479-29

Base Realignment and Closure Open Burn/ Open Detonation Project

Seneca Army Depot Activity, New York

U.S. Army Audit Agency

20 May 2003

Audit Report: A-2003-0266-IMO

DEPARTMENT OF THE ARMY
U.S. ARMY AUDIT AGENCY
Office of the Deputy Auditor General
Installations Management
3101 Park Center Drive
Alexandria, VA 22302-1596

20 May 2003

Chief, U.S. Army Base Realignment and Closure Office
Commander, U.S. Army Corps of Engineers New England District
Commander, U.S. Army Corps of Engineers New York District
Commander, U.S. Army Engineering and Support Center, Huntsville

This is our report on the audit of the open burn/open detonation environmental remediation projects at Seneca Army Depot Activity. The 1995 Defense Base Closure and Realignment Commission recommended closure of Seneca Depot. Under base closure policies, The Army is responsible for environmental remediation of the property before its transfer. We did the audit at the request of the U.S. Army Base Realignment and Closure Office.

These are the report's key sections:

- The Summary of the Audit is an overview of what we audited and found.
- General Information tells how we conducted the audit and includes important information on matters related to the audit.
- The Findings section describes in detail the conditions we found. It also presents our recommendations and will include a synopsis of your command comments.
- Annex A contains the official Army position and your verbatim comments on the recommendations. Annex B lists others receiving copies of the report. Annex C lists the audit staff.

The recommendations in the report are addressed to the Base Closure Office.

I appreciate the courtesies and cooperation extended to us during the audit.

FOR THE DEPUTY AUDITOR GENERAL:

Sheila B Clark

SHEILA B. CLARK
Program Director
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CONTENTS

SUMMARY OF THE AUDIT

WHAT WE AUDITED

The U.S. Army Base Realignment and Closure Office asked that we audit the open burn/open detonation project at Seneca Army Depot Activity. The request indicated that we should limit the review to the remedial design and remedial action phases of the project and focus on management of the cleanup effort at all levels. The Base Closure Office also indicated that cost overruns had occurred in these remediation efforts. After further discussions we learned that the office specifically wanted us to review the open burning ground (known as site SEAD-23) and rifle grenade range (referred to as site SEAD-44A).

The 1995 Defense Base Closure and Realignment Commission recommended closure of Seneca Depot, which is located in Romulus, New York. Under base closure policies, The Army is responsible for performing required environmental restoration before transfer of the property.

As of November 2001, the Base Closure Office had released about $48 million for environmental cleanup efforts at the depot. About $21.5 million was for the remediation work at the two sites we reviewed.

We focused the audit on evaluating the management of these two environmental remediation efforts and reviewing cost increases related to the projects.

OBJECTIVES, CONCLUSIONS AND COMMAND RESPONSE

We had four objectives for the audit. Here are those objectives, our conclusions and—where appropriate—command responses to the related findings and recommendations:

Objective: To evaluate the management of remedial efforts of the open burn/open detonation project at Seneca Army Depot Activity.

Conclusion: Management of remedial efforts of the open burn/open detonation project needed improvement. Project management and financial management controls, and contract practices weren't adequate to manage the project, account for project funds or administer contracts.

Command Response: The Base Realignment and Closure Office agreed with the findings and recommendations and said it had taken or would take corrective action.

(Our recommendations and a synopsis of command comments are in Findings A and B.)

Objective: To determine whether controls were adequate to define and manage the scope of the project within established timeframes.

Conclusion: Controls weren't adequate to define and manage the scope of the project. An independent reevaluation of the technical feasibility and financial implications wasn't reassessed as project costs escalated. The Base Closure Office and U.S. Army Corps of Engineers initiated corrective actions that should be effective for the remainder of the Seneca project, but need to be institutionalized for the future.

Command Response: The Base Closure Office agreed with our findings and recommendations and said it had taken or would take corrective actions.

(Our recommendations and a synopsis of command comments are in Finding A.)

Objective: To evaluate the adequacy of financial controls to account for funds programmed for the project.

Conclusion: Financial controls weren't adequate to account for funds programmed for the project. Costs to complete the project weren't accurately reported in the workplans. In addition, managers didn't have visibility over project costs in the accounting system.

Command Response: The Base Closure Office agreed with our finding and recommendations and said it had taken or would take corrective actions.

(Our recommendations and a synopsis of command comments are in Finding B.)

Objective: To evaluate the adequacy of controls to administer the remediation contracts.

Conclusion: Contract management practices weren't adequate to administer the remediation contracts. Management needed to consider using onsite government contract surveillance for base closure ordnance removal projects.

Command Response: The Base Closure Office agreed with our finding and recommendations and said it had taken or would take corrective actions.

(Our recommendations and a synopsis of command comments are in Finding C.)

GENERAL INFORMATION

AUDIT SCOPE AND METHODOLOGY

We performed this audit:

- From June 2001 through December 2002.
- At the request of the U.S. Army Base Realignment and Closure Office.
- In accordance with generally accepted government auditing standards and included the tests of management controls that we considered necessary under the circumstances.

The audit covered transactions representative of operations current at the time of the audit.

To answer our objectives related to the management of the environmental remediation efforts of the open burn/open detonation project at Seneca Army Depot Activity, we:

- Reviewed supporting documentation at Seneca Depot and U.S. Army Engineering and Support Center, Huntsville.
- Obtained and evaluated financial documentation from the Corps of Engineers Financial Management System.
- Examined documentation on the history of environment remediation at the depot.
- Held discussions with key personnel from Headquarters, U.S. Army Corps of Engineers; U.S. Army Corps of Engineers New England District; U.S. Army Corps of Engineers New York District; the Huntsville Center; U.S. Army Environmental Center; and the depot.
- Reviewed applicable DOD, Army, and base closure and realignment guidance.

RESPONSIBILITIES

The Assistant Chief of Staff for Installation Management has staff responsibility for operating Army installations. The Base Closure Office is a subordinate activity of the Assistant Chief of Staff and is responsible for

the centralized management, coordination, development and execution of The Army's base realignment and closure program. It is also the focal point for resources and funding of the Army program.

The Army Environmental Center is a field operating agency of the Assistant Chief of Staff Installation Management. The center also oversees the execution of the Base Realignment and Closure Environmental Restoration Program and provides supports to the Base Closure Office related to the program. The center prepares the base realignment and closure workplan, reports on progress, develops Armywide guidance, and coordinates program activities and requirements with major Army commands.

U.S. Army Materiel Command was the major command responsible for the closure, environmental restoration and disposal of property at Seneca Depot. U.S. Army Operations Support Command, a major subordinate command of Army Materiel Command [1], was responsible for the execution, direction and management of the Seneca project.

The Corps of Engineers has program management responsibilities for environmental restoration programs at base closure installations. The Base Closure Office gave the New York District, through Corps Headquarters, funding for the overall restoration of the Seneca project.

The Huntsville Center is a subordinate activity of the Corps that provides specialized engineering, technical and construction management services. These services support programs like the elimination of unexploded ordnance at formerly used defense sites.

The depot's base environmental coordinator is the DOD representative for the installation with responsibility and implementation authority for environmental cleanup programs related to transfer of the site's real property. The coordinator orchestrated the work of the installation staff, Army technical support agencies and contractors to accomplish base closure goals for environmental restoration.

The U.S. Environmental Protection Agency is the Federal agency responsible for coordinating efforts among other Federal agencies with respect to the impact of their operations on the environment. In conjunction with State environmental regulators, the agency is responsible for approving the selected remedial action plan for contaminated soils and groundwater at base realignment and closure installations.

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[1] Operations Support Command is now U.S. Army Joint Munitions Command (Provisional).

FINDINGS, RECOMMENDATIONS AND COMMENTS

FINDING A: PROJECT MANAGEMENT FOR THE OPEN BURNING GROUNDS REMEDIATION

For the Chief, U.S. Army Base Realignment and Closure Office

SUMMARY

The project management process for the open burning grounds remediation project needed additional controls. The remediation project included removal of both unexploded ordnance and hazardous waste material. For most of the duration of the project, project management responsibilities were compartmentalized among individuals separately responsible for the removal of unexploded ordnance and hazardous waste and the integration of overall remediation efforts at the depot. This separation resulted in inefficient communication among officials from the depot through DA. Especially affected was communication of the rationale for increases in project scope and the estimated costs to complete the project. Consequently, senior managers didn't have the opportunity to assess options and take actions to minimize the effects of scope increases, time extensions and remediation solutions.

To complete the project, in May 2001 U.S. Army Corps of Engineers New England District combined the ordnance and hazardous waste removal actions under a single delivery order and delegated the contracting officers representative responsibilities to U.S. Army Corps of Engineers New York District. The concept of combining all actions under a single delivery order and the direct authority of a single district with overall site responsibilities should improve management controls. However, other, complementary actions are needed to:

- Ensure that lines of authority provide a clearly designated person with overall authority for the execution of future remediation projects when more than one Corps activity is involved.

- Ensure that the total cost of the project can be broken down by the type of remediation.

- Strengthen the management process by establishing a reevaluation point in the life cycle of unexploded ordnance removal projects to reassess the continued feasibility of the specific project with other remediation options.

- Establish a formal status reporting process that periodically and comprehensively summarizes and documents the status of remediation at closing installations.

Our recommendations to improve these conditions begin on page 22.

BACKGROUND

Since its inception in 1941, Seneca Army Depot's primary mission was the receipt, storage, maintenance and supply of military ordnance. As part of this mission, the depot conducted disposal operations for surplus and unusable military munitions and explosives by burning.

During 1990 the National Priority List listed the depot as a Federal Superfund site. Between 1992 and 1994, remedial investigation was performed at the site, and the results indicated the presence of ordnance residuals, including heavy metals and explosive material. During 1995 the Defense Base Closure and Realignment Commission recommended closure of the depot.

With support from the U.S. Environmental Protection Agency and the New York State Department of Environmental Conservation, in November 1997 Army representatives developed a proposed plan for remediation of the open burning grounds. The proposed plan supplemented the Remedial Investigation and Feasibility Study to inform the public of the preferred remedy.

The Army finalized its record of decision, which presents the selected remedial action plan, in February 1999. The remediation action plan was in accordance with 42 U.S.C. section 9601, Comprehensive Environmental Response, Compensation and Liability Act (1980), as amended. The New York State Departments of Environmental Conservation and Health agreed with the remedy, and on 14 June 1999 the Environmental Protection Agency concurred.

Project Remediation Plan

The Army based its remediation plans on the remedial action requirements identified in the record of decision for the open burning grounds. Goals of the remediation were to:

- Remediate ordnance and explosives to meet the requirements of the DOD Explosives Safety Board for unrestricted use or put into place land use restrictions as the Board may require.

- Excavate soils with high lead concentrations and sediments from the open burning grounds and with high concentrations of lead and copper from the adjacent Reeder Creek.

The Army planned remediation of the ordnance, explosives and hazardous, toxic and radiological waste with separate contactors performing each action. The original plan was for the contractors to remediate the ordnance and explosives first and then the hazardous, toxic and radiological waste. However, because of delays in the ordnance and explosives removal, the contractors did both remediation efforts concurrently.

Ordnance and Explosives Remediation

The initial statement of work to remove ordnance and explosives, dated 23 June 1997, required the contractor to perform:

- Unexploded ordnance clearance of all soil currently stockpiled on the site. These stockpiles consist of the area known as the "low lying hill" and the berms surrounding each individual burn pad.

- Surface and subsurface clearance of unexploded ordnance over approximately 30 acres of the site. The subsurface clearance was to be performed to a depth of 2 feet.

The Huntsville Center's Unexploded Ordnance and Explosives Center of Expertise administered the delivery order. The Huntsville Center maintained program management responsibilities and had a safety specialist onsite to oversee safety issues. Operations under the delivery order began in October 1998 with site clearing.

In November 1998 the Huntsville Center issued a modification to the task order to incorporate the revised statement of work (dated 4 August 1998) and to confirm earlier notices to proceed. On 21 September 1998, the Huntsville Center issued notices to proceed to begin work on task 3 (location surveying and mapping) and task 4 (performance of geophysical test plot). On 9 October 1998, the center issued a notice to proceed to begin work on task 5 (unexploded ordnance removal). This task included requirements to:

- Safely locate, identify and dispose of surface and subsurface ordnance and explosives within the 30-acre site to a depth of 2 feet.

- Geophysically map the entire site and investigate anomalies found to a depth of 2 feet and remove any ordnance and explosives found.

- Safely provide construction support for follow-on hazardous, toxic and radiological waste remedial actions involving excavation and removal of lead contaminated soil.

In September 2000 work under this delivery order ceased because the ordering authority expired. Contractors had not completed the remediation efforts.

Hazardous Waste Remediation

The Corps contracted with a separate firm to perform soil and sediment remediation within the open burning grounds and the adjacent Reeder Creek. These remediation efforts included:

- Staging and sampling excavated soil to determine lead content.

- Stabilization of soils and sediments exceeding the criteria for the toxicity characteristic leaching procedure.

- Sampling of excavations and site perimeter limits.

- Off-site disposal of contaminated soils and sediments.

- Excavation of contaminated creek sediments.

- Treatment and disposal of wastewater generated from site activities.

All materials generated as a result of remediation activities in the open burning grounds and Reeder Creek were to be properly treated and transported offsite for disposal. The New England District issued the delivery order on 2 May 2001 and subsequently transferred contracting officer authority to the New York District for administration. The contractor performed work under this delivery order from June 1999 to May 2001. Additional work the contractor needed to perform was placed under a separate contract because the Corps had reached the funding limits under the contract.

