September 4, 2003

Acquisition

The Chemical Demilitarization Program: Increased Costs for Stockpile and Non-Stockpile Chemical Materiel Disposal Programs

(D-2003-128)

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Acronyms

AT&L	Acquisition, Technology, and Logistics
GAO	General Accounting Office

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DEPARTMENT OF DEFENSE
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September 4, 2003

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

SUBJECT: The Chemical Demilitarization Program: Increased Costs for Stockpile and Non-Stockpile Chemical Materiel Disposal Programs (Report No. D-2003-128)

We are providing this report for your review and comment. This report is the third and last in a series of reports that discuss the management of the Chemical Demilitarization Program. The first report addressed the need to review the acquisition program baseline and to prepare a threat assessment. The second report addressed the improvements that could be made in the oversight, the execution, and the administration of the Chemical Demilitarization Program. This report discusses the factors that continue to affect the cost and schedule of the Chemical Stockpile Disposal Program, and the need to plan for the disposal of buried chemical materiel. We considered management comments on a draft of this report in preparing the final report.

DoD Directive 7650.3 requires that all issues be resolved promptly. In response to the final report, we request that the Under Secretary of Defense for Acquisition, Technology, and Logistics provide comments on Recommendation B.1. by October 6, 2003.

If possible, please provide management comments in electronic format (Adobe Acrobat file only) to audam@dodig.osd.mil. Copies of the management comments must contain the actual signature of the authorizing official. We cannot accept the / Signed / symbol in place of the actual signature. If you arrange to send classified comments electronically, they must be sent over the SECRET Internet Protocol Router Network (SIPRNET).

We appreciate the courtesies extended to the staff. Questions should be directed to Mr. John E. Meling at (703) 604-9091 (DSN 664-9091) or Mr. Rodney D. Britt at (703) 604-9096 (DSN 664-9096). See Appendix E for the report distribution. Audit team members are listed inside the back cover.

Mary L. Ugone
Deputy Director
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Office of the Inspector General of the Department of Defense

Report No. D-2003-128 **September 4, 2003**
(Project No. D2003AE-0070)

The Chemical Demilitarization Program: Increased Costs for Stockpile and Non-Stockpile Chemical Materiel Disposal Programs

Executive Summary

Who Should Read This Report and Why? Policy makers and milestone decision makers should be interested in this report because it discusses factors that continue to affect the cost and schedule of the Chemical Stockpile Disposal Program and the need to plan for the disposal of non-stockpile chemical materiel.

Background. This report is the third and last in a series of reports that discuss the management of the Chemical Demilitarization Program (the Demilitarization Program). The first report discussed the need for the Army to revise its acquisition program baseline agreement and to obtain a documented threat assessment for the Demilitarization Program. The second report discussed the improvements that could be made in the oversight, the execution, and the administration of the Demilitarization Program. In 1985, the Congress directed DoD to oversee the destruction of the chemical weapons stockpiled munitions and assigned the Army responsibility for the destruction. The Army established the Program Manager for Chemical Demilitarization to manage the day-to-day operations of destroying the chemical weapons. In 1992, the National Defense Authorization Act for FY 1993 (Public Law 102-484) directed the Army to plan for destroying U.S. non-stockpile chemical weapons. In May 2001, the Under Secretary of Defense for Acquisition, Technology, and Logistics (AT&L) designated the Demilitarization Program as a Major Defense Acquisition Program and assigned the Army as the Executive Agent. The Office of the Secretary of Defense approved a life-cycle cost estimate of $24 billion for the Demilitarization Program in September 2001. In February 2003, the Army restructured the program's management by assigning the functions of the Program Manager for Chemical Demilitarization to the Program Manager for the Elimination of Chemical Weapons for plant construction and systemization to the Deputy Director for Plant Operations for operations and closure. The restructuring also assigned the Director, Chemical Materials Agency to manage the overall Demilitarization Program. Through May 2003, the Army awarded contracts totaling $5.7 billion for the construction, systemization, operations, and closure of seven chemical agent disposal facilities and planned two additional disposal facilities.

Results. The Director, Chemical Materials Agency had made substantial progress in managing the cost growth for the Demilitarization Program; however, several issues could affect the future program cost and schedule of the Chemical Stockpile Disposal Program and the disposal of the non-stockpile chemical materiel. Specifically:

- The Director, Chemical Materials Agency's ability to effectively control the cost estimate of the Chemical Stockpile Disposal Program continues to be affected by delays in obtaining State permit modifications needed for beginning disposal operations, monetary effects of decisions on the type of technology to be employed at two Assembled Chemical Weapons Assessment

facilities, the escalation in costs and safety incidents at operational chemical disposal facilities, and rising cost estimates for closure of disposal facilities (finding A).

- The Product Manager for Non-Stockpile Chemical Materiel did not have information needed to prepare a reliable estimate of the cost and schedule to dispose of buried chemical warfare materiel. Direction to the environmental offices of the DoD Components will cause DoD Components to identify, schedule, and fund the disposal of buried chemical warfare materiel from existing and former DoD installations. Implementation of the direction will also result in a reliable and defendable estimate of the cost to dispose of the buried chemical warfare materiel for the contingent liability in Note 16 of the DoD financial statements (finding B).

For details of the audit results, see the Findings section of the report.

Management Comments. The Deputy Assistant to the Secretary of Defense (Chemical Demilitarization and Threat Reduction), Office of the Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs), responding for the Under Secretary of Defense for Acquisition, Technology, and Logistics, suggested some editorial changes to the report that we considered and made where deemed appropriate. However, the Deputy Assistant did not respond to the recommendation to issue direction to the environmental offices of the DoD Components to identify, schedule, and fund the disposal of buried chemical warfare materiel. The Director, U.S. Army Chemical Materials Agency concurred with the recommendation for the Product Manager for Non-Stockpile Chemical Materiel to prepare updated cost estimates for all burial sites. In response to the final report, we request that the Under Secretary of Defense for Acquisition, Technology, and Logistics comment on the need to address planning for the disposal of buried chemical warfare materiel by October 6, 2003.

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Background

This report is the third and last in a series of reports that address the management of the Chemical Demilitarization Program (the Demilitarization Program). The first report discussed the need for the Army to revise its acquisition program baseline agreement and to obtain a documented threat assessment for the Demilitarization Program. The second report discussed improvements that could be made in the oversight, the execution, and the administration of the Demilitarization Program. This report discusses the key factors that continue to affect the cost and schedule of the Chemical Stockpile Disposal Program and the need to plan for the disposal of buried chemical warfare materiel. The mission of the Demilitarization Program is to develop and operate facilities that destroy chemical munitions through incineration and other approved alternative destruction technologies.

Program History. In 1985, Congress compelled the DoD to establish the Demilitarization Program. Specifically, due to congressional concerns for the stockpile's deterioration, section 1521, title 50, United States Code, "Destruction of Existing Stockpile of Lethal Chemical Agents and Munitions," (Public Law 99-145), directed DoD to oversee the destruction of the stockpile of lethal chemical agents and munitions. The Congress, as part of the same legislation, designated the Army as the Military Department responsible for the destruction of the stockpile. Later in 1985, the Army assigned the Program Manager for Chemical Demilitarization to manage the day-to-day operations of destroying the chemical munitions. In 1992, the National Defense Authorization Act for FY 1993 (Public Law 102-484) directed the Army to plan for destroying U.S. non-stockpile chemical weapons. In May 2001, the Under Secretary of Defense (AT&L) designated the Demilitarization Program as a Major Defense Acquisition Program (Acquisition Category ID), with the Army as the Executive Agent. In May 2002, the Under Secretary of Defense (AT&L) certified to Congress, pursuant to section 2433, title 10, United States Code, "Unit Cost Reports," (Public Law 99-500), that the Demilitarization Program was essential to national security, that no alternatives existed to the program, that new cost estimates were reasonable, and that management was adequate to control program costs.

Program Management and Status. The Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs) oversees the efforts of the Demilitarization Program for the Under Secretary of Defense (AT&L). The Assistant Secretary of the Army (Acquisition, Logistics, and Technology) oversees planning, programming, and budgeting for the Demilitarization Program. The Commanding General, Army Materiel Command oversees the chemical disposal operations and emergency preparedness. The Demilitarization Program consists of five individual programs: Chemical Stockpile Disposal, Non-Stockpile Chemical Materiel, Alternative Technologies and Approaches, Chemical Stockpile Emergency Preparedness, and Assembled Chemical Weapons Assessment.

