2	1,600.4	1,613.1	35,600.3

Table 10. CDP Schedule Estimate with Off-Site Disposal of PCAPP and BGCAPP Hydrolysate

	TOCDF	ANCDF	UMCDF	PBCDF	PCAPP	BGCAPP
Begin Construction	Oct-89	Feb-96	Feb-97	Feb-99	Aug-04	Sep-05
Begin Operations	Aug-96	Aug-03	Sep-04	Mar-05	May-14	Oct-18
Complete Operations	*	*	*	*	Sep-17	May-20

***** CMA sites have continually exceeded the plan established in successive Current Working Estimates due to a concerted effort to identify and mitigate risks, leverage successes from one site to another and implement congressionally approved performance incentives to achieve specific operational milestones. As a result of these achievements and expected continuation of accelerated operations, CMA facilities remain on track to complete destruction operations of 90 percent of the U.S. chemical agent stockpile by the CWC 2012 deadline, provided technical, legal, and personnel risks continue to be successfully mitigated.

- *Acceleration of ACWA Site Destruction Schedules and Transport Hydrolysate Off-site from BGCAPP* - Accelerate the ACWA Colorado and Kentucky CWDFs phases to get as close to 2017 as practicable and transport the hydrolysate off-site for disposal rather than treating it on-site with SCWO at BGCAPP. PCAPP would continue disposal on-site with biotreatment.

  Findings:
  - Destruction of the Colorado stockpile by December 2017 does appear possible.
  - Destruction of the Kentucky stockpile by December 2017 does not appear possible but accelerates destruction by one year to May 2020 vice the May 2021 completion date identified in DoD's proposed path forward.
  - Requires the use of two destruction technologies for the destruction of the Kentucky stockpile – the explosive destruction technology for the mustard-filled munitions and the neutralization process for the remaining stockpile.
  - Requires significant near-term increases in staffing at Colorado and Kentucky sites for:
    - the construction phase
    - early start of the systemization phase
    - to support 24 hours per day at 7 days per week destruction operations
  - Economic benefits for PCAPP cannot be realized as construction of the PCAPP hydrolysate on-site treatment process has already begun.

- Economic benefits to off-set the additional funding requirements at BGCAPP may not be realized because award of the contract modification for the balance of construction originally planned for December 2009 is now projected for the spring of 2010.
- Reduces program life-cycle costs approximately $440 million as compared to the FY10 President's Budget Request (Tables 3 and 11 Total Program Cost comparison).
- Significant opposition to off-site treatment from several groups.

Table 11. CDP Cost Estimate with Off-Site Disposal of BGCAPP Hydrolysate

	Prior Years	FY09	FY10	Total
CMA	17,019.8	1,222.4	1,162.1	27,422.6
ACWA	1,822.4	416.9	492.7	8,225.0
Total	18,842.2	1,639.3	1,654.8	35,647.6

Table 12. CDP Schedule Estimate with Off-Site Disposal of BGCAPP Hydrolysate

	TOCDF	ANCDF	UMCDF	PBCDF	PCAPP	BGCAPP
Begin Construction	Oct-89	Feb-96	Feb-97	Feb-99	Aug-04	Sep-05
Begin Operations	Aug-96	Aug-03	Sep-04	Mar-05	May-14	Oct-18
Complete Operations	*	*	*	*	Sep-17	May-20

***** CMA sites have continually exceeded the plan established in successive Current Working Estimates due to a concerted effort to identify and mitigate risks, leverage successes from one site to another and implement congressionally approved performance incentives to achieve specific operational milestones. As a result of these achievements and expected continuation of accelerated operations, CMA facilities remain on track to complete destruction operations of 90 percent of the U.S. chemical agent stockpile by the CWC 2012 deadline, provided technical, legal, and personnel risks continue to be successfully mitigated.

CONCLUSION

To achieve the congressional destruction mandate of 2017, only transportation of portions of the stockpile to operational facilities showed any possibility of success. The DoD recognizes transportation is prohibited by law and instead proposes to continue progress with successful destruction operations at CMA facilities and accelerate the ACWA program activities at the Pueblo and Blue Grass facilities. Hydrolysate would continue to be destroyed on-site at Pueblo and Blue Grass, unless technical difficulties arise. Under this plan, DoD will aim to achieve destruction of 90 percent of its stockpile by 2012, 98 percent destruction by 2017, and 100 percent destruction by 2021.

While DoD is proposing a path forward that is not able to accommodate the current Dec 31, 2017 deadline, DoD has carefully analyzed the issue as directed by Congress and believes this is the best balance of safety, resources, and schedule that can be achieved at this time. The DoD will proceed to implement this path forward and will continue working to minimize the time required to complete destruction of the remaining chemical weapons stockpile without sacrificing safety and security, through the continued use of performance incentives, programmatic risk mitigation, application of lessons learned from on-going operations, and effective stewardship of available fiscal resources.

The next Semi-Annual Report to Congress will be submitted in December 2009.