New Contracting Strategy

In January 2001 the Base Closure Office issued guidance for developing a new contracting support strategy for the remediation projects at

Seneca Depot. The office developed the new strategy to minimize the cost to complete the two projects and provide onsite construction management to ensure that field decisions made were in The Army's best interests. The policy included having only one Corps district responsible for construction management.

DISCUSSION

In this section we discuss four areas:

- Responsibilities for project management.
- Visibility over costs.
- Reevaluation of remediation.
- Workplan.

Responsibilities for Project Management

The Corps didn't have effective project management controls over the remediation projects at Seneca Depot. Two lines of authority were responsible for management and oversight of the concurrent remediation efforts:

- The Huntsville Center was responsible for management and oversight of the ordnance and explosives removal.
- The New York District was responsible for oversight of the hazardous, toxic, radiological waste remediation.

The New York District had an onsite project manager to manage and oversee the project. However, although the Huntsville Center had a safety officer onsite to oversee operations, it didn't have a contracting officers representative onsite to monitor the contractor's work.

The Corps didn't establish clear designations of authority for coordination and communication regarding the dual projects. As a result, the Corps could not effectively communicate the reasons for project delays to key players, including the Base Closure Office and Environmental Center.

The new contracting strategy to designate one Corps district with responsibility for remediation project management strengthens management controls. The Corps should expand this strategy to future base realignment and closure projects.

We discuss actions needed to ensure that future remediation projects have a single individual (the resident engineer) designated with responsibility for oversight of the projects in Recommendation A-1.

Visibility Over Costs

Under the new contracting strategy, the Corps lost visibility over the funds spent on each type of remediation. The New England District issued a new delivery order to complete both remediation projects. The new delivery order also included similar work to be performed at another site (the rifle grenade range). The work effort included an initial determination of work requirements to complete the excavation and sifting of lead contaminated soil and resifting of oversize piles remaining from the previous contractor. The New England District transferred contracting officers representative responsibility to the New York District.

By combining the two remediation projects under one district, the Corps strengthened management controls. However, the Corps didn't make provisions to ensure that the contractor provided a cost breakdown by type of remediation—unexploded ordnance or hazardous waste removal—and by location. The Base Closure Office will need this type of historical data when evaluating similar remediation projects in the future.

We discuss actions needed to ensure that cost information is broken down by type of remediation in Recommendation A-2.

Reevaluation of Remediation

The Army's project management methodology didn't require a project reevaluation point during the life cycle of the project. In October 1998 representatives from the Huntsville Center, the design contractor and the construction contractor conducted a value engineering study to explore alternatives available for accomplishing the ordnance remediation of the open burning grounds site. They initiated the value engineering process as a result of significant changes in the original assumptions about the scope of the project and resulting increases in the proposed cleanup costs.

The value engineering study initially developed 14 proposals; 6 were selected for further review. The study recommendation was to conduct

surface clearance only and have a 1-foot fill placed over the entire area with application of appropriate land use restrictions. The land use would be restricted to a wildlife conservation area. The Corps didn't take any actions to implement this recommendation or formally discuss the study with the Base Closure Office.

As cleanup costs at this site continued to increase, the Corps didn't conduct any other studies to validate the continued cost-effectiveness of the effort or whether other alternatives, such as implementation of land use restrictions, were appropriate. According to the Environmental Center, the Huntsville Center conducted independent technical reviews annually on selected projects at Seneca Depot, and issues identified in these reviews were subject to validation by the Environmental Center. Although the Huntsville Center reviewed the open burning grounds project during this process, no one communicated the results to the Environmental Center. The Environmental Center wasn't aware of the project cost growth, and in the workplans for 2000 and 2001 it recorded the project as complete except for groundwater monitoring.

We discuss actions needed to ensure that remediation efforts that incur significant cost increases are reevaluated to reassess technical feasibility and financial implications in Recommendation A-3.

Workplan

Major commands didn't maintain up-to-date data in the Base Realignment and Closure Workplan for the purposes of reporting project status to the Environmental Center. The workplan is a prioritized list of The Army's total requirements for the base closure environmental program by installation, and The Army uses the workplan to track execution of the program. The workplan includes the proposed obligation of funds by month. The Base Closure Office and Environmental Center hold semi-annual meetings with the major commands to review execution of the environmental program and discuss related issues. The major commands brief the progress of the obligation and update any deviations in funding levels by site.

Environmental Center personnel said that workplan data for the open burning grounds had not changed for several years. And reprogramming actions used to fund the cost increases of the project had not been reported to the Environmental Center. During 1999 the total remediation cost for the open burning grounds site was $5.035 million, which consisted of:

Cost-to-Complete Data for Open Burning Grounds

Phase		Amount
Remediation Action		$3,813,000
Long-Term Monitoring		841,000
Remediation Design		381,000
	Total	$5,035,000

During the next 2 years, the cost-to-complete data showed only long-term monitoring of groundwater wells at a total cost of about $2.6 million. The number of groundwater wells had decreased from 33 to 25, but the duration of the monitoring had increased from 10 to 30 years.

A review of the afteraction report for the June 2001 workplan meeting found no mention of cost increases associated with the open burning grounds project.

We discuss actions needed to establish a formal status reporting process that periodically and comprehensively summarizes and documents the status of remediation at closing installations in Recommendation A-4.

RECOMMENDATIONS AND COMMENTS

This section contains specific recommendations and a summary of command comments for each recommendation. The official Army position and verbatim command comments are in Annex A.

A-1 **Recommendation:** Make sure that lines of authority for future remediation projects clearly designate a single person with overall authority for execution when more than one Corps of Engineers activity is involved in remediation actions.

Command Comments: The Base Realignment and Closure Office agreed and said that the environmental coordinator for base realignment and closure is responsible for program execution. When the Corps of Engineers is executing work, the program manager for the work effort will be responsible for coordinating all Corps engineer districts involved.

A-2 **Recommendation:** Ensure that all remediation project costs are broken down by type of project.

Command Comments: The Base Closure Office agreed and said that the government estimates and contractor's partial payment schedules have cost breakdowns and are on file at the contracting office.

A-3 **Recommendation:** Establish a formal decision reevaluation point in the life-cycle of ordnance removal projects to:

- Reassess the technical feasibility and financial implications of the selected remediation action.
- Evaluate alternatives if the initially determined course of remediation is no longer technically or financially feasible.

Make sure the results of the formal reevaluation are subject to an approval process similar to the process used for the initial determination.

Command Comments: The Base Closure Office agreed and said a reevaluation point is needed and that it will establish a reevaluation point process.

A-4 **Recommendation:** Establish a formal status reporting process from the closing installation to the Base Closure Office that documents the status of each project at the installation. The Base Closure Office will determine the content of the status report. Management activities would use the reports as the single source of project status for monitoring actions needed to ensure timely completion and within established funding levels.

Command Comments: The Base Closure Office agreed and said it will implement project status reporting to give management activities information they can use to monitor progress and financial status.

Official Army Position: The comments from the Base Closure Office represent the official Army position. The Base Closure Office coordinated its response with the U.S. Army Environmental

Center, Base Realignment and Closure Office–National Capital Region, and Seneca Army Depot Activity. The comments are in Annex A.

FINDING B: FINANCIAL MANAGEMENT

For the Chief, U.S. Army Base Realignment and Closure Office

SUMMARY

Financial management controls for the project weren't adequate. Managers didn't follow established financial management practices to provide adequate financial controls over funds used on the ordnance removal project. In addition, The Army needed additional controls to establish accurate and timely accounting information. We found that:

- The Base Closure Office didn't have separate Army Management Structure Codes to account for funds used on major unexploded ordnance removal sites.
- Project managers didn't charge the proper structure codes to account for specific phases of the cleanup process.
- Project managers used funding designated for other sites to pay for work at the rifle grenade range, an undesignated site not identified in the unexploded ordnance removal survey.
- Project managers didn't update estimates of remediation costs to reflect current conditions and the status of execution efforts.
- The Base Closure Office made reprogramming actions without ensuring that estimates in the cost-to-complete funding system were updated.

As a result, financial reports regarding site-specific cost data were misleading, workplan estimates didn't accurately reflect funding requirements, and information provided to higher headquarters was inaccurate.

Our recommendations to correct these conditions begin on page 30.

BACKGROUND

DA Pamphlet 37-100-95 (The Army Management Structure Fiscal Year 1995), dated 1 July 1994, states that an Army Management Structure Code is a standard classification of mission and management levels for Army activities and functions. It serves as a common language for inter-relating programming, budgeting, accounting and personnel control. The structure codes identify the various Army organizations and functions. The pamphlet states that each environmental restoration site has its own unique structure code.

Base Realignment and Closure Environmental Restoration Program Management Plan, dated April 1999, states that an environmental restoration site is a discrete area where contamination has been verified and requires further response action, and the area has been, or will be, entered into the Defense Sites Environmental Restoration Tracking System database.

Major commands are responsible for submitting cost-to-complete estimates, which are incorporated into the Restoration Tracking System. To the extent possible, cost-to-complete estimates should, reflect site-specific considerations and realistic assumptions about cleanup levels and technology to be applied. The Army uses these estimates to develop the budget for the Base Realignment and Closure Environmental Restoration Program in the Program Objective Memorandum.

The Army Environmental Center oversees execution of the Base Realignment and Closure Environmental Restoration Program. The center:

- Performs technical reviews of project requirements.
- Advises the Base Closure Office on the amount of funds needed to achieve project goals.
- Maintains the cost-to-complete database.
- Prepares the Base Realignment and Closure Workplan.
- Reports on project progress.

In addition, the center provides Restoration Tracking System data to support the annual report to Congress, DOD in-progress reviews, the Program Objective Memorandum, the budget estimate submission, and the President's Budget.

For the Base Realignment and Closure Environmental Restoration Program, the Base Closure Office releases funds for work performed at the site based on the workplan. If a structure code doesn't exist for a project, the major command must provide:

- A cost-to-complete estimate to the Environmental Center so that it can update the annual workplan and the Base Closure Office can release funding.
- The new code and title to the Base Closure Office, at which time funds can be distributed.

U.S. Army Materiel Command established two structure codes for funding the remediation at the open burning grounds: 61366S34 and 61366R34. Code 61366S34 is for the study and investigation phases of the project, which include the preliminary assessment, site inspection, remedial investigation and feasibility study. Code 61366R34 is for the remediation and cleanup phases of the project, which normally include remedial design, remedial action construction and remedial action operation.

Movement of funds between projects is prohibited without the approval of the Base Closure Office. Major commands must plan execution to meet The Army's obligation goals and ensure that funds are obligated only against sites and phases identified in the Base Realignment and Closure Workplan or approved changes.

DISCUSSION

This section discusses two areas:

- Army Management Structure Codes.
- Cost-to-complete estimate.

Army Management Structure Code

Planners didn't establish adequate fund controls in the accounting system for oversight of specific projects. Seneca Depot didn't use separate structure codes for major ordnance removal sites not containing hazardous contamination and didn't use proper codes to distinguish between survey efforts and actual remediation work.

Site Designation

Project planners didn't assign a separate structure code to the rifle grenade range to account for funds used. The structure codes used to fund this remediation effort were 61367S02 and 61367R02, which referred to the projects Unexploded Ordnance Archive Search and Unexploded Ordnance Remediation for the Depot Sites 118 and 44. These projects represented several unexploded ordnance sites that had been combined into one site, and several of the sites were significant in size. The Igloo Area, site designation SEAD-53, was about 3,000 acres; the Open Detonation Grounds, site designation SEAD-45, was about 60 acres; and the Former Explosive Ordnance Range, SEAD-57, was about 58 acres.

The depot identified the ordnance cleanup requirements for the rifle grenade range when it planned to transfer the property to the New York State Prison Authority in April 1999. Instead of assigning a separate structure code, performing a preliminary assessment, entering the site into the Restoration Tracking System, and then beginning the process, the depot expedited the range project and completed remediation work outside the normal process. This action is prohibited because the depot isn't allowed to spend funding from one project on another project or to request or receive funds for a site not in the Restoration Tracking System.

The definition of an environmental restoration site is a discrete area where verified contamination exists that requires further action, and the area was, or will be, entered into the Restoration Tracking System database. Until now, managers have not been required to enter unexploded ordnance into the Restoration Tracking System because its removal has primarily been considered a safety hazard. In our opinion, the Restoration Tracking System should separately identify and track all significant remediation sites. Separate tracking is necessary to provide the proper visibility and oversight over a project's progress and cost information and to provide historical data on remediation efforts and costs for individual sites.

Actions needed to ensure that major ordnance removal sites not containing hazardous contamination are assigned unique structure codes at closing installations are in Recommendation B-1.

Use of Structure Codes

Project planners didn't use proper structure codes to account for the specific phases of the open burning ground remediation. The structure code captures funding in two phases: investigation and cleanup.

The investigation phase ends with completion of the feasibility study and approval of the record of decision. The remediation phase starts with initiation of the remedial design.

In January 1997 base realignment and closure funding began for the open burning grounds. In July 1997 the New England District's contracting office began issuing remedial design contracts. The district should have funded the cleanup under the structure code for remediation: 61366R34. Instead, the Corps used funds designated for survey work. As a result, the cost of the open burning grounds study phase was overstated by about $9.7 million.

Action needed to ensure that funding of various phases of the remediation is charged to the proper management structure codes is in Recommendation B-2.

Funding for Rifle Grenade Range

Project planners received funding for remediation of the rifle grenade range, although the project planners didn't initially identify and include that site as part of the unexploded ordnance estimate. Project planners had not formally established the site within the Base Realignment and Closure Workplan or Restoration Tracking System and didn't have an assigned structure code. The rifle grenade range had a local site designation of SEAD-44A. However, the project planners didn't enter the site into the Restoration Tracking or Cost-to-Complete Systems.