In February 2003, the Army restructured the program's management by establishing the Director, Chemical Materials Agency to manage the overall Demilitarization Program and assigning the functions that the Program Manager for Chemical Demilitarization performed on plant construction and systemization to the Program Manager for the Elimination of Chemical Weapons and operations and closure to the Deputy Director for Plant Operations. The Project Managers for the Chemical Stockpile Disposal, the Alternative Technologies and Approaches, and the Non-Stockpile Chemical Materiel

report to the Program Manager for the Elimination of Chemical Weapons. The Project Manager for Chemical Stockpile Emergency Preparedness reports to the Deputy for Plant Operations, Office of the Director, Chemical Materials Agency, and the Program Manager for Assembled Chemical Weapons Assessment reports to the Under Secretary of Defense (AT&L). The mission of the Chemical Stockpile Disposal Project is to destroy the U.S. stockpile of unitary chemical agents and munitions. The missions of the Alternative Technologies and Approaches Project and the Chemical Stockpile Emergency Preparedness Program support the Chemical Stockpile Disposal Project and the Non-Stockpile Chemical Materiel Product through examining and demonstrating alternative destruction technologies and enhancing protection of the public, the workers, and the environment, respectively. The Assembled Chemical Weapons Assessment Program has the mission to validate, demonstrate, and implement alternative destruction technologies for assembled chemical weapons at Pueblo, Colorado, and Blue Grass, Kentucky. The mission of the Non-Stockpile Chemical Materiel Product is to destroy all binary chemical munitions, former chemical weapon production facilities, recovered chemical warfare materiel, and miscellaneous warfare materiel. Appendix C describes the existing management roles and the revised management roles within the Demilitarization Program in more detail.

Program Cost Estimates and Contract Awards. In September 2001, the Under Secretary of Defense (AT&L) approved a cost estimate prepared by the Cost Analysis Improvement Group, Office of the Secretary of Defense, which increased the total estimated program cost to $24 billion. Through May 2003, the Army awarded contracts totaling $5.7 billion for seven chemical agent disposal facilities. Specifically, the U. S. Army Corps of Engineers awarded contracts for the construction, systemization, operations, and closure of disposal facilities at Johnston Island, Hawaii, and Tooele, Utah, the two facilities that had reached or passed the operational phase. The U.S. Joint Munitions Command had also awarded contracts for five other disposal facilities. The U.S. Joint Munitions Command also awarded contracts for the other demilitarization programs. DoD funds the Demilitarization Program through the Chemical Agents and Munitions Destruction Account, which includes Military Construction.

Objectives

The overall objective was to evaluate the overall management of the Demilitarization Program and associated management controls. Specifically, we evaluated the Director's efforts to contain cost growth within the Chemical Stockpile Disposal Program and DoD plans to destroy U.S. non-stockpile chemical weapons. Appendix A discusses the results of the review of management controls and the scope and methodology of the review. Appendix B identifies prior audit coverage of the Demilitarization Program.

A. Key Factors Continue to Affect the Cost Estimate for the Chemical Stockpile Disposal Program

Many key factors continue to affect the Director, Chemical Materials Agency's (the Director) ability to effectively control costs for the Chemical Stockpile Disposal Program. Specifically, the Director has been affected by costly delays in reaching public consensus when obtaining State permit modifications needed to begin disposal operations, monetary effects of decisions on the type of technology to be employed at two Assembled Chemical Weapons Assessment facilities, the cost escalation and safety incidents at operational chemical disposal facilities, and rising cost estimates for closure of disposal facilities. These conditions exist because the Chemical Demilitarization Program (the Demilitarization Program) is a very large and complex program influenced by several offices within and outside of the Department of Defense. As a result, the Army will continue to experience cost growth in funds needed to complete Demilitarization Program requirements. This program cost growth may also lead to additional program baseline cost breaches that will require the Under Secretary of Defense (AT&L) to again certify the program's cost and schedule to the Congress.

Earlier Audit Reports on Factors Affecting Program Costs

The General Accounting Office (GAO) has previously reported on issues affecting the Demilitarization Program's cost and schedule. In Report No. NSIAD 97-18, "Chemical Weapons and Materiel: Key Factors Affecting Disposal Costs and Schedule," February 10, 1997, GAO reported that key factors affecting the program's cost and schedule included public concerns over the safety of incineration, legislative requirements, the introduction of alternative disposal technologies, and compliance with environmental laws and regulations.

Safety of Incineration Facilities. In 1988, the public voiced concern over the Army's decision to use on-site incineration to dispose of the chemical warfare materiel. The Congress responded to those concerns by directing the Army, through legislative requirements, to assess and report on potential alternative technologies to incineration

Legislative Requirements. Since 1985, when the Congress directed the Army to destroy the U.S. stockpile of chemical materiel, other legislative requirements that limited disposal options have affected the Army's ability to control the program's cost and schedule. The program limitations made by the Congress included "The National Defense Authorization Act for Fiscal Year 1991" (Public Law 101-510), which restricted DoD from using funds to transport chemical weapons to Johnston Atoll except for U.S. munitions discovered in the Pacific, and also restricted DoD from studying the movement of chemical munitions. Additionally, "The National Defense Authorization Act for Fiscal Year 1993" (Public Law 102-484) directed the Army to study alternatives to incineration.

Alternative Disposal Technologies. In November 1991, because of public concern and congressional direction, the Army requested the National Research Council to evaluate potential technological alternatives to the baseline incineration process. In Public

Law 102-484, the Congress directed the Army to consider using the potential technological alternatives to incineration that were identified in the National Research Council's report. As a result, in 1994, the Army initiated the Alternative Technologies and Approaches Project at the two bulk-only chemical stockpile sites, Aberdeen Proving Ground, Maryland, and Newport Chemical Activity, Indiana, to investigate, develop, and support testing of two technologies based on neutralization of chemical agents. In "The National Defense Authorization Act for Fiscal Year 1997" (Public Law 104-201), the Congress directed DoD to conduct an assessment of alternative technologies for the disposal of assembled chemical munitions. Additionally, in the 1997 Appropriations Act, the Congress prohibited the Army from obligating funds for constructing disposal facilities at Blue Grass, Kentucky, and Pueblo, Colorado, until 180 days after the Secretary of Defense reported on the alternative technologies.

Compliance with Environmental Laws. Before constructing or operating a chemical disposal facility, the Army must obtain permits to comply with Federal, State, and local environmental laws and regulations. The Resource Conservation and Recovery Act regulates the storage, treatment, and disposal of most chemical materiel. The Act controls hazardous waste through a permit process that requires Government approval for the generation, transportation, storage, and disposal of hazardous waste. Additionally, the Act allows the Environmental Protection Agency to authorize individual States to administer and enforce hazardous waste programs. Under the Act, the States can establish programs that are more stringent than the Federal program. The GAO believed that the permit process would take more time than the Army allowed in its schedule.

Complex Management Structure. In Report No. NSIAD 00-80, "Chemical Weapons Disposal: Improvements Needed in Program Accountability and Financial Management," May 8, 2000, GAO stated that effective management of the Demilitarization Program was hindered by its complex management structure and ineffective coordination among program offices and State and local officials. Specifically, the GAO reported that several changes in the organization and structure of the program from 1997 through 1999, including some changes to implement legislative requirements, divided the management roles, responsibilities, and accountability among several different management levels within the DoD and the Army. As the program expanded beyond its original single purpose of destroying the stockpile to encompass a broader range of missions, to include compliance with the Chemical Weapons Convention, the organization and structure of the program became increasingly complex.

GAO further reported that, at times, the several different levels within DoD and the Army shared oversight responsibilities, resulting in fragmented responsibilities for management decisions. The fragmented management affected the ability of DoD and the Army to present a coordinated message to State and local officials for the Blue Grass, Kentucky, and Pueblo, Colorado, stockpile sites. The GAO reported that the confusion at these two sites led to the public's perception that the program lacked a single vision for destroying the chemical stockpile in a judicious manner.

Increase in the Demilitarization Program's Cost Estimate

In September 2001, the Under Secretary of Defense (AT&L) approved a revised cost estimate for the Demilitarization Program. The revised cost estimate of $24 billion was substantially more than the cost estimate of $15.3 billion approved in 1998. The Office

of the Cost Analysis Improvement Group advised that the increase was necessary to reflect more realistic destruction rates than had been previously estimated. Table 1 shows the DoD-approved program cost estimate as of September 2001.