The documentation we obtained on site SEAD-44A describes a quality assurance test laboratory with a site type of pesticide shop. The narrative states that this site was combined with SEAD-009 and several other sites for funding purposes under structure code 61366S42. Typically, the funding for the rifle grenade range would be under structure code 61366S42. However, project managers used funds for various unexploded ordnance sites (site designation SEAD-118, structure codes 61367S02 and 61367R02) to pay for remediation of the rifle grenade range without adjusting the estimates for these structure codes.

Action needed to ensure that proper site designations and structure codes are used to fund projects to remove unexploded ordnance is in Recommendation B-3.

Cost-to-Complete Estimate

The Base Closure Office approved funds that exceeded the estimate submitted for the open burning grounds for FY 99. The original estimate

for cleanup at the grounds was $5.035 million, which consisted of $381,000 for remedial design, $841,000 for long-term monitoring, and $3.813 million for remedial action. However, during April 1997 through July 2001, the installation asked the Base Closure Office to reprogram funds in and out of the open burn project in the net amount of $15,406,375.

The Base Closure Office approved and implemented all reprogramming actions. In accordance with chapter 5 of the Environmental Restoration Programs Guidance manual, dated April 1998, installations are responsible for reviewing and updating the appropriate Restoration Tracking System information twice a year (in spring and fall). Seneca Depot didn't update the Restoration Tracking or Cost-to-Complete Systems for projects where funding increased or decreased through reprogramming. As a result, the project managers bypassed the following controls:

- Environmental Center technical reviews.
- Program Objective Memorandum process reviews by Army Materiel Command, the Assistant Chief of Staff for Installation Management, DOD and Congress.
- DOD in-process reviews.

In addition, the depot submitted incomplete data to higher headquarters for the open burn project and all other projects with reprogrammed funding.

Action needed to ensure that remediation costs are current and all reprogramming actions are reflected in the cost systems is in Recommendation B-4.

RECOMMENDATIONS AND COMMENTS

This section contains specific recommendation and a summary of command comments for each recommendation. The official Army position and verbatim command comments are in Annex A.

B-1 **Recommendation:** Establish similar visibility of unexploded ordnance sites like the hazardous and toxic remediation sites currently have by:

- Creating separate Defense Sites Environmental Restoration Tracking System/Cost-to-Complete site designations for ordnance removal sites, thus creating separate Army Management Structure Codes for each site.

- Ensuring the funding received for a particular Army Management Structure Code matches the funding request and associated Army Management Structure Code.

Command Comments: The Base Closure Office agreed and said separate unexploded ordnance sites will be loaded into the Cost-to-Complete and Restoration Tracking System database, thus creating separate structure codes for each site. To ensure accuracy, the structure code for the fund request will be matched with the structure code for the funds released document.

B-2 **Recommendation:** Monitor use of Army Management Structure Codes to ensure that the "study" and "remedial" codes accurately report the proper costs for specific phases of remediation projects.

Command Comments: The Base Closure Office agreed and said emphasis is placed on making sure the "study" and "remedial" codes accurately report the proper costs when requesting funding and establishing workplans.

B-3 **Recommendation:** Make sure proper site designations and Army Management Structure Codes are used to fund unexploded ordnance removal projects.

Command Comments: The Base Closure Office agreed and said proper structure codes must be used for all projects and must be associated with the appropriate site.

B-4 **Recommendation:** Make sure all reprogramming actions are communicated to the Army Environmental Center so that accurate and timely financial information is reported to higher levels of command.

Command Comments: The Base Closure Office agreed and said financial information will be forwarded to the Army Environmental

Center so that accurate and timely financial information is reported to higher levels of command.

Official Army Position: The comments from the Base Closure Office represent the official Army position. The Base Closure Office coordinated its response with the U.S. Army Environmental Center, Base Realignment and Closure Office–National Capital Region, and Seneca Army Depot Activity. The comments are in Annex A.

FINDING C: ORDNANCE REMOVAL CONTRACT SURVEILLANCE

For the Chief, U.S. Army Base Realignment and Closure Office

SUMMARY

Management removed unexploded ordnance at the open burning grounds primarily with multitask cost plus fixed fee time and materials delivery orders against a base contract the U.S. Army Engineering and Support Center, Huntsville awarded. Normally, this type of contracting requires specific surveillance actions to protect the government's interest.

However, management didn't use onsite government contract surveillance when removing unexploded ordnance under the Seneca project. Instead, because of safety concerns managers followed their normal practice of requiring an onsite safety inspector, but not an onsite contracting officers representative.

Consequently, during the life of the project, ordnance removal costs grew from about $532,000 to about $3.6 million, and completion time expanded from an initial estimate of 3½ months to 3 years. Unexpected site conditions caused most of the cost growth and time extensions in the open burning grounds remediation project. However, we identified cost increases totaling about $328,000 associated with inefficiencies occurring onsite. The Corps of Engineers might have avoided or minimized these cost increases if onsite contract surveillance and other surveillance techniques had been available and applied.

In addition, we identified a net overpayment of $36,150 to the initial ordnance removal contractor. The net overpayment was due to computation errors in calculations of the adjustment for "fluff" and downtime charges.

Our recommendations to correct these conditions begin on page 42.

BACKGROUND

Ordnance removal remediation under the initial delivery order experienced significant cost growth from the estimated cost of $532,000 in September 1997. The time to complete the ordnance removal actions also grew from the initial estimate of 3½ months to more than 3 years. Cumulative obligations for the first delivery order, which started in February 1997, were about $3.6 million when the ordering authority expired in December 2000. We estimated that the Corps still needed additional remediation work to complete the project, and the Corps included this work in the second delivery order.

Remediation Contracts

The prime contractor for ordnance removal was responsible for performing unexploded ordnance remediation and providing ordnance removal support for the contractor for the hazardous toxic radiological waste remediation. The hazardous waste remediation contractor was responsible for detecting and ensuring that soil with lead contamination above 500 milligrams a kilogram didn't remain onsite. When necessary, the contractor stabilized or solidified the contaminated soil removed from the open burning grounds.

In its supporting role to the hazardous waste contractor, the prime contractor was responsible for excavating and sifting the soil to remove any unexploded ordnance and for delivering the sifted soil to the hazardous toxic radiological waste remediation stockpile area according to contamination level.

Cost Growth

The majority of the increases in cost and time under the first delivery order were caused by unexpected site conditions involving higher quantities of ordnance and other debris and higher levels of lead contamination in the soil.

The initial concept for ordnance removal envisioned using the "mag and flag" method. The "mag and flag" method employs a magnetometer to locate potential ordnance items, excavate and identify the item, and then dispose of any unexploded ordnance and ordnance scrap. The higher densities of ordnance found after the project started required use of an "excavate and sift" method. The "excavate and sift" method requires excavating all the soil to a given depth, then processing the soil through

a sifter to isolate unexploded ordnance and ordnance scrap. The higher concentrations of lead caused excavation to go deeper than initially planned and resulted in an increase in work effort. Here's a chronology of events:

- On 29 February 1997, the Corps issued a delivery order to the prime contractor for ordnance removal to perform surface and subsurface clearance of all unexploded ordnance and applicable scrap from the open burn project site for about $532,000.

- On 19 March 1999—before the prime contractor started removing ordnance—the Huntsville Center issued a modification to the delivery order to increase the original estimated quantity of soil removed from 33,400 cubic yards to approximately 63,000 cubic yards. The change resulted in a cost increase of about $1.4 million.

- On 15 June 1999, the prime contractor engaged a subcontractor to change to the "excavate and sift" method to process all the soil involved with the open burn project.

- On 27 January 2000, the Huntsville Center issued a modification to the delivery order to increase the estimated quantity of soil excavated to 90,000 cubic yards because of the level of lead contamination. The change increased costs by about $860,000.

- On 2 October 2000 when this delivery order ended, the quantities of excavated and sifted soil had risen to more than 102,000 cubic yards of first sift soil and more than 46,000 cubic yards of resift soil. The cumulative obligated amount for this delivery order was about $3.6 million and the project wasn't completed.

- In January 2001 the Base Closure Office directed the Corps to use a new strategy to complete the open burning grounds project. The strategy involved using a single firm fixed-price contract for both the ordnance removal and hazardous waste efforts with construction management by one district.

- In April 2001 the New England District issued a delivery order to complete the remediation project that consolidated all remediation actions for the open burning grounds under a single contractor. The total obligated amount of this delivery order was about $5.1 million. We couldn't determine the actual amount related to completion of the ordnance removal portion of the project, but we estimated that the portion was about $3.7 million. As of 28 September 2001, contractor payments totaled $371,134.

DISCUSSION

This section discusses four areas.

- Contract surveillance.
- Terms of the contract.
- Communications.
- Payment calculations.

Contract Surveillance

The first delivery order for ordnance removal didn't include provisions for an onsite contracting officers representative or for government surveillance of the contractor's costs. The Corps may have avoided or minimized at least $328,000 of cost increases with improved surveillance procedures:

Condition	Amount
Subcontractor Downtime	$203,367
Detailed Scope of Work	106,000
Contractor/Subcontractor Coordination	19,187
Total	$328,554

For the open burning grounds project, the Huntsville Center followed its normal practice of requiring an onsite safety inspector, but not an onsite contracting officers representative. The center's rationale, which was based on DOD policy, focused on safety. Only mission-essential personnel were allowed within the predetermined workarea or "exclusion zone."

We agree with these safety concerns, but not every situation we identified would have required the onsite person to be in the "exclusion zone" to provide surveillance. According to paragraph 9.c.(8)(j) of Corps Regulation 1110-1-8153 (Ordnance and Explosives Response), Corps divisions must perform contractor surveillance (outside the exclusion zone). This responsibility can be delegated to the assigned district within the division's geographic area. The New York District's onsite manager didn't exercise that type of authority over either the ordnance removal or hazardous waste portions of the project.

In July 2000—12 months after the start of the ordnance removal remediation—New York District personnel onsite at Seneca Depot requested contracting officers representative authority for the project. The Huntsville Center initiated the process to appoint a representative from the onsite staff of the New York District field office and provided $40,000 to fund the position. The center didn't complete the process because the New York District believed the contract was too far into the execution phase.

Subcontractor Downtime

The government paid $203,367 for subcontractor downtime that might not have occurred with adequate government surveillance. The ordnance removal subcontractor was responsible for excavating and sifting to remove ordnance and explosives from the soil in the designated work-area. The subcontractor also provided soil excavation support to the hazardous waste contractor. The subcontractor was solely responsible for transporting the sifted soil to predetermined areas and transferring control of the soil to the hazardous waste contractor. During this work the subcontractor accrued a substantial amount of "unanticipated down-time" and wanted to receive monetary compensation for 219 downtime hours incurred from July through December 1999.

On 22 May 2000, the subcontractor submitted a request for payment through the prime contractor. Before payment the Huntsville Center identified several items that weren't reimbursable as downtime: completion of the initial survey by the hazardous waste contractor, all safety briefings held before the start of the workday, any repairs or cleaning performed on the equipment during working hours, and weather-related delays. The request for reimbursement also didn't include 40 minutes a day for two 20-minute break periods specified in the delivery order.

On 31 July 2000, after reductions for the excluded items, the government processed a payment voucher to the prime contractor for $232,278 for 153 hours of allowable downtime. We reviewed the calculation of allowable downtime the subcontractor prepared and determined that it was understated by $11,810 primarily because the subcontractor omitted 5 days from the calculation. We further discuss this underpayment in the section entitled "Payment Calculations" beginning on page 42.

Of the $232,278 paid for allowable downtime, adequate government surveillance may have prevented, or resolved on a timelier basis, these issues:

Condition		Hours	Amount
Debris Removal		76	$110,140
Removal Site–Other Shutdowns		38	66,528
Dump Site Coordination		18	26,699
	Total	132	$203,367

Debris Removal. The government paid $110,140 for debris removal around the sifter. In June 1999 the prime contractor realized that the magnetometer could not efficiently remove ordnance and explosives because of the amount of metal scrap in the soil. The prime contractor should have anticipated an increased amount of debris as a result of excavation and sifting and included in the contract price the cost of downtime to remove normal debris from around the sifter. Adequate government surveillance could have determined the nature of the debris around the sifter and whether the government should have incurred the entire additional cost of $110,140.

Removal Site–Other Shutdowns. The government paid $66,528 for downtime to meet the needs of the prime contractor and the hazardous waste contractor. Government surveillance could have determined if better scheduling could have averted these and other shutdowns, thus eliminating costs of $66,528.

Dumpsite Coordination. The government incurred $26,699 for downtime because of contractor coordination problems at the dumpsite. We reviewed invoices, correspondence and other supporting documentation. Over a 6-month period, the prime contractor reported approximately 18 hours of downtime (more than 100 incidents at about 10 minutes each) caused by waiting for the hazardous waste contractor to arrive for delivery. Adequate government surveillance could have resolved this issue on a timelier basis, verified the accuracy of the charges, and prevented the government from incurring an additional $26,699 in costs.

Detailed Scope of Work

The government incurred an additional cost of $106,000 under the second delivery order to assess site conditions after the first delivery order expired. In April 2001 the New England District issued a new delivery order to complete the remaining remediation work. In May 2001 modification 1 to this delivery order was issued for a site visit to Seneca Depot to assess conditions at the site and determine at what stage the previous prime contractor for ordnance removal terminated work. The modification also included the cost of surveying the open burning grounds and the entire area of the rifle grenade range.

Adequate government surveillance and proper communications with the previous prime contractor would have ensured that detailed information was available to complete the project when the original contract ended without the government incurring an additional obligation of $106,000.