Table 1. Approved Cost Estimate for the Demilitarization Program - September 2001

Program/Facility	Estimated Cost ($ in millions)
Chemical Stockpile Disposal Project	$ 3,086
Johnston Atoll	1,830
Tooele	2,364
Anniston	2,298
Pine Bluff	1,737
Umatilla	2,462
Subtotal	13,777
Alternative Technologies and Approaches Project	177
Aberdeen	1,019
Newport	1,459
Subtotal	2,655
Assembled Chemical Weapons Assessment Program[1]	0
Pueblo [2]	1,784
Blue Grass [3]	2,072
Subtotal	3,856
Non-Stockpile Chemical Materiel Product	1,632
Chemical Stockpile Emergency Preparedness Program	2,139
Total	**$ 24,059**

[1] Program costs for Assembled Chemical Weapons Assessment were zero because Pueblo and Blue Grass were part of the Chemical Stockpile Disposal Project during the September 2001 Defense Acquisition Board review.
[2] The Pueblo cost estimate reflects modified baseline incineration costs and was included in costs for the Chemical Stockpile Disposal Project.
[3] The Blue Grass cost estimate reflects baseline incineration costs and was included in costs for the Chemical Stockpile Disposal Project.

In February 2003, the Director presented a revised program office estimate to the Army Cost and Economic Analysis Center and the Army Cost Review Board. The Director prepared the revised cost estimate to document the changes in the program since the September 2001 cost estimate and in support of the program objective memorandum for

FY 2005. Table 2 shows the Office of the Chemical Materials Agency's revised program cost estimate that was presented to the Army Cost and Economic Analysis Center and the Army Cost Review Board in February 2003.

Table 2. Recommended Cost Estimate for the Demilitarization Program - February 2003

Program/Facility	Estimated Cost ($ in millions)
Chemical Stockpile Disposal Project	$ 2,907
Johnston Atoll	1,761
Tooele	2,395
Anniston	2,426
Pine Bluff	1,974
Umatilla	2,757
Subtotal	14,220
Alternative Technologies and Approaches Project	147
Aberdeen	850
Newport	1,220
Subtotal	2,217
Assembled Chemical Weapons Assessment Program[1]	354
Pueblo	1,537
Blue Grass	2,396
Subtotal	4,287
Non-Stockpile Chemical Materiel Product	1,586
Chemical Stockpile Emergency Preparedness Program	2,809
Total	**$ 25,119**

[1] The Assembled Chemical Weapons Assessment cost estimate was not presented to the Army Cost and Economic Analysis Center or the Cost Review Board for review.

Factors Affecting Program Costs Continue

Despite Army efforts to contain the cost growth of the Demilitarization Program, factors similar to those previously reported by the GAO continue to affect the ability of the Director, Chemical Materials Agency to effectively control program costs. Specifically, the Director has been affected by costly delays in reaching public consensus with obtaining State permit modifications needed for beginning disposal operations, the decisions on the type of technology to be employed at two Assembled Chemical Weapons Assessment facilities, the escalation of costs and safety incidents at operational chemical disposal facilities, and rising cost estimates for closure of disposal facilities.

Environmental Permits. The Director, Chemical Materials Agency needs to receive public agreement from the involved States when an environmental permit modification is required before the Army will approve the start of disposal operations. The process of receiving public agreement with the environmental permit process continues to be a major roadblock in containing costs. To illustrate, the chemical disposal facility in Anniston, Alabama, completed surrogate (agent trial) testing in January 2003 and was approved, subject to obtaining the State environmental permit modification, for an agent trial burn plan to begin disposal operations. Because State and local officials disagreed with DoD and Army officials on the level of preparedness needed by residents surrounding the facility, the State of Alabama refused to approve the environmental permit modification, which delayed the start of full disposal operations. According to the Office of the Chemical Stockpile Emergency Preparedness Program, local officials from Calhoun County, Alabama, remain dissatisfied with the level of emergency preparedness provided to residents in the area immediately surrounding the disposal facility. To overcome this dissatisfaction, the State of Alabama requested that the Army provide an additional $26.9 million in FY 2003 to over-pressurize county schools and fully implement a plan to provide shelters in-place for the local residents identified with having special needs. In FY 2002, the Under Secretary of Defense (AT&L) approved and the Army provided to the Federal Emergency Management Agency funding to satisfy a State of Alabama request to provide Calhoun County with $40.5 million in FY 2002 to provide the local residents with escape hoods and updated emergency radios. In August 2003, the Army started limited operations during night and weekend hours to destroy M-55 rockets filled with nerve agent. However, until the schools can be over-pressurized and the special needs for some local residents can be met with the additional $26.9 million in funding, the State of Alabama's environmental office will not agree with the Army's plan to begin full facility disposal operations. In the meantime, the Anniston disposal facility is fully staffed and ready for full operation. The Director, Chemical Materials Agency, in preparing the program cost estimate, estimates that operation and disposal costs are approximately $287,000[1] a day, regardless of whether or not the facility is operational. Delays in receiving timely public agreement to obtaining State environmental permit modifications for other chemical agent disposal facilities could further affect estimated program costs.

Recent Technology Decisions for Assembled Chemical Weapons Assessment Programs. The "National Defense Appropriations Act for Fiscal Year 1997," September 10, 1996 (Public Law 104-208), established the Assembled Chemical Weapons Assessment Program as a separate and distinct program under the Demilitarization Program to research alternative chemical munitions destruction technology for the planned chemical disposal programs at Pueblo, Colorado, and Blue Grass, Kentucky. The Under Secretary of Defense (AT&L) recently made decisions on the type of technology that will be used at the two disposal sites. In July 2002, the Under Secretary of Defense (AT&L) approved neutralization followed by biological treatment[2] as the technology to dispose of chemical weapons at Pueblo, Colorado. In February 2003, the Under Secretary of Defense (AT&L) approved neutralization followed by supercritical water oxidation as the technology to pilot test for the disposal of chemical weapons at Blue Grass, Kentucky.

[1] The daily cost of $287,000 is a rough order magnitude amount that the Program Manager estimated by dividing the total annual chemical disposal facility contract for Anniston by 365 days.

[2] The process of mixing hot water with the chemical agent to a point where it is broken down into other chemical components that can be further treated with bacteria.

At the time that the September 2001 program cost estimate was prepared, the Director, Chemical Materials Agency based the cost estimate for the Pueblo and Blue Grass disposal facilities on the Army's Chemical Materials Agency employing the incineration technology. In June 2002 and November 2002, respectively, the Assembled Chemical Weapons Assessment Program Manager submitted the cost estimate for the Pueblo and Blue Grass disposal facilities based on preliminary disposal facility designs to the Cost Analysis Improvement Group for review and approval. Consequently, the Office of the Cost Analysis Improvement Group assessed the program estimate and provided a revision to the cost estimates for the two disposal facilities. However, the full cost may escalate once the contractors complete the final disposal facility designs.

Contractor Costs. The Director, Chemical Materials Agency has contracts with contractors at eight of the nine chemical disposal facilities to design and construct the facilities, as well as operate the facilities once they are operational. Contractors involved in the design, construction, and operation of disposal facilities have also experienced increased program costs.

Facility Development. Costs to design and construct disposal facilities have also deviated substantially in the past. To illustrate, in October 2001, after the September 2001 program cost estimate was approved, the Director of Contracts issued a modification to the contract for the design, construction, and operation of the Newport Chemical Agent Disposal Facility that increased the contract value from $296 million to $748 million. The Director of Contracts awarded the modification because of the contractor's inability to meet cost and schedule goals. Since the modification's award, the Under Secretary of Defense (AT&L) approved a plan to accelerate the facility's disposal schedule that decreased the contract scope from $748 million to $584 million.

Operation. Chemical agent exposure incidents at the chemical disposal facilities during disposal operations can also significantly affect future program costs. On July 15, 2002, a chemical agent exposure incident occurred at the Tooele Chemical Agent Disposal Facility in Utah. As a result, the Army postponed disposal operations until the contractor completed corrective actions identified by an Army investigation team and the State of Utah agreed that it is safe to restart disposal operations. The operations and maintenance costs for the Tooele, Utah, disposal facility is estimated to cost $336,000[3] a day, regardless of whether or not the facility is operating. On March 28, 2003, the Tooele, Utah disposal facility restarted disposal operations. As of March 27, 2003, disposal operations at the Tooele facility had been idle for 256 days, at a program cost of approximately $86 million.