Contractor and Subcontractor Coordination

The government incurred $19,187 of costs during a two-week period when the first prime contractor was onsite without the subcontractor. The prime contractor had two major functions during the environmental remediation project: to remediate unexploded ordnance and to provide ordnance removal support for the hazardous waste contractor. To carry out these functions, the prime contractor hired a subcontractor to excavate and sift soil. The prime contractor provided the ordnance removal expertise and monitored the subcontractor's work.

We reviewed the prime contractor's invoices and supporting documentation and learned that the prime contractor mobilized onsite in April and May 2000. Once mobilized, the prime contractor realized that the subcontractor refused to work because the government and the prime contractor had not satisfactorily resolved the subcontractor's concerns about underpayment of invoices. The prime contractor stayed onsite for 2 weeks without the subcontractor. No documentation was available to indicate what work the contractor performed even though the contractor charged the government $19,187. Government surveillance could have:

- Prevented or limited the amount of time the prime contractor mobilized when the subcontractor wasn't onsite.
- Determined the nature of the work performed while the prime contractor was onsite without the subcontractor.

We discuss actions needed to ensure adequate onsite surveillance of contractor performance during a time and materials delivery order in Recommendation C-1.

Terms of the Contract

Delays in the project occurred because contract terms didn't clearly define the basis of payment for quantities of soil excavated and for allowable and unallowable downtime costs. The statement of work for the prime contractor stated that excavation would be done to specific depths, thereby implying that in-place densities would be the basis for payment. The modified statement of work, dated 19 March 1999, stated:

> The volume of soil will be based on survey done by another contractor; however, the (Ordnance Removal Prime Contractor) will consider alternative methods of calculating the volume. Payment will be made by the volume (in cubic yards) of soil successfully screened and delivered to the stockpile.

The ordnance removal subcontractor approached this project with the assumption that payment would be for truckloads of finished product (soils) moved.

Excavated soils incorporated a certain amount of "fluff" (air) into the volume of soil. A truckload of excavated soil has more cubic yards than in-place soil. The subcontractor submitted invoices for truckloads of soil that included the fluff instead of just the in-place density. After discussions with the Huntsville Center, the prime contractor and subcontractor agreed that some fluff would be involved and that payments for fluffed quantities weren't appropriate. The Huntsville Center reduced the subcontractor's invoices for October through December 1999 by a 40-percent "fluff" factor.

The subcontractor didn't agree with this calculation. In April 2000 a subsequent interim survey of the site determined that the "fluff" factor was in the range of 23.6 percent. The subcontractor agreed to this calculation. In July 2000 the Huntsville Center approved adjusted payments based on 23.6 percent. The difficulties associated with reaching this agreement delayed the restart of sifting operations. The contract should have clearly stated that in-place densities would be the basis for payment and that a post-survey would determine the final payment.

The Corps Environmental Lessons Learned dated 21 February 1997 noted that problems with the measurement of contaminated soil treatment commonly arise during construction activities when the contractor and the government don't have a clear understanding of the method and means of measurement. The lesson learned was that it's advantageous to determine the method of measurement in advance and a backup procedure before initiation of remediation work. The Corps didn't apply this lesson learned to the open burning grounds project.

In addition, contractual language wasn't clear about events authorized as allowable downtime. The contract stated only that the contractor was allowed two 20-minute breaks each day. The contract didn't contain a list of specific allowable and unallowable downtime costs, making it unclear what was authorized.

We discuss actions needed to minimize cost increases due to "fluff" and downtime in Recommendation C-2.

Communications

Communication wasn't smooth among all parties involved. As a result, delays occurred in the communication of project status and resolution of ongoing problems.

Corps Engineering Pamphlet 415-1-260 (Resident Engineer Management Guide), chapter 6 requires preconstruction conferences before physical work begins. The basic contract for ordnance removal provided a communication vehicle by requiring:

> ... periodic meetings to be scheduled whenever requested by the Contractor or directed by the Contracting Officer for the resolution of questions or problems encountered in the performance of the work. The contractor and/or the appropriate representative(s) shall be required to attend and participate in all conferences pertinent to the work required under this contract as directed by the Contracting Officer.

Neither the contracting officer nor the contractor requested periodic meetings to resolve questions or problems in a timely manner. Consequently, three problems that weren't resolved in a timely manner increased project costs and caused delays:

- The ordnance removal subcontractor recorded more than 100 instances from 6 July through 9 December 1999 when the hazardous waste contractor wasn't present to receive delivery of excavated soil. The delays increased costs by $26,699.

- Government parties involved in the project had an ongoing communications problem. The base environmental coordinator and the onsite project manager didn't believe they were receiving enough information about various aspects of the project, while the Huntsville Center believed it provided all the information available.

- Contract terms didn't clearly define the basis of payment for quantities of soil excavated. A 3-month delay in the project occurred in 2000 because of a disagreement over the payment of downtime and "fluff."

We discuss actions needed to ensure that regular meetings or telephone conference calls are held in accordance with contractual terms in Recommendation C-3.

Payment Calculations

We reviewed contractors' invoices and supporting documentation and identified these calculation errors:

Type of Error	Amount
"Fluff" Adjustment Calculation	$47,960
Downtime Charges Calculation	(11,810)
Total Overpayment of Invoices	$36,150

A calculation error for a "fluff" adjustment resulted in an overpayment to the prime contractor of $47,960. The Huntsville Center made several adjustments to the contractor's invoices for the "fluff" incorporated into the volume of soil excavated (see our discussion beginning on page 40). Our review of the "fluff" adjustments identified two payments that were inadvertently excluded from the center's calculation. The omission resulted in an overpayment to the contractor of $47,960.

The payment of downtime charges was understated by $11,810. The government incurred additional costs for downtime the subcontractor experienced (our discussion of this issue is on page 37). Our review of the allowable downtime found that 5 days weren't included in the calculation. The oversight resulted in a net underpayment to the contractor for $11,810.

We discuss actions needed to recoup the net overpayment of $36,150 in Recommendation C-4.

RECOMMENDATIONS AND COMMENTS

This section contains specific recommendations and a summary of command comments for each recommendation. The official Army position and verbatim command comments are in Annex A.

C-1 **Recommendation:** Add a specific decision point and establish criteria for determining when unexploded ordnance removal contracts should have onsite contract surveillance.

Command Comments: The Base Closure Office agreed and said all contracts, regardless of the type of work, will have onsite contract surveillance.

C-2 **Recommendation:** Review other ongoing unexploded ordnance removal contracts and assess the risk of cost increases due to downtime and "fluff." Initiate appropriate actions to minimize high-risk situations. Also review lessons learned from past projects and apply the appropriate lessons to future projects.

Command Comments: The Base Closure Office agreed and said all contracts will be reviewed to limit high-risk situations, and contract statements of work will be prepared to place risk with contractor, not the government.

C-3 **Recommendation:** Hold preconstruction conferences before any physical work is performed. Establish a minimum number of meetings that should be held between the contractors and contracting officer to maintain effective working relationships, regardless of problems encountered. Maintain written documentation of all meetings and significant discussions with the contractor. Distribute written documentation to all responsible parties involved with the contract and contract results.

Command Comments: The Base Closure Office agreed and said that preconstruction conferences are held routinely; government and contractor personnel establish the frequency and format of the meetings at that time. The contractor is required to prepare minutes for the meetings and distribute them.

C-4 **Recommendation:** Recoup $36,150 from the initial prime contractor for ordnance removal.

Command Comments: The Base Closure Office agreed and said it will task the Corps to recover the appropriate funds from the contractor.

Official Army Position: The comments from the Base Closure Office represent the official Army position. The Base Closure Office

coordinated its response with the U.S. Army Environmental Center, Base Realignment and Closure Office–National Capital Region, and Seneca Army Depot Activity. The comments are in Annex A.

ANNEXES

OFFICIAL ARMY POSITON/VERBATIM COMMENTS BY COMMAND

MAY-13-2003 07:47 HQDA BRACO 703 693 7621 P.02

DEPARTMENT OF THE ARMY
ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
600 ARMY PENTAGON
WASHINGTON DC 20310-0600

14 March 2003

DAIM-BO

MEMORANDUM FOR U.S. ARMY AUDIT AGENCY, ATTN: MS. SHEILA CLARK, 3101 PARK CENTER DRIVE, ALEXANDRIA, VA 22302

SUBJECT: Draft Report on the Audit on the Base Realignment and Closure Open Burn/Open Detonation Project at the Seneca Army Depot

1. This responds to your draft report, subject as above.

2. The Base Realignment and Closure Office (BRACO) has reviewed the subject audit report by coordination with the U.S. Army Environmental Center, BRAC Field Office – National Capital Region, and Seneca Army Depot. Our official comments on your recommendations are at Enclosure 1.

3. Point of contact for this action is Cathy Ho, Resource Manager, 703-697-0241.

Encl
as

DOUGLAS S. BAKER
Colonel, MP
Chief, Base Realignment and
Closure Office

CF:
ISM NCR Field Office
Seneca Army Depot

Printed on Recycled Paper

ARMY BASE REALIGNMENT AND CLOSURE OFFICE
COMMAND REPLY TO USAAA DRAFT REPORT
AUDIT OF BASE REALIGNMENT AND CLOSURE OPEN BURN/OPEN DETONATION PROJECT AT THE SENECA ARMY DEPOT

Overall Objective: Evaluate the management of remedial efforts of the Open Burn/Open Detonation Project at Seneca Army Depot Activity.

General Conclusion: Management of remedial efforts of the Open Burn/Open Detonation Project at Seneca Army Deport needed improvements. We determined that project management controls, financial management controls, and contract practices were not adequate to manage the project, account for project funds, or administer contracts.

A-1 **Recommendation:** Make sure that lines of authority for future remediation projects clearly designate a single person with overall authority for execution when more than one Corps of Engineers activity is involved in remediation actions.

Command Comments: concur. BRAC Environmental Coordinator has the program execution responsibility. When Corps of Engineers is executing work, the Program Manager (PM) for the work effort will have the responsibility to coordinate all Corps of Engineer Districts having involvement.

A-2 **Recommendation:** Ensure that all remediation project costs are broken down by project type.

Command Comments: concur. The government estimate and the contractor partial payment schedules provide cost breakdowns and are on file at the contracting office.

A-3 **Recommendation:** Establish a formal decision reevaluation point in the life-cycle of ordnance removal projects to:

- Reassess the technical feasibility and financial implications of the selected remediation action.
- Evaluate alternatives if the initially determined course of remediation is no longer technically or financially feasible.

Command Comments: concur. Revaluation point is needed. A re-evaluation point process to bring decision makers together to review technologies and financial impacts for assessment of the path forward will be established.

A-4 **Recommendation:** Establish a formal status reporting process from the closing installation to the Base Closure Office that documents the status of each project at the installation. The Base Closure Office will determine the content of the status report. Management activities would use the reports as the single source of project status for monitoring actions needed to ensure timely completion and within established funding levels.

Command Comments: concur. Project status reporting will be implemented to provide management activities information to monitor progress and financial status.

B-1 **Recommendation:** Establish similar visibility of unexploded ordnance sites like the hazardous and toxic remediation sites currently have by:

- Creating separate Defense Sites Environmental Restoration Tracking System/Cost-To-Complete site designations for ordnance removal sites, thus creating separate Army Management Structure Codes for each site.
- Ensuring the funding received for a particular Army Management Structure Code matches the funding request and associated Army Management Structure Code.

Command Comments: concur. Separate UXO sites will be loaded into the CTC and DSERTS systems. Separate AMSCODES for each site will then be established. The AMSCODE in a funds request will be matched to the AMSCODE to the funds released document to insure accuracy.

B-2 **Recommendation:** Monitor the use of the Army Management Structure codes to ensure that the "study" and "remedial" codes accurately report the proper costs for specific phases of remediation projects.

Command Comments: concur. Emphasis is placed on this effort when requesting fund and establishing work plans.

B-3 **Recommendation:** Make sure proper site designations and Army Management Structure Codes are used to fund unexploded ordnance removal projects.

Command Comments: concur. Proper Army Management Structure codes must be used for all projects and must be associated with the appropriate site.

B-4 **Recommendation:** Make sure all reprogramming actions are communicated to the Army Environmental Center so that accurate and timely financial information is reported to higher levels of command.

Command Comments: concur. Financial information will be forwarded to the Army Environmental Center for incorporation into reporting processes.

C-1 **Recommendation:** Add a specific decision point and establish criteria for determining when unexploded ordnance removal contracts should have on-site contract surveillance.

Command Comments: concur. All contracts regardless of type of work will have on-site contract surveillance performed, to some level, to insure contract compliance.

C-2 **Recommendation:** Review other ongoing unexploded ordnance removal contracts and assess the risk of cost increases due to downtime and "fluff." Initiate appropriate actions to minimize high-risk situations. Also review lessons learned from past projects and apply the appropriate lessons to future projects.

Command Comments: concur. All contracts will be reviewed to limit high-risk situations. Contract statements of work will be prepared to place risk with the contractor and not the government.

C-3 **Recommendation:** Hold pre-construction conferences prior to any physical work being performed. Establish a minimum number of meetings that should be held between the contractors and contracting officer to maintain effective working relationships, regardless of problems encountered. Maintain written documentation of all meetings and significant discussions with the contractor. Distribute written documentation to all responsible parties involved with the contract and contract results.

Command Comments: concur. Pre-construction conferences are held routinely. Frequency and format of meetings with the government and contractor are established at that time. Contractor is required to prepare meeting minutes. These minutes are distributed appropriately.

C-4 **Recommendation:** Recoup $36,150 from the initial prime contractor for ordnance removal.

Command Comments: concur. The Corps of Engineers will be tasked to recover the appropriate funds from the contractor as recommended.