Disposal Facility Closure Cost Estimates. Cost estimates for closure of disposal facilities at the completion of facility operations had not been fully established. Facility closure costs include the management, expertise, and labor to decommission and close the facilities in accordance with applicable laws and regulations. Closure of the disposal facilities commences at the completion of chemical disposal operations and ends when the contractor fulfills State requirements. The Program Manager for Chemical Demilitarization, in the 1998 cost estimate, planned for 12 months to close each disposal facility. In the September 2001 cost estimate, the Director considered additional costs to close each planned facility but the closure costs still had not been fully defined. Closure

[3] The daily cost of $336,000 is a rough order magnitude amount that the Program Manager estimated by dividing the total annual chemical disposal facility contract at the Tooele facility by 365 days.

costs at the Johnston Atoll Chemical Agent Disposal System, for example, were initially estimated to be $158 million over a period of 12 months. In the September 2001 cost estimate the Cost Analysis Improvement Group revised the estimated cost and schedule to $411 million over 33 months. Through April 2003, the contractor incurred costs of $262 million over 25 months but, because of funding reductions, will not meet the estimated 33-month schedule to complete closure of the facility.

The Director and the Assembled Chemical Weapons Assessments Program Manager indicated that they would negotiate closure requirements for each disposal facility with State environmental offices based on lessons learned from closure activities at the Johnston Atoll Chemical Agent Disposal System. Accordingly, the reasonableness of estimated facility closure costs included in the September 2001 program cost estimate is subject to revision, based on the lessons learned from the Johnston Atoll facility and negotiations with each State environmental office on facility closure requirements.

Influences on the Chemical Demilitarization Program

The Demilitarization Program is a very large and complex program that has been influenced by several offices within and outside the Department of Defense. Many of the issues affecting the program cost and schedule have resulted from the complex program structure and coordination requirements affecting the program management. The primary offices that affect the program's cost and schedule are State and local Governments, special interest groups that challenge the Army's technology decisions, and the complex management structure within DoD that makes key program decisions.

State and Local Governments. State and local Governments play a key role in public officials' opinions and can affect the timeliness of permit decisions. Before granting required major modifications to existing permits, the State environmental regulatory agency typically seeks the general public's input. Public comments can include such issues as the off site emergency preparedness for the communities. In the case of the Anniston, Alabama disposal facility, the surrounding local officials have asserted that the off-site emergency preparedness was not adequate to support the start of operations. Because of State and local concerns and start up requirements articulated by Senator Richard Shelby concerning off-site emergency preparedness addressed in the Chemical Stockpile Emergency Preparedness Project, the Alabama Department of Environmental Management is still evaluating the public input associated with these plans. The representative from the Chemical Stockpile Emergency Preparedness Program stated that coordination with other State and local government officials could potentially result in similar operational delays for other chemical agent disposal facilities.

Special Interest Groups. Special interest groups also influence program functions and could eventually affect the program's cost and schedule. One lawsuit filed in Umatilla, Oregon, by a special interest coalition alleges that the issuance of the Umatilla Chemical Agent Disposal Facility permit on the basis of the findings and conclusions of the Oregon Department of Environmental Quality were not supported by substantial evidence or the State environmental office failed to comply with State and Federal requirements. The special interest coalition includes the Group Against Social Predation, a Hermiston-based opposition group affiliated with the Chemical Weapons Working Group, the Sierra Club, and 22 individual petitioners. In December 2002, the Director reported to the Under Secretary of Defense (AT&L) that the court trial could potentially delay the start of disposal operations at the Umatilla facility by as much as 3 years if the judge ruled in

favor of the group. The Chemical Weapons Working Group and the Sierra Club were also responsible for making similar allegations at other disposal facilities.

Management Structure. The complex management structure that oversees the Demilitarization Program could also affect the program cost and schedule. As noted in the GAO reports, the complex program structure had hindered program management. The issue noted by GAO still exists as management and oversight of the Demilitarization Program is still evolving. Specifically, in February 2003, after the chemical exposure incident at the Tooele, Utah, disposal facility, the Army restructured the management of the Demilitarization Program to align acquisition oversight, previously under the Assistant Secretary of the Army (Installations and Environment), under the Assistant Secretary of the Army (Acquisition, Logistics, and Technology). At the same time, the Army placed the management of the operation of the chemical disposal facilities, previously under the Program Manager for Chemical Demilitarization, under the Commanding General, Army Materiel Command. The Army believes that the realignment of functions and responsibilities will provide better oversight of the program acquisition process and of the contractors' chemical surety management[4] at the Government-owned disposal facilities.

Conclusion

Future cost growth of the Demilitarization Program seems likely. As a result, the Army will continue to experience cost growth in funds needed to complete Demilitarization Program requirements. This program cost growth may also lead to additional program baseline cost breaches that will require the Under Secretary of Defense (AT&L) to recertify the program's cost and schedule to the Congress.

Management Comments on the Finding and Audit Response

The detailed responses to the comments from the Acting Deputy Assistant Secretary of the Army for the Elimination of Chemical Weapons, Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) follow. The Acting Deputy Assistant Secretary commented on the draft report's discussion on estimating the cost and schedule for disposal facility closure and additional funding for emergency preparedness in the State of Alabama. The complete text of those comments is in the Management Comments section of this report.

Disposal Facility Closure Cost and Schedule Estimates. The Acting Deputy Assistant Secretary recommended that we reexamine statements made about disposal facility closure costs. The Acting Deputy stated that cost estimates for the closure of incineration-based disposal facilities are not expected to negatively affect future program cost estimates because the 33-month duration, $411 million closure cost, estimated in September 2001 for the Johnston Island, Hawaii, disposal facility, will be accomplished in 31 months and cost $365 million.

Audit Response. The Director, U.S. Army Chemical Materials Agency did successfully close the Johnston Island, Hawaii, disposal facility earlier and at a lower cost than had

[4] Oversight of the chemical disposal facility operations includes testing, maintenance, and safety.

been planned in September 2001. Closure costs, however, will continue to be a key factor that affects the program life cycle costs until each State environmental office with a disposal facility site identifies its specific facility closure requirements. Until the State environmental offices identify their closure requirements, the Program Manager cannot make definitive estimates of the closure costs and the schedule for each of the disposal sites.

State of Alabama Emergency Preparedness Funding. The Acting Deputy Assistant Secretary stated that the Army provided the additional FY 2003 funding for collective protection and special population requirements identified by the State of Alabama.

Audit Response. We revised the report to acknowledge that the Army had provided the additional funds to satisfy the State of Alabama's request.

B. Disposal of Buried Chemical Warfare Materiel

The Product Manager for Non-Stockpile Chemical Materiel did not have information needed to prepare a reliable estimate of the cost and schedule to dispose of buried chemical warfare materiel. This condition occurred because the Under Secretary of Defense (AT&L) had not directed the DoD Components to identify, schedule, and fund the disposal of buried chemical warfare materiel from existing and former DoD installations. As a result, the Product Manager for Non-Stockpile Chemical Materiel was unable to fully satisfy the congressional direction to provide an actionable plan for disposal of all non-stockpile chemical warfare materiel. Also, without an actionable plan, the Under Secretary of Defense (AT&L) cannot inform the Congress and the public of the realistic costs and the planned schedule to dispose of buried chemical warfare materiel. Furthermore, the Product Manager cannot replace the $8.9 billion contingent liability, which was prepared as a rough order magnitude estimate in Note 16 of the DoD financial statements, with a reliable and defendable estimate of the cost to dispose of the buried chemical warfare materiel.

Policy on Non-Stockpile Chemical Materiel Disposal

Public Law 102-484. In the National Defense Authorization Act for Fiscal Year 1993, section 176, "Report on Destruction of Non-Stockpile Chemical Materiel," (Public Law 102-484), Congress directed the Secretary of the Army to submit a report not later than February 1, 1993, that provided a plan for the remediation[5] of all chemical warfare material of the United States not covered by section 1521, title 50, United States Code, "Destruction of Existing Stockpile of Lethal Chemical Agents and Munitions," (Public Law 99-145). The Congress further directed that the report identify the locations, types, and quantities of non-stockpile chemical materiel, explain the methods to be used for their disposal, provide the estimated cost and schedule for their disposal, and discuss transportation alternatives.

Defense Environmental Restoration Program. The "Management Guidance for the Defense Environmental Restoration Program," September 2001, states that goals of the Defense Environmental Restoration Program include the identification, investigation, research and development, and cleanup of contamination from hazardous substances, pollutants, and contaminants, and the correction of other environmental damage (such as detection and disposal of unexploded ordnance) that creates an imminent and substantial endangerment to the public health or welfare or to the environment.

Army Policy. Army Regulation 200-1, "Environmental Protection and Enhancement," February 21, 1997, implements the Army strategy to restore previously contaminated sites that pose a threat to human health and the environment. Through the Regulation, the Army provides policy for the Army's Environmental Restoration Programs, including the Installation Restoration Program for real property that is controlled by the active

[5] According to the Environmental Planning and Assessment Act of 1979, remediation is defined as removing, dispersing, destroying, reducing, mitigating or containing the contamination of any land.

Army installations; formerly used defense sites including real property that was owned by, leased to, possessed by, or otherwise under the operational control of the Secretary of Defense or other Military Components that predated the Department of Defense; and the Base Realignment and Closure Program.

Financial Management Regulation. DoD Regulation 7000.14-R, "DoD Financial Management Regulation," Volume 4, Chapter 12, November 1999, states that contingencies are existing conditions, situations, or circumstances involving uncertainty as to possible gain or loss to an entity. A loss contingency exists when the likelihood that the future event or events will confirm the loss or impairment of an asset or the incurrence of a liability can be classified as probable, reasonably possible, or remote. Contingent liabilities should be recorded in DoD financial systems and reported in financial statements when a future outflow or other sacrifice of resources is probable or measurable, and disclosure is necessary if the financial statements would otherwise be misleading.

Estimated Cost to Dispose of Buried Chemical Warfare Materiel

GAO Report No. NSIAD 97-18, "Chemical Weapons and Materiel: Key Factors Affecting Disposal Costs and Schedule," February 10, 1997, reported that the Non-Stockpile Chemical Materiel Product would need $14.5 billion to dispose of all buried chemical warfare materiel, which was 95 percent of the total Non-Stockpile Program cost estimate of $15.2 billion. According to a representative from the Non-Stockpile Product Office, discussions above the Department of the Army level resulted in excluding the disposal of buried chemical warfare materiel from the Demilitarization Program because costs were high. Accordingly, the February 2003, cost estimate for the Non-Stockpile Chemical Materiel Product included only $1.586 billion to dispose of non-stockpile chemical warfare materiel declared under the Chemical Weapons Convention and to continue research, development, and testing of non-stockpile chemical warfare disposal technologies. To meet the congressional requirement to plan for the disposal of the buried munitions, the Non-Stockpile Chemical Materiel Product Manager estimated that the mission would cost an additional $11.7 billion.[6]

Implementation of Actions to Dispose of Buried Chemical Warfare Materiel

The Product Manager for Non-Stockpile Chemical Materiel did not have information needed to prepare a reliable estimate of the costs and schedule to dispose of buried chemical warfare materiel with DoD activities. A key piece of information necessary is a preliminary assessment of the intended use of the installations to determine the extent that the DoD will go through remediation. As discussed below, environmental restoration programs have been established, remediation efforts have begun, yet

[6] The $11.7 billion estimate was based on the rough order magnitude estimate developed in 1993; refined in 1996 using the most up-to-date information on burial site characterization, destruction technology decisions, and remediation and treatment procedures; and adjusted in 2002 using inflation indexes. The $11.7 billion estimate is in current year dollars and is equivalent to the $8.9 billion estimate reported in Note 16 of the financial statements, which is in base year dollars.

additional action needs to be taken to identify, schedule, and fund the disposal of recovered buried chemical warfare materiel from existing and former DoD installations.

Environmental Restoration Programs. The "Survey and Analysis Report, Second Edition," December 1996, states that the continental United States, the U.S. Virgin Islands, and the District of Columbia contain 224 installations where chemical warfare materiel may be buried. Preliminary analysis in the report stated that 56 of the 224 installations (25 percent) may require no further action and 168 of the 224 installations (75 percent) may require remediation. The Army established environmental restoration programs to evaluate the need and execute the removal of the chemical warfare materiel from those burial sites. The 224 installations include active, formerly used defense sites, and base realignment and closure sites. See Appendix D for more information regarding the environmental restoration programs and Army roles and responsibilities within each program.

Implementation of Remediation Efforts. The Under Secretary of Defense (AT&L) had not issued direction requiring the DoD Components to develop and prioritize a destruction schedule for remediation at all chemical warfare material burial sites. As Executive Agent, the Secretary of the Army did assign responsibility for the cleanup of formerly used defense sites under the Defense Environmental Restoration Program to the U.S. Army Corps of Engineers (Army Corps). The Army Corps stated that the process for cleaning up the formerly used sites where chemical warfare materiel may be located was in its initial phase. Specifically, the Army Corps was performing site surveys to determine the scope and magnitude of seven burial sites. The Army Corps plans to report the results of their survey to the Assistant Secretary of the Army (Environment Safety and Occupational Health) by September 2004. Although the Army Corps will address the formerly used defense sites, the Under Secretary of Defense (AT&L) had not tasked the other DoD Components to perform a similar assessment for sites located on active installations and base realignment and closure installations previously identified.

Actions Needed. During the review, a representative from the Office of the Deputy Under Secretary of Defense (Installations and Environment) agreed that the DoD needed to establish top-level direction to:

- schedule the remediation of all potential chemical warfare materiel burial sites; and,

- assign DoD Components with responsibility for prioritizing a schedule for surveying and excavating the sites that potentially have buried chemical warfare materiel.

A destruction schedule that prioritizes the remediation of chemical warfare material burial sites needs to be established so that the DoD Components will plan and estimate costs for excavation, removal, destruction, and treatment procedures for each burial site. Because the Under Secretary of Defense (AT&L) had not issued direction to the DoD Components, the Product Manager for Non-Stockpile Chemical Materiel has not been able to fully identify the funding requirements needed to satisfy the Congressional direction to plan for the disposal of all chemical warfare materiel. Additionally, the Under Secretary of Defense (AT&L) cannot make the Congress and the public timely aware of the costs and schedules to dispose of buried chemical warfare materiel. Furthermore, the Product Manager cannot replace the $8.9 billion contingent liability,

which was prepared as a rough order magnitude estimate in Note 16 of the DoD financial statements, with a reliable and defendable estimate of the cost to dispose of the buried chemical warfare materiel.

Management Comments on the Finding and Audit Response

The detailed responses on the comments from the Acting Deputy Assistant Secretary of the Army for the Elimination of Chemical Weapons, Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) responding for the Director, U.S. Army Chemical Materials Agency follow. The Acting Deputy Assistant Secretary commented on the draft report's statement on the cost estimate for the disposal of buried munitions. The complete text of those comments is in the Management Comments section of this report.

The Cost Estimate for Buried Chemical Warfare Materiel. The Acting Deputy Assistant Secretary commented on the $11.7 billion cost estimate for disposal of buried chemical warfare materiel. The Acting Deputy stated that the estimate had not been updated since 1996 except for an adjustment in the inflation indices. The Acting Deputy stated a new cost estimate using current remediation, treatment procedures, technology, site information, and environmental standards will significantly increase the cost estimate.

Audit Response. We agree with the Acting Deputy Assistant Secretary's comments.

Recommendations, Management Comments, and Audit Response

B.1. We recommend that the Under Secretary of Defense for Acquisition, Technology, and Logistics issue direction to the environmental offices of the DoD Components to identify, schedule, and fund the disposal of buried chemical warfare materiel from active installations and base realignment and closure installations previously identified.

Management Comments. The Under Secretary of Defense for Acquisition, Technology, and Logistics did not respond to the recommendation. In response to the final report, we request that the Under Secretary comment on the need to issue direction to identify, schedule, and fund the disposal of buried chemical warfare materiel from active installations and base and realignment and closure installations previously identified.

B.2. We recommend that the Product Manager for Non-Stockpile Chemical Materiel update the plan and cost estimate for disposal of buried munitions after the environmental offices of the DoD Components implement Recommendation B.1.

Acting Deputy Assistant Secretary of the Army for the Elimination of Chemical Weapons and Director, U.S. Army Chemical Materials Agency Comments. The U.S. Army Chemical Materials Agency concurred, stating that the Product Manager for Non-Stockpile Chemical Materiel is preparing cost estimates for four potential base and realignment and closure installations and is prepared to update the estimates for all burial

sites. Further, during the fourth quarter of FY 2003, the Product Manager will meet with representatives from the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics to discuss burials and the path forward.

The Acting Deputy nonconcurred with Recommendation B.2. as written, stating that the Product Manager should participate as a subject-matter expert in updating the cost estimates for known and recovered chemical warfare materiel. The Acting Deputy further stated that the Product Manager was not assigned the mission of planning future remediation activities, nor is the mission included in the Chemical Agent Munitions Destruction appropriations funding level.

Audit Response. The actions taken by the Director, U.S. Army Chemical Materials Agency are responsive to the recommendation. We commend the Product Manager for Non-Stockpile Chemical Materiel for being proactive in planning for the remediation of buried chemical warfare materiel.