Mar 03 03 11:08a corps of engineers 2027611990 p.2

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF:

28 FEB 2003

CEIR

MEMORANDUM FOR THE AUDITOR GENERAL, ATTN: SAAG-PMO, 3101 Center Park Drive, Arlington, VA 22302

SUBJECT: Audit of Base Realignment and Closure Open Burn/Open Detonation Project – RESPONSE

The United States Army Corps of Engineers accepts the Army Audit Agency's Audit Report on Seneca Army Depot Base Realignment and Closure Open Burn/Open Detonation Project and have no further comments.

FOR THE COMMANDER:

JOSEPH SCHROEDEL
Colonel, Corps of Engineers
Chief of Staff

OTHERS RECEIVING COPIES OF THE REPORT

Assistant Secretary of the Army (Civil Works)
Assistant Secretary of the Army (Financial Management and Comptroller)
Assistant Secretary of the Army (Installations and Environment)
The Inspector General
Chief of Public Affairs
Deputy Chief of Staff, G-1
Deputy Chief of Staff, G-4
Assistant Chief of Staff for Installation Management
Commanding Generals
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  U.S. Army Criminal Investigation Command
Commander, 3d Military Police Group, U.S. Army Criminal Investigation Command
Commandant, U.S. Army Logistics Management College
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  Center for Army Lessons Learned
  U.S. Army Installation Management Agency

Under Secretary of Defense (Comptroller)
Director, Defense Intelligence Agency
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DRAFT
COMPLETION REPORT

SOIL AND SEDIMENT REMEDIATION
OPENING BURNING GROUNDS
SENECA ARMY DEPOT
ROMULUS, NEW YORK

Contract No. DACW33-95-D-0004
Task Order No. 0013
DCN: SEDA-110901-ABET

Prepared for:

U.S. ARMY CORPS OF ENGINEERS
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696 Virginia Road
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November 2001

W.O. No. 03886.118.013

TABLE OF CONTENTS

Section **Page**

TABLE OF CONTENTS
(continued)

Section **Page**

TABLE OF CONTENTS
(continued)

LIST OF FIGURES

Title **Page**

LIST OF TABLES

Title **Page**

LIST OF ACRONYMS

bgs	below ground surface
BRAC	Base Realignment and Closure
CEHND	U.S. Army Engineer Division, Huntsville, Alabama
CENAE	U.S. Army Corps of Engineers, New England District
CENAN	U.S. Army Corps of Engineers, New York District
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CQCP	Contractor Quality Control Plan
EODT	EOD Technologies, Inc.
ERCP	Emergency Response and Contingency Plan
HTRW	Hazardous, Toxic and Radioactive Waste
lf	linear feet
Maxim	Maxim Technologies, Inc.
MSL	Mean Sea Level
NYSDEC	New York State Department of Environmental Conservation
NYSDOL	New York State Department of Labor
OB	Open Burning
OE	ordnance explosive waste
PAM	personnel air monitoring
Parsons	Parsons Engineering Science, Inc.
PPE	personnel protective equipment
PVC	polyvinylchloride
QAPP	Quality Assurance Project Plan
QC/QA	quality control/quality assurance
SAP	Sampling and Analysis Plan
SEDA	Seneca Army Depot Activity
sf	square feet
SHSO	Site Health and Safety Officer
SPDES	State Pollutant Discharge Elimination System
SSHASP	Site Specific Health and Safety Plan
SSHP	Site Safety and Health Plan
TCLP	Toxicity Characteristic Leaching procedure
TSP	Triple Super Phosphate
USEPA	U.S. Environmental Protection Agency
UXO	unexploded ordnance
WESTON	Roy F. Weston, Inc.

LIST OF ACRONYMS
(continued)

WP	Work Plan
XRF	X-Ray Fluorescence

EXECUTIVE SUMMARY

This Draft Report summarizes the construction and remediation activities performed by Roy F. Weston, Inc. (WESTON®) during the Soil and Sediment Remediation of the Open Burning (OB) Grounds at the Seneca Army Depot Activity located in Romulus, New York under Delivery Order No. 0013 of the Hazardous, Toxic and Radioactive Waste (HTRW) contract DACW33-95-D-0004.

WESTON performed remediation activities as part of a remedial action at this site between June 1999 and May 2001. This report summarizes the completed work effort and presents the testing, quality control, and health and safety monitoring implemented to document the completion of the soil an sediment remediation of the OB Grounds. As part of these activities, the remediation activities included: site surveying, unexploded ordnance (UXO) clearance, excavation, staging and sampling of excavated soils, stabilization of soils and sediments exceeding Toxicity Characteristic Leaching Procedure (TCLP) criteria, sampling of excavations and site perimeter limits, off-site disposal of contaminated soils and sediments, excavation of contaminated creek sediments, treatment and disposal of wastewater generated from site activities, backfilling [TBD], and grading [TBD]. EOD Technologies, Inc. (EODT) performed all operations within the OB Grounds related to the handling and transportation of soils containing ordnance explosive waste (OE) through October 2000.

The remedial action objectives met for this project included the excavation, storage, treatment, and disposal of soils and sediments; the removal, storage, treatment and discharge of associated wastewaters; the clearance of UXO; the installation of a soil cover [TBD] to minimize ecological risk; and post-remediation monitoring [TBD] of the sediments in Reeder Creek.

1. INTRODUCTION

The remedial action activities presented in this report were completed by Roy F. Weston, Inc. (WESTON) in accordance with the design documents provided to WESTON, as approved by the U.S. Army Corps of Engineers, New England District (CENAE) and New York District (CENAN), the New York State Department of Environmental Conservation (NYSDEC), and the U.S. Environmental Protection Agency (USEPA). The following documents governed the scope, construction and remediation methods, and the quality control/quality assurance (QC/QA) issues associated with this project:

- Section C – Final Technical Specifications, Soil and Sediment Remediation at the Open Burning (OB) Grounds, Parsons Engineering Science, Inc. (Parsons), August 1998
- Revised Draft Project Work Plan and Contractor Quality Control Plan, WESTON, April 1999
- Revised Draft Project Sampling and Analysis Plan and Quality Assurance Project Plan, WESTON, April 1999
- Revised Draft Site Safety and Health Plan, Emergency Response and Contingency Plan, and Site Specific Health and Safety Plan, WESTON, April 1999
- Contractor Quality Control Plan (CQCP), U.S. Army Corps of Engineers, New York District (CENAN), March 1998.

1.1 SITE BACKGROUND

The Open Burning (OB) Grounds site was included on the Federal Facilities National Priorities List on 13 July 1989. In early 1995, under the Base Realignment and Closure (BRAC) process, the Department of Defense recommended closing the Seneca Army Depot Activity (SEDA). This recommendation was approved in October 1995 and SEDA was scheduled for closure by July 2001. All work performed under this contract was performed in accordance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the "Federal Facility Agreement under CERCLA Section 120 in the matter of Seneca Army Depot, Romulus, New York."

Since its inception in 1941, SEDA's primary mission was the receipt, storage, maintenance and supply of military items. This function included disposal of military ammunition and explosives by burning and detonation in the OB Grounds. Originally, open burning of munitions was conducted directly on the land surface. However, due to the poorly drained soils, the individual burn pads were later built up with crushed, broken shale to allow for drier burns of the munitions wastes.

1.2 SITE DESCRIPTION

The OB Grounds site occupies approximately 30 acres within the 10,587 acres of land that comprise SEDA in Romulus, New York. The depot is located between Seneca and Cayuga Finger Lakes as shown in Figure 1-1. SEDA is located on an uplands area, at an elevation of approximately 600 feet above Mean Sea Level (MSL). New York State Highways 96 and 96A bound SEDA on the east and west, respectively. Sparsely populated farmland covers most of the surrounding area. The OB Grounds site is located on gently sloping terrain in the northwest corner of SEDA as shown in Figure 1-2. The OB Grounds is bounded on the east by Reeder Creek, which is a perennial creek that is generally less than 1 foot deep and eventually flows into Seneca Lake. Seneca Lake is located approximately 10,000 feet west of the site and is used as a source of drinking water for SEDA and surrounding communities. The site is sparsely vegetated with grasses and brush and there are no permanent structures within the area other than concrete bunkers.

The burning pads at the site were built on top of the natural glacial till soils. Each burn pad contained up to 2 feet of broken shale on the surface. The berms were composed of soils and burn wastes, and surrounded each burn pad on three sides. There were a total of nine burning pads located within the OB Grounds, ranging in size from approximately 100 by 100 feet for Pad D to 300 by 800 feet for Pad G. Each of the burning pad surfaces were approximately 2 to 3 feet above the surrounding land surface.

Within the OB Grounds the land surface dropped in elevation from the west towards the east. The overall surface relief was approximately 15 feet over a west to east distance of

Figure 1-1
Location Map

Figure 1-2
SEDA Map

approximately 4,000 feet. Surface water drained through a series of ditches and surface swales. Existing drainage areas were poorly defined and may have been blocked and/or collapsed in some areas. On the eastern side of the OB Grounds is Reeder Creek into which flows surface water runoff from the OB Grounds. This creek is generally 1 foot deep, does not exceed 30 feet in width, and contains intermittent depressions (ponded areas).

1.3 PROJECT OBJECTIVES

The objectives of this project were to remediate the OB Grounds and Reeder Creek areas within SEDA that contained high levels of lead and/or copper. In general, EOD Technologies, Inc. (EODT) performed all operations within the OB Grounds and Reeder Creek related to the handling and transportation of soils and sediments containing ordnance explosive waste (OE)[WESTON OE components TBD]. WESTON performed all operations in these areas associated with the sampling, handling, transportation, and disposal of soils, sediments, and other generated materials after the OE had been removed. WESTON was also responsible for several remediation activities conducted in support of this work.

Specifically, the remediation objectives were outlined as follows:

- Perform a limited pre-excavation survey of the OB Grounds to verify the excavation area layout. (Complete survey performed by others.) Perform a pre-excavation survey of Reeder Creek.

- Excavate, sift, and transport Case I (>800 mg/kg total lead) Case II (<800 mg/kg and >500 mg/kg total lead) soils from burn pad and berm areas A, B, C, D, E, F, G, H, and J to WESTON staging area (performed by EODT). Sample Case I and Case II soils for TCLP metals at stockpile staging area.

- Excavate, sift, and transport Case III soils (<500 mg/kg total lead) to WESTON staging area (performed by EODT). Sample Case III soils for total lead and sample for TCLP metals, if necessary.

- Excavate all remaining surface soil to a depth of 1 foot bgs (minimum) within the 30 acre OB Grounds, and sift and transport this soil to the WESTON staging area (performed by EODT) for characterization. Sample 1-foot cut soils for total lead and sample for TCLP metals, if necessary.

- Excavate lead and copper-contaminated sediment from Reeder Creek (performed by EODT in areas that contained OE) and transport to WESTON stockpile. Sample sediments for total lead and TCLP metals at stockpile staging area.

- Backfill and/or stage soils with <500 mg/kg total lead for long term storage.
- Transport and dispose of soils that are greater than or equal to 500 mg/kg lead (passing TCLP analysis) offsite as Subtitle D Non-Hazardous material.
- Perform on-site stabilization treatment on soils exceeding TCLP limits prior to off-site disposal as a Subtitle D Non-Hazardous material or transport this material off-site for treatment.
- Collect, transport, treat, and/or dispose of materials generated from remediation activities including, but not limited to: wastewater, debris, and personal protective equipment (PPE).
- Perform confirmation sampling of the burn pad and berm excavations and the Reeder Creek excavations. Reexcavate soils in these areas that contain total lead and/or copper levels above cleanup goals.
- Perform surface and perimeter sampling within the OB Grounds after excavation activities are complete. Reexcavate or cover (12-inch soil cover) soils within the OB Grounds that contain >60 mg/kg total lead.
- Perform a post-excavation survey of the OB Grounds and Reeder Creek.
- Abandon existing monitoring wells and construct new wells.

1.4 CLEANUP GOALS

The following cleanup goals were applied to the OB Grounds site. All burn area berms were removed to original ground elevation and burn area pads were removed to a depth of at least 1 foot. A cleanup goal of 60 mg/kg total lead (for cover purposes), 500 mg/kg for offsite disposal, and 100,000 mg/kg total explosives was established for soils within the OB Grounds. Cleanup goals of 31 mg/kg for total lead and 16 mg/kg for total copper were established for Reeder Creek sediments.

2. SITE PREPARATION AND SITE CONTROLS

2.1 PRE-PLANNING

Prior to the commencement of on-site activities, WESTON prepared and CENAE and CENAN approved the following project plans to govern field work practices:

- Revised Draft Project Work Plan (WP) and Contractor Quality Control Plan (CQCP).
- Revised Draft Project Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP).
- Revised Draft Site Safety and Health Plan (SSHP), Emergency Response and Contingency Plan (ERCP), and Site Specific Health and Safety Plan (SSHASP).

A Pre-construction Meeting was held on 5 May 1999. The following parties were in attendance: WESTON, EODT, CENAN, and SEDA. SEDA policies and procedures, contractor coordination, contract administrative requirements and procedures, cost tracking and cost control, and quality control issues were discussed.

A Project Opening Meeting, Contractor Quality Control Meeting, and Contractor Health and Safety Meeting were held on 2 June 1999 and were attended by WESTON and CENAN. Issues discussed at this meeting include: client goals for safety, quality control, financial reporting, and contractor service, communication protocols, project schedule, project budget, health and safety and contractor quality control.

Mobilization of project personnel, materials, site support facilities and equipment commenced 3 June 1999. On-site WESTON personnel consisted of a Site Manager, a Site Health and Safety Officer (SHSO), a Project Engineer/QC Officer, a Sampling Technician, a Cost Engineer (initial 3 months of onsite activities), and general union construction personnel, as required.

WESTON obtained a permit from SEDA on [date TBD] for possession and use of a digital camera onsite for the duration of the project, see **Appendix X**.