Appendix A. Scope and Methodology

In this third and final report addressing the Chemical Demilitarization Program (the Demilitarization Program) we evaluated reasons for the continuing cost growth within the Demilitarization Program and DoD plans and actions to dispose of buried chemical warfare materiel. As a result, we focused on factors affecting Demilitarization Program cost and schedule and DoD efforts to dispose of buried munitions. We performed this audit from January 2003 through May 2003 in accordance with generally accepted government auditing standards.

To evaluate whether the Office of the Secretary of Defense and the Army were effectively managing the Demilitarization Program, we examined "National Defense Authorization Act of 1993," (Public Law 102-484); section 8065, title 6, United States Code, "Defense Authorization Act for Fiscal Year 1997," (Public Law 104-208; section 1521, title 50, United States Code, "Destruction of Existing Stockpile of Lethal Chemical Agents and Munitions," (Public Law 99-145); the "Strom Thurmond National Defense Authorization Act for Fiscal Year 1999," (Public Law 105-261; and Army Regulation 200-1, "Environmental Protection and Enhancement," February 21, 1997.

We reviewed documentation dated from August 1994 through March 2003 that we obtained from the Demilitarization Program Office; disposal facilities located at Aberdeen, Maryland, Tooele, Utah, Anniston, Alabama, Umatilla, Oregon, Pine Bluff, Arkansas, and Newport, Indiana; future disposal facilities at Pueblo, Colorado, and Blue Grass, Kentucky; and from the Joint Munitions Command, Rock Island, Illinois.

To accomplish the audit objectives, we took the following steps:

- To determine the key factors affecting program cost and schedule, we reviewed GAO Report No. NSIAD 97-18, "Chemical Weapons and Materiel: Key Factors Affecting Disposal Costs and Schedule," February 10, 1997; GAO Report No. NSIAD 00-80, "Chemical Weapons Disposal: Improvements Needed in Program Accountability and Financial Management," May 8, 2000; the current approved program baseline for the Demilitarization Program; the Budget Estimate Submission for FYs 2004 and 2005; Program Budget Decision 204, "Chemical Agents and Munitions Destruction," December 9, 2002; and cost and schedule data. Additionally, we interviewed representatives from the Director, Chemical Materials Agency's staff including the Project Managers for Chemical Stockpile Disposal and Chemical Stockpile Emergency Preparedness, the Product Manager for Non-Stockpile Chemical Materiel, and the Program Manager for Assembled Chemical Weapons Assessment. Also, we met with representatives from the Army Cost and Economic Analysis Center and the Cost Analysis Improvement Group.

- To determine the efforts planned to dispose of buried munitions, we reviewed Army Regulation 200-1, "Environmental Protection and Enhancement," February 21, 1997, "Management Guidance for the Defense Environmental Restoration Program," September 2001, and the non-stockpile buried chemical warfare materiel cost estimate as provided in a rough-order-magnitude cost estimate that the Product Manager for Non-Stockpile

Chemical Materiel prepared. Additionally, we evaluated the "National Defense Authorization Act for Fiscal Year 1993," section 176, "Report on Destruction of Non-Stockpile Chemical Materiel," (Public Law 102-484) to determine the Army's plans for destroying chemical warfare materiel. We also interviewed representatives from offices of the Deputy Under Secretary of Defense (Installations and Environment) and the Army Corps of Engineers to determine their responsibilities and actions for the Defense Environmental Restoration Program, and the Product Manager for Non-Stockpile Chemical Materiel to identify those installations with chemical stockpile disposal facilities where remediation of potential burial sites with chemical warfare materiel could delay closure of the chemical stockpile disposal facilities.

General Accounting Office High-Risk Area. The General Accounting Office has identified several high-risk areas in the DoD. This report provides coverage of the DoD Weapons Systems Acquisition high-risk area.

Management Control Program Review

DoD Directive 5010.38, "Management Control (MC) Program," August 26, 1996, and DoD Instruction 5010.40, "Management Control (MC) Program Procedures," August 28, 1996, require DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of the Review of the Management Control Program. In accordance with DoD policy, acquisition managers are to use program cost, schedule, and performance parameters as control objectives to implement the requirements of DoD Directive 5010.38. Accordingly, we limited our review to management controls directly related to areas of requirements, threat assessments, program assessments, cost estimating, earned value management, maintenance planning and oversight, design and operational failure reviews, contract management, and supply support planning for the five programs under the Demilitarization Program that the Under Secretary of Defense (AT&L) established. We reviewed management's self-evaluation applicable to those controls.

Adequacy of Management Controls. In the two previous reports, we identified material management control weaknesses for the Demilitarization Program as defined by DoD Instruction 5010.40. In Inspector General, DoD Report No. D-2003-015, "A Revised Acquisition Program Baseline and Threat Assessment for the Chemical Demilitarization Program," October 30, 2002, we identified material management control weaknesses in that controls were not in place to ensure that the program baseline agreement was revised when a significant baseline breach was reported and that a system threat assessment was not prepared for the program. Recommendations A. and B.2. of Report No. D-2003-015, if implemented, will enable the Under Secretary of Defense (AT&L) to use the baseline concept in managing future program cost and schedule and the depot site security managers to establish fully effective security plans. In Inspector General, DoD Report No. D-2003-088, "Acquisition of the Chemical Demilitarization Program," May 12, 2003, management controls were insufficient in conducting program cost reviews; obtaining accurate cost and schedule information; ensuring that the contractor at the Tooele Chemical Agent Disposal Facility performed timely preventive maintenance; ensuring that facility project managers conducted effective operational failure reviews;

and identifying initial and replenishment spares early in facility development, assigning national stock numbers to replenishment spares needed at multiple facilities, and establishing an obsolescence program to identify replenishment spares. Recommendations A.1., A.2., B.1., B.2., C.1., C.2., D., E.1., E.2., and E.3. of Report No. D-2003-088, if implemented, will improve the overall management of the Demilitarization Program and provide information needed by acquisition decision makers to make fully informed investment decisions. A copy of this report will be provided to the senior official responsible for management controls in the Office of the Under Secretary of Defense (AT&L) and the Department of the Army.

Adequacy of Management Self-Evaluation. The Director, Chemical Materials Agency performed annual reviews of the five programs under the Demilitarization Program that were established as assessable units to satisfy the management control requirement. The Director based his annual statement of assurance on statements from the project managers. However, in their self-evaluations, the project managers did not identify the specific management control weaknesses that the audit identified in the two audit reports because the self-evaluations did not review those areas as part of the assessable units.

Appendix B. Prior Coverage

General Accounting Office (GAO)

GAO Report No. 02-890, "Chemical Weapons: Lessons Learned Program Generally Effective but Could Be Improved and Expanded," September 10, 2002

GAO Report No. 01-850, "Chemical Weapons: FEMA and Army Must Be Proactive in Preparing States for Emergencies," August 13, 2001

GAO Report No. NSIAD 00-80, "Chemical Weapons Disposal: Improvements Needed in Program Accountability and Financial Management," May 8, 2000

GAO Report No. NSIAD 97-91, "Chemical Weapons Stockpile: Changes Needed in the Management of the Emergency Preparedness Program," June 11, 1997

GAO Report No. NSIAD 97-18, "Chemical Weapons and Materiel: Key Factors Affecting Disposal Costs and Schedule," February 10, 1997

Inspector General of the Department of Defense (IG DoD)

IG DoD Report No. D-2003-088, "Acquisition of the Chemical Demilitarization Program," May 12, 2003

IG DoD Report No. D-2003-068, "Army Response to Chemical Agent Incident at Tooele Chemical Agent Disposal Facility," March 28, 2003

IG DoD Report No. D-2003-015, "A Revised Acquisition Program Baseline and Threat Assessment for the Chemical Demilitarization Program," October 30, 2002

IG DoD Report No. 99-136, "Government-Furnished Equipment Year 2000 Issues for Army Chemical Demilitarization," April 16, 1999

IG DoD Report No. 99-081 "Tooele Chemical Agent Disposal Facility Preparation for Year 2000," February 9, 1999

IG DoD Report No. 99-060, "Johnston Atoll Chemical Agent Disposal System Preparation for Year 2000," December 24, 1998

IG DoD Report No 98-051, "Chemical Event at Tooele Chemical Agent Disposal Facility," January 20, 1998

Army Audit Agency

Army Audit Agency Report No. 01-131, "Financial Management of the Chemical Demilitarization Program," January 4, 2001

Army Audit Agency Report No. 01-001, “Matrix Support Requirements for the Chemical Demilitarization Program,” October 2, 2000

Army Audit Agency Report No. 00-346, “Engineering Change Process for the Chemical Stockpile Disposal Project; Aberdeen Proving Ground, Maryland,” August 14, 2000

Army Audit Agency Report No. 00-205, “Military Interdepartmental Purchase Requests; Program Manager for Chemical Demilitarization,” March 27, 2000

Army Audit Agency Report No. 99-221, “Chemical Stockpile Emergency Preparedness Program; Aberdeen Proving Ground, Maryland,” April 16, 1999

Army Audit Agency Report No. 99-155, “Chemical Agent Inventory Controls; Aberdeen Proving Ground, Maryland,” February 17, 1999

Army Audit Agency Report No. 99-97, “Recycling Contaminated Metal; Rock Island Arsenal, Rock Island, Illinois,” December 31, 1998

Army Audit Agency Report No. 99-26, “Lessons Learned - Chemical Stockpile Disposal Project; Aberdeen Proving Ground, Maryland,” November 9, 1998

Army Audit Agency Report No. 97-190, “Non-Stockpile Chemical Material Project; Aberdeen Proving Ground, Maryland,” May 12, 1997

Army Audit Agency Report No. 97-42, “Johnston Atoll Chemical Agent Disposal System,” November 21, 1996

Appendix C. Management Roles Within the Chemical Demilitarization Program

This section describes the management roles of key Army officials within the Demilitarization Program. The DoD established the Demilitarization Program to support the Assistant Secretary of the Army for Installations and Environment in destroying all chemical warfare-related materiel while ensuring maximum protection of the public, personnel involved in the destruction effort, and the environment. In February 2003, the Army provisionally restructured the key offices that manage the Demilitarization Program and will define the specific duties for each office not later than October 2003. Key officials within the Demilitarization Program include:

Director, Chemical Materials Agency. Section 1521, title 50, United States Code, "Destruction of Existing Stockpile of Lethal Chemical Agents and Munitions," (Public Law 99-145) designates the Army as the lead agent for the complete destruction of the chemical weapons stockpile and related non-stockpile materiel. As a result, the Army designated the Program Manager for Chemical Demilitarization as the principal manager responsible for preparing and updating the overall planning and budgeting details necessary to execute the operation of destroying the chemical weapons. Under the restructured program, the Army reassigned those responsibilities to the Director, Chemical Materials Agency. For program acquisition related program issues, the Director reports to Assistant Secretary of the Army (Acquisition, Logistics, and Technology), who, in turn, reports to the Under Secretary of Defense (AT&L). For disposal facility operations and emergency preparedness related issues, the Director reports to the Commanding General, Army Materiel Command.

Program Manager for the Elimination of Chemical Weapons. Under the Demilitarization Program's restructured management, the Army established the Program Manager for the Elimination of Chemical Weapons to oversee the development and test and evaluation of the chemical disposal facilities. The Program Manager for the Elimination of Chemical Weapons reports to the Director, Chemical Materials Agency.

Deputy Director for Plant Operations, Office of the Director, Chemical Materials Agency. The Army established the Deputy Director for Plant Operations to manage the chemical warfare materiel storage, the day-to-day operations of the chemical disposal facilities once they become operational, and to oversee the execution of the emergency preparedness program. The Deputy for Plant Operations reports to the Director, Chemical Materials Agency.

Project Manager for Chemical Stockpile Disposal. The Project Manager for Chemical Stockpile Disposal is responsible for constructing and systemizing chemical disposal facilities for the stockpiles of unitary munitions with chemical agents at five locations. During those phases, the Project Manager reports to the Program Manager for the Elimination of Chemical Weapons. Upon successful construction and systemization of each chemical disposal facility, stockpile destruction responsibility for those sites transfers to the Deputy for Plant Operations, Office of the Director, Chemical Materials Agency. Accordingly, the Project Manager reports on those matters to the Deputy Director for Plant Operations.

Product Manager for Non-Stockpile Chemical Materiel. The Product Manager for Non-Stockpile Chemical Materiel is responsible for destroying all non-stockpile chemical materiel or chemical warfare materiel that is not part of the unitary stockpile. The non-stockpile chemical materiel mission includes binary chemical weapons, former chemical weapon production facilities, recovered chemical warfare materiel, and miscellaneous chemical warfare materiel. The Product Manager for Non-Stockpile Chemical Materiel reports to the Program Manager for the Elimination of Chemical Weapons.

Project Manager for Alternative Technologies and Approaches. Public Law 102-484 requires the Army to establish the position of Project Manager for Alternative Technologies and Approaches to examine alternative technologies for demilitarizing chemical weapons at two bulk facilities, if alternative operations can be completed within the baseline schedule, and if alternative operations are significantly safer and is equal to or more cost-effective than the approved baseline incineration process. The Project Manager for Alternative Technologies and Approaches reports to the Program Manager for the Elimination of Chemical Weapons.

Project Manager for Chemical Stockpile Emergency Preparedness. Public Law 99-145 requires the Chemical Stockpile Emergency Preparedness Project to ensure that the population surrounding the chemical storage facilities receives maximum protection. The Deputy for Plant Operations, Office of the Director, Chemical Materials Agency oversees the efforts of the Project Manager for Chemical Stockpile Emergency Preparedness. The "Strom Thurmond National Defense Authorization Act for Fiscal Year 1999" (Public Law 105-261), directs the Army to take responsibility for on-post emergency preparedness and the Federal Emergency Management Agency to take responsibility for off-post emergency preparedness. As a result, the Army established a memorandum of understanding with the Federal Emergency Management Agency to ensure that the Agency provided local municipalities with funding for the planned emergency preparedness.

Program Manager for Assembled Chemical Weapons Assessment. In 1996, in response to direction from Congress, the Office of the Secretary of Defense established the Program Manager for Assembled Chemical Weapons Assessment. The Congress directed that a program manager other than the Program Manager for Chemical Demilitarization identify and demonstrate at least two alternative technologies for destroying assembled chemical weapons. The Program Manager for Assembled Chemical Weapons Assessment has the responsibility for identifying and demonstrating the alternative technologies, and provides reports on program status directly to the Under Secretary of Defense (AT&L).

Appendix D. Environmental Restoration Programs for Chemical Warfare Materiel Burial Sites

The paragraphs that follow describe the Non-Stockpile Chemical Materiel Product and the DoD Environmental Restoration Programs.

Non-Stockpile Chemical Materiel

The Non-Stockpile Chemical Materiel Product is divided into five categories: binary chemical weapons, recovered chemical warfare materiel, buried chemical warfare materiel, former chemical weapons production facilities, and miscellaneous chemical warfare materiel. Most of the known chemical warfare materiel classified as non-stockpile, the U.S. has declared and is subject to the destruction requirements established under the provisions of the Chemical Weapons Convention. The warfare materiel that is not required for destruction under the Convention includes empty ton containers, recovered chemical agent identification sets, and buried chemical warfare materiel. Any time the Army recovers buried chemical warfare materiel, it must first be assessed to determine whether it meets the definition and criteria for a chemical weapon. If the recovered chemical warfare materiel meets the definition and criteria under the Convention, it will be declared and destroyed under the appropriate treaty verification regime.

Environmental Restoration Programs

Public Law 102-484 directs the Army to plan for the remediation of buried chemical warfare materiel sites that are a significant environmental concern to the public. To address this challenge, the DoD formally established the Defense Environmental Restoration Program in 1986 to provide for the cleanup of DoD hazardous waste sites. The DoD budgets about $3 billion annually to accomplish the program objectives. As with other DoD functions that require the handling of chemical warfare materiel, the Congress established the Army, as Executive Agent. The U.S. Army Environmental Center and the U.S. Army Corps of Engineers were tasked with overseeing the established environmental restoration programs that protect human health and the environment, clean up contaminated sites as quickly as resources permit, and to expedite cleanup to facilitate disposal of excess DoD properties for local reuse.

Service Installation Restoration Programs. Each of the Services has established Installation Restoration Programs to comply with the Defense Environmental Restoration Program. The mission of the Service programs is to identify, investigate, and clean up contamination at active and operating Service installations. Each installation commander has the overall responsibility for their sites, and coordinates the program execution, guidance, planning, oversight, and reporting of environmental cleanup with their respective environmental centers. The Army Environmental Center, the Naval Facilities Engineering Command, the

Air Force Center for Environmental Excellence, and the Defense Logistics Agency assist the installation commanders with planning for the remediation of sites where buried chemical warfare materiel has been identified. Within the Army, the U.S. Army Corps of Engineers is responsible for coordinating with the installation commanders, the excavation of the buried materiel from active sites.