2.2 SITE SUPPORT FACILITIES

Prior to installation of the site support facilities, SEDA inspected the site to identify and locate underground utilities. WESTON maintained a site office in the SEDA Post Gate #2 former guard building. WESTON employees and subcontractors accessed the site through Post Gate #2, as shown on Figure 2-1. A break trailer, portable toilets, a storage trailer, and a weekly serviced waste roll-off were located adjacent to the site office. Additionally, a break/storage trailer, portable toilets, and fuel tanks were staged adjacent to the soil stockpile area. L.A. Johnson Construction Company installed and/or repaired utilities to these site support facilities.

Signs were posted outside of Post Gate #2 to identify the site and contractor. Signs were also posted within SEDA to direct visitors, vendors, and suppliers to the stockpile staging area. All exclusion zones and hazards were identified and posted.

2.3 CLEARING AND GRUBBING

The soil stockpile area (400 ft. x 800 ft.) was cleared and grubbed by SEDA prior to mobilization of the site. Additional clearing and grubbing was performed by WESTON during the grading and construction of the stockpile area. The west bank of Reeder Creek was cleared by SEDA with a hydro-ax on 20 August 1999 and manually cleared and grubbed by WESTON between 25 August and 28 September 1999 prior to pre-excavation cross-section survey activities. Tree stumps, branches and brush generated from these activities were stockpiled on the base.

2.4 SOIL STOCKPILE STAGING AREAS

The stockpile staging areas were located south of the OB Grounds and west of the OB Grounds access road as shown on Figure 2-2. The Case I and II soil stockpile staging area was constructed between 9 June and 13 July 1999 by WESTON. After grubbing activities were complete, the area was surveyed, then graded to a 0-2% slope with the high points at the centerline and the base sloping downward toward the west and east sides. An approximately 3-foot high continuous soil berm was constructed around the perimeter of the staging area. The base, as well as the berms were constructed with a dozer, compacted with a vibratory roller, and

Figure 2-1
WESTON Site Map

covered with 6 oz. geotextile fabric with lengths running west to east and overlapping approximately 6 inches. A 20 mil HDPE liner was placed over the geotextile with lengths running north to south and overlapping approximately 12 inches; this poly was anchored with soil into the outside of the berm. In order to protect the liner and optimize drainage toward the stormwater runoff collection points, the liner was covered with approximately 4 inches of sand.

The Case III soil stockpile staging area was constructed between 3 September and 20 October 1999 by WESTON. The area was grubbed, graded and bermed similar to the Case I and II stockpile staging area. The area was lined with 6 oz. geotextile fabric and 20 mil HDPE, as well. No sand subgrade was placed in this stockpile area. To protect the liner, the first truck loads of Case III soil were spread across the stockpile area base.

Haul roads were constructed to each of these stockpile staging areas between 10 June and 17 June 1999 (Case I and II) and between 24 September and 1 October 1999 (Case III) for transporting soil from the OB Grounds and Reeder Creek to the stockpile. A haul road was constructed to the Case I and II soil stockpile between 29 November and 21 December 1999 for off-site transportation and disposal of the soil. Construction of the haul roads was performed as follows: the areas were graded and lined with 6 oz. geotextile fabric, an approximate 9-inch layer of 5-inch minus crushed stone was placed and rolled with a vibratory roller, and then an approximate 3-inch layer of 2-inch minus crushed stone was placed and rolled.

A haul road extension was also constructed within the Case I and II stockpile staging area for loaded trucks and other heavy equipment. This road extended the truck entrance and formed a "T" at the center of the stockpile staging area. The road was constructed below the stockpile staging area liner and consisted of 6 oz. geotextile followed by 4 inches of 5-inch minus crushed stone. Geotextile, HDPE liner, and sand covered the road as described in the Case I and II stockpile staging area construction description.

2.5 DECONTAMINATION AREAS

A heavy equipment decontamination pad was constructed adjacent to the OB Grounds access road. The pad was constructed between 28 June 1999 and 13 July 1999 by WESTON. The

Figure 2-2
Soil Staging Area, Wastewater Collection/Treatment Area, and Decontamination Pad Area

decontamination pad design and concrete formwork design were reviewed and approved by CENAN on 24 June 1999. A schematic of the constructed decontamination pad is shown on Figure 2-2 as well. The decontamination pad area was graded and rolled then covered with a subbase of approximately 6 inches of 2-inch minus crushed stone. The 20 ft x 50 ft concrete pad constructed of 4000 psi concrete, was placed on 1 July 1999. The pad was 6 to 8 inches thick and was reinforced with ½-inch rebar placed 1 ft on-center both lengthwise and crosswise. The 8 inch x 8 inch curbs were placed on 2 July 1999 and tied into the pad using ½-inch diameter rebar placed 18 inches on-center and extending 4 inches into the curb. The plywood walls were covered with a 5 mil polyethylene liner. These walls were supported by 4 ft x 4 ft wood posts placed 8 ft on-center and bolted into the pad curbs. All joints were sealed with caulk and the concrete was coated with a water sealant. On either side of the decontamination pad, ramps were constructed of 2-inch minus crushed stone.

The pad floor sloped toward a 4 inch x 4 inch sloped center channel drain. This channel drained decontamination water from the pad to a collection system via a 3 ½-inch diameter polyvinylchloride (PVC) pipe. The collection system consisted of a 1100 gallon polyethylene tank placed in a bermed area which was lined with 20 mil HDPE. A centrifugal pump was utilized to remove decontamination water from this tank to the 155,000 gallon Econotanks for storage.

Equipment was decontaminated on this pad using shovels, brushes, and a 2200 hp pressure washer attached to the EODT site office water supply. The 5 mil polyethylene liner on the walls was replaced during operation, as necessary.

2.6 WASTEWATER TREATMENT COLLECTION AREA

Two 155,000 gallon Econotank storage tanks were constructed to store wastewater generated from site activities. These Econotanks were constructed between 24 June and 22 July 1999 by WESTON. Each tank consisted of a 68 ft x 68 ft steel frame with wire supports and a reinforced polyethylene liner placed over a geotextile layer. The steel forms were approximately 5 ft high and supported the liner and water in the tanks. The tanks were constructed inside the lined and bermed Case I and II stockpile staging area, which provided secondary containment. The ground surface was sloped (0-2%) to facilitate drainage and cleaning of the tanks.

Water was pumped to these tanks from the decontamination pad collection area and the stockpile staging area stormwater runoff collection points via 2-inch centrifugal pumps and hoses.

2.7 EROSION AND SEDIMENTATION CONTROL

WESTON was responsible for installing erosion and sedimentation control for the stockpile staging area and the decontamination area. Silt fence and hay bales were installed around the perimeter of these areas between 7 June and 18 June 1999. The silt fence was anchored at least 6 inches below ground surface (bgs) and each length of fence overlapped approximately 6 ft with the next length of fence. The hay bales were installed immediately adjacent to each other, and each hay bale was secured with two wooden stakes.

WESTON was also responsible for installing erosion and sedimentation control for the Reeder Creek excavations. Silt fence was installed along the west bank of the Reeder Creek excavation areas and around the up gradient openings of the drainage culverts under the OB Grounds access road between 27 August and 9 September 1999.

At the request of the CENAN, WESTON also installed approximately 3400 ft of silt fence along both sides of the OB Grounds haul road between 16 and 22 September 1999.

2.8 HEALTH AND SAFETY PLANNING

As described in the SSHASP, the primary contaminant of concern for worker exposure for this project was lead. Air monitoring of dust levels and personnel air sampling were conducted to ensure worker protection. Also, several different levels of personnel protective equipment (PPE) were utilized during on-site field activities. Water was used to suppress dust in the exclusion zone and along the transport roads.

Off-site upwind and downwind dust levels were continuously monitored and recorded during all on-site activities using a PDR as required by the NYSDEC. During the first three days of an intrusive activity and once a week thereafter, personnel air monitoring for dust particles was conducted using a Miniram. Also, during the first three days of an intrusive activity and once a week thereafter, until deemed unnecessary by the SHSO, the Project Manager, the Site Manager and the CIH, personnel air sampling was conducted. Personnel air sampling involved collection

of a filters from a personal air monitor (PAM) to confirm airborne lead levels in accordance with NIOSH Method 7300. Personnel air sampling results for all intrusive activities are included in **Appendix [TBD]**.

Initially, PPE Level C was used for intrusive activities until personnel dust monitoring and personnel air sampling results showed lead airborne exposure levels below the Action Level, which warranted a downgrade to PPE Level D Modified. Stockpile management activities and OB Grounds sampling activities were conducted in PPE Level C between 6 and 14 July 1999. In addition, soil stabilization activities were conducted in PPE Level C until an initial exposure assessment was performed.

The exclusion zone for on-site intrusive activities was changed as necessary based on the type and number of intrusive activities that were being conducted concurrently. In general, the contamination-reduction and support zones were located at the stockpile staging area break/storage trailer. EODT also maintained contamination-reduction and support zones at a metal building adjacent to the OB Grounds Access Road for activities conducted in the OB Grounds and Reeder Creek

WESTON instituted a Safety Awareness Program for all employees at the site, which was reviewed and approved by CENAN. This program included safety incentives, site-specific training for lead awareness and UXO awareness, and a disciplinary program. Also, a Safety Committee comprised of the SHSO, Site Manager, QC Officer/Project Engineer, and two representatives from the onsite union laborers/operators met once every two weeks to discuss previous and upcoming safety issues.

3. OB GROUNDS SITE REMEDIATION

As stated previously, EODT performed all operations within the OB Grounds related to intrusive operations, soil handling and transportation of soils and sediments containing (OE). WESTON performed all operations in these areas associated with the sampling and handling of soils after the OE had been removed. WESTON only performed sampling and surveying activities in the OB Grounds during periods when EODT's intrusive operations were shut down. EODT escorted WESTON during these activities. In general, sampling and surveying activities were performed during the week after 1600 hours or on Fridays.

3.1 SOIL EXCAVATION, SCREENING, AND HAULING

Soils in the OB Grounds were categorized, segregated, and excavated by the concentration of lead in the soil as determined from the Remedial Investigation. Case I soils were anticipated to contain concentrations of total lead greater than 800 mg/kg. Case II soils were anticipated to contain concentrations of total lead between 500 mg/kg and 800 mg/kg, and Case III soils were anticipated to contain concentrations of total lead below 500 mg/kg.

Case I soils were excavated, screened, and transported by EODT to the WESTON stockpile staging area. If, after excavation, soil confirmation sampling identified soils with levels of lead greater than 800 mg/kg, these areas were reexcavated. Following the excavation of Case I soils, Case II soils were excavated, screened, transported, and reexcavated by EODT. Case III soils were excavated, screened, and hauled by EODT simultaneously with Case I and II soils, but were handled by separate excavation, hauling, and screening equipment to prevent cross-contamination.

All soils were hauled by EODT from the OB Grounds to the WESTON stockpile staging area for sampling. Each truckload transferred to WESTON was tracked by a transportation slip which contained the following information: the approximate volume of soil in the truck, the identification of the burn area where the soil originated, the Case Number (I, II or III) of the soil, the date, and the time. A summary of the number of truckloads delivered to the WESTON stockpile during all excavation activities is included in **Appendix X**.

3.2 CONFIRMATION SAMPLING

After each of the burn area excavations was complete, confirmation sampling was performed by WESTON in accordance with the Sampling and Analysis Plan (SAP).

3.2.1 Soil Analysis

Two types of analyses were used to determine the concentration of lead in the soil confirmation samples: real-time X-Ray Fluorescence (XRF) analysis and off-site laboratory analysis. XRF analysis was used to analyze interim confirmation samples to determine in the field if total lead concentrations in the soil exceeded the cleanup criteria and if additional excavation would be necessary.

A NITON 700-Series XRF with a Cadmium-109 source was obtained for use at the site. This instrument was licensed with the State of Maryland and permitted in the State of New York under the Notice of Proposed Use of Radioactive Material Under Reciprocity approved by the New York State Department of Labor (NYSDOL) on **12 August 1999**. SEDA issued a Permit for Possession and Use of Radioactive Materials on the base on 19 August 1999. All of these permits are included in **Appendix X**. All WESTON site personnel obtained the required training for operation of the instrument. The NYSDOL performed an audit of the instrument on 2 September 1999.

The XRF was onsite and operated for no more than 30 working days between 24 August and 11 October 1999. A study was conducted between 25 August and 3 September 1999 to compare total lead results obtained from the XRF and from offsite laboratory analysis. Based on this study, it was determined that all non-detect results from the XRF were comparable to total lead levels less than 500 mg/kg. Therefore, on 8 September 1999 the onsite CENAN representative approved use of the XRF for screening soils along the perimeters of the Case I and II excavations.

Final confirmation samples, including duplicates, MS/MSDs, and QA samples, were analyzed by off-site laboratories as described in the SAP.

3.2.2 Excavation Sampling

Confirmation samples were collected and analyzed for total lead in each of the burn area excavations at a frequency of 1 discrete sample per 2500 square feet (sf) on the excavation floors and a frequency of 1 discrete sample per 50 linear feet (lf) of sidewall. Confirmation samples were collected and analyzed for explosives at a frequency of 1 discrete sample per 2500 sf on the burn pad excavation floors only. Also, one discrete confirmation sample was collected and analyzed for explosives for each ordnance cache that was encountered.

Figures depicting the original excavation areas, the final excavation areas, the confirmation sample locations, and the confirmation sample data are included in **Appendix X**. The original excavation areas were incorporated from a survey performed by Parsons prior to onsite excavation activities, and the final excavation areas and sample locations were surveyed by Popli Consulting Engineers and Surveyors during onsite excavation activities. As shown in the figures, one ordnance cache was encountered on the west sidewall of burn pad C. Data for the sample collected in this area is included in the figures.

3.2.3 Grid/Perimeter Sampling

The perimeter of the OB Grounds area was sampled to determine if additional excavation or if a soil cover would be necessary to meet the cleanup criteria for total lead. One discrete sample was collected and analyzed for total lead at a frequency of 1 sample per 200 ft along the perimeter of the OB Grounds. These perimeter sample locations and associated sample data are shown in **Appendix X**. [This section TBD].

Confirmation samples were also collected to determine if additional excavation or if a soil cover would be necessary within the OB Grounds to meet the cleanup criteria for total lead. These grid samples were collected and analyzed for total lead at a frequency of 1 discrete sample per 10,000 sf (100 ft x 100 ft grid). [This section TBD]

3.3 SURVEY

All final excavation areas and excavation confirmation sample locations were surveyed by Popli Consulting Engineers using a Total Station. Surveying was performed after confirmation samples

were collected and before the start of backfill activities. These surveys were used to document the N-S and E-W coordinates for the sample location and the sample elevation. A summary of the projected excavation soil volumes calculated from the Specifications and final excavation soil volumes calculated from the final excavation surveys is included in Table 3-1[TBD].

The grid/perimeter confirmation sample locations were surveyed on [TBD].

To confirm the final elevation of the 1-foot sitewide cut, the entire OB Grounds was surveyed on a 500 ft x 500 ft grid. The pre-excavation survey was performed on 8 October 1999, and the post-excavation survey was performed on [TBD]. These pre- and post- excavation elevations are shown in **Appendix X**.

Table 3-1
Projected and Actual In-Place Soil Volumes from Burn Area Pads and Berms

4. SEDIMENT REMEDIATION

WESTON's scope of work for Reeder Creek included remediation of two sections of the creek, a north section (approximately 1500-ft length) and a south section (approximately 1000-ft length). The south, or upstream, section was remediated first to prevent cross-contamination of remediated areas. The north section was remediated by WESTON [TBD] due to the excessive amount of OE encountered in this area.

4.1 REEDER CREEK DIVERSION

To minimize migration of contaminants downstream during excavation activities, the creek was diverted. A dam was constructed at the furthest upstream point of the south excavation section between 2 September and 6 October 1999 and at the furthest upstream point of the north excavation section between 12 and 15 November 1999. These dams were constructed of approximately 3 ft x 3 ft x 2 ½ ft concrete blocks obtained from SEDA. The blocks were placed adjacent to each other across the width of the creek. A 20 mil HDPE liner was used to cover the blocks; it was anchored approximately 1 ft into the sediment and was secured with sandbags.

An 8 inch dri-prime diesel pump with a level switch and an 8-inch diameter discharge pipe were installed to pump the creek water around the excavations. Between 6 October and 5 November 1999, 1200 ft of discharge pipe were used to divert the creek around the south excavation section. Between 15 and 29 November 1999, 3000 ft of discharge pipe were used to divert the creek around both the south and the north excavation sections. Crushed stone (5-inch minus) was placed at the discharge points to prevent erosion of the streambed during pumping.

Several springs introduced water into the excavation sections downstream of the dams. To minimize water flow through the active excavation areas, sandbag dams were constructed and moved throughout the excavation activities.

The creek diversion system operated for the duration of WESTON excavation activities in the south and north creek sections. Per the request of the onsite CENAN representative, pumping ceased on 29 November 1999, but the dams were left in place to trap upstream sediments.

North section diversion [TBD-2001]

4.2 SEDIMENT EXCAVATION AND STOCKPILING

All areas of Reeder Creek that were excavated by WESTON were first cleared for OE by EODT. OE clearance included screening the area with a magnetometer, flagging the anomalies, and hand digging the anomalies to 2 ft depth. EODT also provided OE construction support during all WESTON excavation activities.

Sediment excavation proceeded from upstream to downstream. A CAT 325 Longstick excavator was used to excavate the creek sediments. Sediments were dewatered in the bucket prior to directly loading into an articulated dump for transport to the Case I and II stockpile area. All sediments were placed in the southeast corner of this stockpile area for dewatering prior to stockpile sampling.

Sediment excavation activities in the south creek section were conducted by WESTON between 13 October and 12 November 1999. In general, the south section was excavated to a 1-ft depth or to shale in accordance with the ROD. Additional sidewall and bottom excavations were performed in the event the cleanup criteria was not achieved.

WESTON sediment excavation activities in the north creek section were conducted on 18 November 1999. Due to the large amount of OE encountered before and during excavation activities, on 18 November 1999 the CEHND declared the north creek excavation section would need to be performed with "OE Construction Support." [Section TBD]

4.2.1 Excavation Confirmation

Confirmation samples were collected at a frequency of 1 discrete sample every 50 lf for the creek excavation bottom and sidewalls. These samples were analyzed for total lead and copper. Areas that contained concentrations of total lead greater than 31 mg/kg and/or total copper greater than 16 mg/kg were reexcavated. Final confirmation sample locations, identification numbers, and data are presented in **Appendix X**.

Since the concentration of total lead and copper in the south section sediments exceeded the cleanup criteria even after the 2-ft depth excavation (21 to 58 mg/kg for lead and 21 to 60 mg/kg for copper), background samples were collected. To verify background levels of copper and lead in upstream sections of the creek, a total of 4 background samples were collected up to 200 ft upstream of the south creek excavation section (Stations 12+00, 12+50, 13+00, and 13+50). In addition, a total of 12 samples were collected at Station 11+45 from the center of the creek to a distance of 24 ft. east. Based on the data received from background sampling, copper levels ranged between 30 and 45 mg/kg and lead levels ranged between 24 and 60 mg/kg). This data was presented to NYSDEC on 19 June 2000 since the cleanup objectives for copper and lead were similar to the concentrations in native soils in the underlying banks. Since all sediment was removed to shale at the bottom of the creek and to native soils along the sidewalls, NYSDEC approved the sediment removal of the south transect in accordance with the ROD objectives via letter dated 26 September 2001. Appendix X includes a summary of sample locations and concentrations.

North Transect [TBD]

4.2.2 Sediment Characterization

Sediments transported to the stockpile area were dewatered prior to stockpile characterization sampling. Characterization samples were collected at a frequency of one 5-point composite sample every 200 cy for total lead.

4.3 SURVEY CROSS-SECTIONS

Pre-excavation and post-excavation cross-sections were surveyed for both the north and south excavation sections of Reeder Creek by Popli Consulting Engineers and Surveyors. Cross-sections were surveyed at 50 ft intervals along the length of the creek sections. Each cross-section includes: elevations of center-line of creek, edge of waterline, toe of slope, limits of excavation, top of slope, undisturbed ground surface beyond top of slope, and other significant breaks in terrain. Pre-excavation cross-sections were completed for both sections between 3 September and 1 October 1999. Post-excavation cross-sections were completed for the south

section between 13 and 14 December 1999 and for the north section between [TBD]. All cross-sections and cross-section locations are included in **Appendix X**.

4.4 SEDIMENT DISPOSAL

After characterization sampling, the sediments were transported offsite as Subtitle D Non-Hazardous material. Capitol Environmental was utilized to perform transportation and disposal services. All shipping papers, manifests, and transportation and disposal contractors' certifications, permits, and certificates of insurance are provided in **Appendix X.**

4.5 BANK STABILIZATION

[TBD]

5. MONITORING WELLS

5.1 WELL DECOMMISSIONING

A total of 32 monitoring wells and 1 ground boring were decommissioned by Maxim Technologies, Inc. (Maxim) between 6 and 27 August 1999 prior to the start of excavation activities in these areas of the OB Grounds. A summary of the wells that were decommissioned, the depth of the well, the depth to water, and the well diameter is shown in Table 5-1. Monitoring Well Field Inspection Logs for these wells as required by the NYSDEC Well Decommissioning Program are included in **Appendix X**. Monitoring wells MW-12, MW-14, and MW-27 were RCRA wells and were decommissioned per USACE and SEDA approval on 3 August 1999. These wells were reinstalled after excavation activities were complete. Monitoring well MW-28 could not be located. Ground boring GB-20 was located, instead, in the same area and was decommissioned. The monitoring well locations are shown in Figure 5-1.

Table 5-1
Well Decommissioning Summary

Well ID	Well Depth (ft bgs)	Water Depth (ft bgs)	Well Dia. (in)	Well ID	Well Depth (ft bgs)	Water Depth (ft bgs)	Well Dia. (in)
MW-1	9.0	NA	4	MW-23	13.5	7.8	2
MW-5	9.6	8.1	4	MW-24	7.5	NA	
MW-6	8.0	7.8	4	MW-25	12.0	11.6	2
MW-7	4.5	NA	4	MW-26	5.0	4.6	2
MW-8	9.8	7.9	2	MW-27	13.5	7.9	2
MW-9	6.5	5.9	2	MW-28	Well not found.		
MW-10	10.3	9.1	2	MW-29	13.0	9.0	2
MW-11	9.5	9.0	2	MW-30	13.0	12.1	2
MW-12	8.5	6.7	2	MW-31	10.7	7.5	2
MW-14	9.3	NA	2	MW-32	14.5	7.3	2
MW-15	7.3	NA	2	MW-36	9.0	8.0	2
MW-16	7.0	6.4	2	MW-37	6.0	5.1	2
MW-17	11.0	6.2	2	MW-38	6.5	6.5	2
MW-18	12.3	7.1	2	MW-39	12.0	7.2	2

MW-19	4.5	NA	2	MW-40	5.0	4.6	2
MW-21	15.2	6.9	2	MW-41	6.0	NA	2
MW-22	16.2	7.2	2	GB-20	14.0	8.9	2

Wells were decommissioned in accordance with the NYSDEC Groundwater Monitoring Well Decommissioning Procedures. The case pulling method was used for all wells. The bottoms of the well casings were punctured, and a cement/bentonite grout mixture was pumped into the well as it was pulled out of the ground. Grout was inserted into the wells up to ground surface level. At this time, the area around the decommissioned wells was not covered with topsoil since 1 foot of topsoil was removed from the entire OB Grounds area after excavation activities were complete.

5.2 WELL INSTALLATION

A total of 10 monitoring wells were installed after the completion of excavation and site restoration activities in the OB Grounds. The locations of these wells are shown in Figure 5-1. Well installation was performed by Maxim between [TBD]. A summary of the well construction specifications is shown in Table 5-2. The well installation logs are included in **Appendix X.**

Table 5-2
Well Installation Summary

Figure 5-1
Monitoring Well Decommissioning and Installation Locations

Monitoring wells were installed in accordance with the SEDA Groundwater Monitoring Well Installation Procedures. The wells were constructed of Schedule 40 stainless steel with 10 ft long, 0.01 inch slotted screens. A sand pack was placed around the screen to a depth approximately five feet above the top of the screen. Above the sand pack, the boring was backfilled with grout to within three feet of the ground surface. A steel casing approximately seven feet long was installed with three feet above ground surface, secured in place with a concrete collar poured from 3 ft bgs, and protected with 3 bollards secured into the collar. [Section TBD].

6. SOIL CHARACTERIZATION, TREATMENT AND DISPOSAL

Soils transported to the stockpile area by EODT was tracked, sampled, segregated, treated (if necessary) and disposed (if necessary) based on total lead and TCLP concentrations.

6.1 SOIL CHARACTERIZATION

Each truckload of soil delivered to the stockpile staging area (Case I and II or Case III) was pushed with a dozer into an initial windrow stockpile to be sampled. The windrow was divided into 200 cy segments and sampled. These stockpile characterization samples were collected at least 18 inches below the surface at a frequency of one 5-point composite sample every 200 cy. All samples were sent to an offsite laboratory for TCLP metals analysis (for Case I and II soils) and for total lead (for Case III soils).

After stockpile characterization sampling, the Case III material was leveled within the staging area limits (24,253 cy through December 2000) and the Case I/II soils were segregated into two piles for offsite disposal, one pile with TCLP lead concentrations less than 5 mg/l and one pile with TCLP lead concentrations greater than 5 mg/l that required treatment prior to disposal. The piles were segregated using a dozer, a front-end loader and an excavator.

These piles segregated for offsite disposal were compacted using a low-ground pressure dozer and were covered daily with tarps secured with sandbags.

6.2 SOIL STABILIZATION

Based on the volume of soil that contained TCLP lead concentrations greater than 5 mg/l, it was determined that onsite treatment prior to disposal was more cost effective than offsite treatment.

6.2.1 Bench-scale test

A bench-scale test for the solidification/stabilization process was conducted by The IT Group between 27 March 2000 and 31 March 2000. The results from this test determined that treatment of the failed TCLP stockpile soils with a 2% by weight mixture of Triple Super Phosphate (TSP, manufactured by CF Industries, Inc.) reduced TCLP lead concentrations to significantly below

the regulatory limit of 5 mg/l. The bench scale verification procedure consisted of treating 200 cy of soil in 4 – 50 cy piles then treating an additional 600 cy of soil in 200 cy groups (total of 800 cy).

Samples for the initial 200 cy of the bench scale verification were analyzed for the following 14 TCLP Metals: Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver (RCRA 8 Metals), Antimony, Beryllium, Nickel, Thallium, Vanadium and Zinc (Non-wastewater UTS 12 Metals). The 4 – 50 cy piles were sampled prior to treatment for the 14 TCLP Metals (SP-00SS-001-0 through SP-00SS-004-0), stabilized in 4 separate groups and then sampled for the 14 TCLP Metals again (SP-00SS-005-0 through SP-00SS-008-0). One QA duplicate sample (total of two) was analyzed for the 14 TCLP Metals before (SP-00SS-01-2) and after stabilization (SP-00SS-05-2). The three subsequent 200 cy groups of the bench scale verification were sampled after stabilization and analyzed for TCLP Lead (SP-00SS-009-0 through
SP-00SS-011-0).