The Product Manager for Non-Stockpile Chemical Materiel plans to perform program disposal tasks under service agreements with DoD activities and installations and expects reimbursement for the disposal of recovered chemical warfare materiel. The DoD has not identified the processes that will be used for reimbursement. Through April 2003, the Office of the Deputy Under Secretary of Defense (Installations and Environment) has not received tasking to prepare a comprehensive life-cycle cost estimate that identifies the requirements for the remediation of known or potential burial sites located on active Service installations.

Formerly Used Defense Sites Program. In September 2001, through the updated Defense Environmental Restoration Program Guidance, the Deputy Under Secretary of Defense (Installations and Environment) emphasized the need for the DoD to assess whether the formerly used defense sites contain buried chemical warfare materiel. As a part of that assessment, the DoD was to include an estimate of costs to complete recovery and disposal of the identified materiel. In January 2002, the Deputy Assistant Secretary of the Army (Environment Safety and Occupational Health) tasked the U.S. Army Corps of Engineers with initiating and completing a plan to accelerate the schedule for the recovery of chemical warfare materiel at the sites by the end of FY 2004. The Corps of Engineers assigned this task to its Huntsville Engineering and Support Center and directed the center to provide periodic reporting on the plan's implementation. The Product Manager for Non-Stockpile Chemical Materiel is responsible for the storage, transportation, and destruction of the chemical warfare materiel once it is recovered from the sites.

Base Realignment and Closure Program. The Base Realignment and Closure Program is responsible for environmental restoration at all installations closed under the Base Realignment and Closure Act. Army Regulation 200-1, "Environmental Protection and Enhancement," February 21, 1997, assigns the U.S. Army Environmental Center as program manager for the remediation of chemical warfare materiel at all closure sites. Further, the Regulation states that the U.S. Army Corps of Engineers is responsible for the excavation of the chemical warfare materiel. The Product Manager for Non-Stockpile Chemical Materiel is responsible for disposal of the recovered chemical warfare materiel.

Use of Chemical Stockpile Disposal Facilities. The Assistant Secretary of the Army (Installations and Environment) recently expressed an interest in four chemical warfare materiel burial sites at installations scheduled for closure because of their co-location with existing or planned chemical stockpile disposal facilities. The four sites are the Newport Chemical Depot, Indiana; Umatilla Chemical Depot, Oregon; Pueblo Chemical Depot, Colorado; and, the Deseret Chemical Depot, Utah. The Product Manager for Non-Stockpile Chemical Materiel is evaluating the possibility of using the chemical stockpile disposal facilities for destruction of the chemical warfare materiel recovered from the four burial sites.

Appendix E. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition, Technology, and Logistics
  Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs)
Under Secretary of Defense (Comptroller)/Chief Financial Officer
  Deputy Comptroller (Program/Budget)
  Director (Program Analysis and Evaluation)

Joint Staff

Director, Joint Staff

Department of the Army

Assistant Secretary of the Army (Acquisition, Logistics, and Technology)
  Director, Chemical Materials Agency
    Program Manager, Elimination of Chemical Weapons
Assistant Secretary of the Army (Installations and Environment)
Commander, Army Materiel Command
  Commander, U.S. Army Soldier Biological and Chemical Command
Auditor General, Department of the Army
Commander, Army Test and Evaluation Center

Department of the Navy

Auditor General, Department of the Navy

Department of the Air Force

Auditor General, Department of the Air Force

Other Defense Organization

Director, Defense Contract Management Agency

Non-Defense Federal Organization

Office of Management and Budget

Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Reform
House Subcommittee on Government Efficiency and Financial Management, Committee on Government Reform
House Subcommittee on National Security, Emerging Threats, and International Relations, Committee on Government Reform
House Subcommittee on Technology, Information Policy, Intergovernmental Relations, and the Census, Committee on Government Reform

Department of the Army Comments

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
ACQUISITION LOGISTICS AND TECHNOLOGY
103 ARMY PENTAGON
WASHINGTON DC 20310-0103

AUG 6 2003

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MEMORANDUM FOR DEPARTMENT OF DEFENSE INSPECTION GENERAL, OFFICE OF THE (ACQUISITION MANAGEMENT DIRECORATE)

SUBJECT: DODIG Report No. D-2003-0070, The Chemical Demilitarization Program: Increased Costs for Stockpile and Non-stockpile Chemical Materiel Disposal Programs.

Management comments from the Acting Deputy Assistant Secretary of the Army for the Elimination of Chemical Weapons (Enclosure 1) and the Director, U. S. Army Chemical Materials Agency (Enclosure 2) for the subject report are enclosed.

Nancy M. Ray
Colonel, U.S. Army
Acting Deputy Assistant Secretary of the Army
for the Elimination of Chemical Weapons

Enclosures

DoDIG DRAFT OF A PROPOSED REPORT – DATED MAY 30, 2003
D2003AE-0070

The Chemical Demilitarization Program: Increased Costs for Stockpile and Non-Stockpile Chemical Materiel Disposal Programs

U.S. Army Chemical Materials Agency (Provisional)
Comments to the Recommendations and Other Comments

RECOMMENDATION B.

B.2. *We recommend that the Product Manager for Non-Stockpile Chemical Materiel update the plan and cost estimate for disposal of buried munitions after the environmental offices of the DoD components implement Recommendation B1.*

July 28, 2003 Reply to the Proposed Draft Report:

- Concur. The Product Manager for Non-Stockpile Chemical Materiel (PM NSCM) is currently doing estimates for four (4) potential BRAC locations[1], and is prepared to update the estimates for all burial sites. During the fourth quarter of fiscal year (FY) 2003, PM NSCM will meet with representatives from the office of the Under Secretary of Defense for Acquisition, Technology, and Logistics to discuss burials and the path forward.

Other Comments:

July 28, 2003 Reply to the Proposed Draft Report:

- We recommend that DoDIG reexamine statements made on pages 3 and 9 of the draft report relative to closure costs. Cost estimates for the closure of incineration-based disposal facilities are not expected to negatively affect future program cost estimates. The closure cost estimates used to revise the life cycle cost estimate in September 2001 were based on an estimated 33-month duration for JACADS Closure at a cost of $411 million. With JACADS Closure now expected to be completed 2 1/2 months early at a cost of approximately $365 million, closure estimates submitted in September 2001 for other incineration-based stockpile disposal facilities are expected to be adequate based on JACADS lessons learned.

- On page 7, the draft report discusses additional funding for emergency preparedness requested by the State of Alabama. It should be noted the Army has funded the additional FY 2003 collective protection and special population requirements identified by the State.

[1] The four locations are Deseret Chemical Depot, UT; Newport Chemical Depot, IN; Pueblo Chemical Depot, CO; and Umatilla Chemical Depot, OR.

Encl 1

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U.S. Army Chemical Materials Agency (Provisional)
Comments to the Recommendations and Other Comments

Other Comments: (continued)

July 28, 2003 Reply to the Proposed Draft Report:

- Clarification is provided relative to cost estimates for disposal of buried chemical munitions. The $11.7 billion cost estimate for disposal of buried munitions cited on page 12, and to which the footnote 6 refers, has not been updated, except for changes to inflation indices, since 1996. New cost estimates utilizing current remediation and treatment procedures, technology, site information and environmental standards will significantly increase the cost estimate.

DoDIG DRAFT OF A PROPOSED REPORT – DATED MAY 30, 2003
D2003AE-0070

The Chemical Demilitarization Program: Increased Costs for Stockpile and Non-Stockpile Chemical Materiel Disposal Programs

Acting DASA(ECW)
Comments to the Recommendations

RECOMMENDATION B2.

B.2. *We recommend that the Product Manager for Non-Stockpile Chemical Materiel update the plan and cost estimate for disposal of buried munitions after the environmental offices of the DoD components implement Recommendation B1.*

Reply to the Proposed Draft Report:

- Non-concur with the recommendation as written. The Product Manager for Non-Stockpile Chemical Materiel (PM NSCM) should participate as subject matter experts in updating the cost estimates for known, recovered materiel. PM NSCM does not currently have the assigned mission of planning future remediation activities, nor is that mission included in the Chemical Agent Munitions Destruction appropriations funding level.

Encl 2

Team Members

The Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing of the Department of Defense prepared this report. Personnel in the Office of the Inspector General of the Department of Defense who contributed to the report are listed below.

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