WESTON performed a soil stabilization mix test on 4 April 2000 using the 5-gallon representative soil sample that was collected previously from the Seneca Army Depot lead contaminated (untreated) stockpiled soil on 25 February 2000. The test was performed in order to ensure that the soil treated with 2% by weight of Triple Super Phosphate would meet non-hazardous disposal criteria following treatment for TCLP metals.

In order to perform the test, both the Triple Super Phosphate (TSP) manufactured by Cargill and the WESTON soil sample were weighed. Based on the tare weight of the soil, the required weight of TSP was determined (2% of total soil weight). A composite sample (sample ID SP-0TSP-001-0) of the resulting mixture was collected and submitted to ESS laboratory for 3 day TCLP Metals analysis. A pre treatment sample (sample ID SP-STAB-008-0) from the same 5-gallon sample (collected on 25 February 2000) was previously analyzed on 3 March 2000 for percent moisture and TCLP Metals.

Additional soil stabilization mix testing was performed on 12 May 2000 by WESTON using samples collected from the Seneca Army Depot lead contaminated (untreated) soil stockpile on 11 May 2000. The purpose of the test was to ensure that the TSP, which was manufactured by

Cargill, sufficiently stabilized hazardous levels of lead at varying application rates. The previous bench scale testing using TSP (manufactured by CF Industries) proved effective at a 2% mix rate. Since lead was the only contaminant of concern with concentrations exceeding the hazardous criteria for toxicity, no other metals were tested.

Soil was collected from 10 discrete locations in the soil stockpile. Six of these samples were collected from the perimeter of the stockpile at a depth of 18 inches. The other four samples were collected from the interior of the stockpile at a depth of 18 inches. A sufficient amount of soil was collected from each location in order to analyze both the 10 discrete samples and the 10 corresponding split samples. One sample from each location was weighed and mixed with a percentage by weight of TSP ranging from 1.6% to 2.5%. The weight of each soil sample and corresponding TSP quantity was recorded for documentation purposes. Each sample was mixed with TSP for approximately 5 minutes to ensure that an appropriate contact time and homogeneity were achieved. The samples with TSP (SP-0TSP-012-0 through SP-0TSP-021-0) were sent with the 10 corresponding split samples (SP-0TSP-002-0 through SP-0TSP-011-0) to the laboratory for TCLP lead analysis. The data confirmed the effectiveness of the TSP stabilization process at each separate application rate

6.2.2 Treatment

Full-scale soil treatment was conducted between 5 June 2000 and 27 July 2000. A total of approximately 48, 829.086 tons of soil was successfully treated to below the regulatory limit of 5 mg/l for TCLP lead. The following is a brief explanation of the soil stabilization process as well as the equipment used by WESTON to complete full-scale soil treatment.

A CAT D7R LGP Dozer with disc attachment processed soil from the failed TCLP stockpile prior to pushing the soil to a staging area adjacent to the loading pad for the CAT 330B L Excavator. The excavator loaded untreated soil into a Commander 510 Power Screen hopper (beginning of the stabilization process). The power screen shredded and deposited untreated soil into a Kolberg Model #52 Pug Mill hopper. Prior to entering the Pug Mill hopper, the untreated soil was weighed on a Belt-Way belt scale, which was located on the pug mill's feed conveyor.

The stabilization additive material (Triple Super Phosphate, TSP) was added to the Pug Mill by one of the 300 Barrel Silos. Both of the 300 Barrel Silos were equipped with a Flow-Way flow meter. The flow meter verified that the positive feed auger of the silo discharged the correct ratio of TSP to untreated soil, which was weighed by the belt scale. The default additive rate of TSP was initially set at 2 % but the rate was reduced to 1.6 % by the end of the stabilization process in order to eliminate excessive TSP. Triple Super Phosphate was added to the silos by a Bulk Trailer with blower attachment.

The treated soil was then deposited onto a M65 Belt Conveyor, which transported the treated soil onto a M85 Belt Conveyor which in turn transported the treated soil farther west into the stockpile area. The westside of the stockpile area (approximately 100' x 400') was used for temporary staging and as a loading area for Transportation and Disposal activities. The CAT D6R LGP Dozer periodically stockpiled the treated soil, which was discharged from the conveyors, for sampling purposes. The temporary staging was required for the 200 cy and 2000 cy sampling requirements. In an effort to reduce the temporary staging time, the 2000 cy sample was collected along with the 200 cy samples.

6.3 SOIL DISPOSAL

All soils with concentrations of total lead > 500 mg/kg were transported and disposed offsite as Subtitle D Non-hazardous material following verification of TCLP concentrations. Soils with TCLP lead concentrations less than 5 mg/l did not require treatment prior to offsite disposal while soils with TCLP lead concentrations greater than 5 mg/l required stabilization treatment prior to offsite disposal (to render the soil non-hazardous).

6.3.1 Disposal Characterization Sampling

Soils that did not require treatment prior to offsite disposal (TCLP lead concentrations less than 5 mg/l) were characterized in accordance with the SAP. One 5-point composite sample was collected to represent this entire stockpile and analyzed for Full TCLP (metals, SVOCs, VOCs, pesticides, and herbicides), ignitability, reactivity, corrosivity, percent moisture, pH, explosives, paint filter, VOCs, SVOCs, TAL metals, pesticides, and PCBs. Also, one 5-point composite

sample was collected for every 2000 cy of soils and analyzed for Full TCLP (metals, SVOCs, VOCs, pesticides, and herbicides). The results from these analyses were submitted to the disposal facilities.

Soils that did require treatment prior to offsite disposal (TCLP lead concentrations greater than 5 mg/l) were treated and then sampled. Except as noted in Subsection 6.2.1 (Bench-scale test), soil stabilization samples were collected in the same manner as described for the untreated soils.

6.3.2 Transportation and Disposal

Transportation and disposal services were arranged through Capitol Environmental Services, Inc. Untreated soils were disposed of at the High Acres Landfill in Fairport, New York and the Hyland Ash Landfill in Angelica, New York. A total of [TBD] were disposed of at the High Acres Landfill and a total of [TBD] were disposed of at the Hyland Ash Landfill. The Certificates of Disposal and signed Manifests for both landfills are included in **Appendix X**. Transportation of untreated soils to High Acres Landfill and Hyland Ash Landfill was conducted from 21 January 2000 to 4 February 2000, from 8 March 2000 to 14 March 2000. Buffalo Fuel Corporation, Lott Motor Lines and Zoladz Construction were the approved haulers for the untreated soil disposal. All transportation and disposal permits and certificates of insurance are included in **Appendix X.**

Treated soils were disposed of at the BFI Waste Systems of North America, Inc. Niagara Falls Landfill in Niagara Falls, New York. A total of **X Tons** were disposed of at the Niagara Falls Landfill. The Certificates of Disposal and signed Manifests for this landfill are included in **Appendix X.** Transportation of treated soils to Niagara Falls Landfill was conducted from 27 June 2000 to 4 August 2000 and from 9 May 2001 and 22 May 2001 (8475.97 tons). Lott Motor Lines, Zoladz Construction, Haseley Trucking Co., Inc., Mix Brothers, Inc. and Sunshine Bulk Commodities, Inc. were the approved haulers for the treated soil disposal. All transportation and disposal permits and certificates of insurance are included in **Appendix X.**

7. WASTEWATER COLLECTION, TREATMENT AND DISPOSAL

WESTON performed wastewater collection, treatment and disposal for all wastewaters generated in the OB Grounds and the stockpile area. This included wastewater from excavation dewatering, creek dewatering, decontamination activities, and stockpile runoff maintenance. In the Specifications, data obtained from the RI/FS indicated that this wastewater would meet NYSDEC Class D surface water discharge criteria via filtration. The State Pollutant Discharge Elimination System (SPDES) permit issued by the NYSDEC for this project required discharge water to meet Class C surface water discharge criteria instead. A copy of this permit is included in **Appendix X**. Results from the filtration system pilot test indicated that a filtration system would not remove contaminants to the levels required in the permit. Therefore, additional bench-scale and pilot-scale tests were required to determine the most effective treatment option for this wastewater.

On 16 November 1999 the NYSDEC issued a letter approving a revised effluent concentration for iron of 0.7 mg/l. This revised SPDES permit also required Short Term Toxicity Testing of the effluent water and is included in **Appendix X**.

7.1 WASTEWATER COLLECTION AND STORAGE

Wastewater was generated from excavation dewatering, creek dewatering, decontamination activities, and stockpile runoff maintenance. Excavation dewatering water was pumped from the excavations into a tanker truck and transported to the Econotanks by EODT. Creek dewatering water was pumped from the creek excavations into multiple tanker trucks and transported to the Econotanks by WESTON. Wastewater generated from decontamination activities at the decontamination pad was collected into the 1100 gallon polyethylene tank adjacent to the pad then pumped to the Econotanks via centrifugal pumps by WESTON. Stormwater runoff collected in the stockpile areas, was pumped to the Econotanks from the stormwater runoff collection points via centrifugal pumps. All wastewater was stored in the Econotanks prior to treatment and disposal.

7.2 FILTRATION SYSTEM CONSTRUCTION AND PILOT TESTING

The filtration system was rented from Environmental Products and Services between 9 September 1999 and 3 January 2000. A shelter was constructed for the filtration system to store filters and to prevent freezing during the winter months. A 3-inch diameter centrifugal pump was connected to pump water through the system. During the pilot tests the effluent from the filtration system was discharged into the Econotanks. Laboratory results from analyses of all pilot test samples are presented in **Appendix X**.

A pilot test was conducted on 30 September 1999 for three hours at steady-state on each of two treatment trains. In the first treatment train (Train A), the water was filtered through a nominal 100 micron bag filter followed by a nominal 50 micron cartridge filter; in the second treatment train (Train B), the water was filtered through a nominal 25 micron bag filter followed by a nominal 5 micron cartridge filter. Three influent grab water samples were collected from the west Econotank, and three effluent grab water samples were collected from each treatment train. As can be seen from the data summary tables, the discharge criteria for iron was exceeded in the effluent from both treatment trains, and the discharge criteria for selenium was exceeded in treatment Train A.

This pilot test was repeated on 19 October 1999 after the wastewater in the west Econotank was allowed to settle. The pilot test was conducted for three hours on steady-state with smaller filter sizes. The wastewater was filtered through a nominal 5 micron bag filter followed by a nominal 1 micron cartridge filter. The discharge criteria for iron was exceeded.

7.3 BENCH-SCALE TESTING

Since treatment by filtration did not meet the required discharge levels for iron, bench-scale tests were conducted by Culligan with alternative treatment options to determine the most effective treatment for iron removal. Four alternatives were tested:

Option #1: Filtration through a nominal 5 micron bag filter followed by filtration through a nominal 5-0.5 micron spun cartridge filter.

Option #2: Filtration through a nominal 5 micron bag filter and a nominal 5-0.5 micron spun cartridge filter followed by filtration through a greensand filter.

Option #3: Aeration of influent with a venturi aerator followed by filtration through a nominal 20-10 micron spun cartridge filter and a nominal 5-0.5 micron spun cartridge filter.

Option #4: Aeration of influent with a venturi aerator and addition of caustic soda (sodium hydroxide) followed by filtration through a nominal 20-10 micron spun cartridge filter and a nominal 5-0.5 micron spun cartridge filter.

Three influent grab samples were collected from the west Econotank, and three effluent grab samples were collected from each treatment option. Treatment Options #1 and #2 were run at steady-state for approximately three hours, and Treatment Options #3 and #4 were run at steady-state for approximately 1 hour. As is shown from the data in **Appendix X**, none of the options met the discharge criteria for iron. However, Option #2 was not performed correctly due to a crack in the greensand filter, and Option #4 was not performed correctly due to a faulty pH indicator.

7.4 WASTEWATER DISCHARGE AND DISPOSAL

Due to the delays associated with the wastewater treatment system pilot testing and retesting, it was necessary to dispose wastewater offsite that did not meet the onsite Class C surface water discharge criteria.

Therefore, a designated volume of wastewater generated between 28 July and 22 October 1999 was characterized, and approval was obtained from the NYSDEC to discharge this water to the SEDA wastewater treatment plant. A copy of this permit is included in **Appendix X**. A total of 212,700 gallons of wastewater was transported to the SEDA wastewater treatment plant between 25 and 30 October 1999. To meet the permit requirements, 24-hour composite samples were collected at the SEDA wastewater treatment plant discharge between 26 and 31 October 1999 and analyzed for [see discharge parameter list]. The data for these samples is included in **Appendix X**.

An additional volume of water generated between 26 October and 20 December 1999 was characterized, and verbal approval was obtained from the NYSDEC on DATE to discharge this water to the Ithaca Area Wastewater Treatment Plant. A total of 70,600 gallons of wastewater

was transported to this treatment plant between 21 and 22 December 1999 by The Heated Water Company.

8. SITE RESTORATION

Following excavation of the 1-foot sitewide cut across the OB Grounds, all burn pad and berm excavations were backfilled [TBD]. The entire OB Grounds was surveyed and sampled in a grid formation. All areas with soil total lead concentrations greater than 60 mg/kg were re-excavated to below 60 mg/kg or covered with a 12-inch soil cover. Site restoration included backfilling [TBD] and grading [TBD], and removal of temporary structures.

8.1 BACKFILL AND GRADING

8.1.1 Burn Pads and Berms

After excavation activities in the OB Grounds were completed, including the 1-foot sitewide cut, the burn pad and berm excavations were backfilled. The fill material was obtained from [TBD] located in [TBD], NY. This material was sampled and analyzed for TAL metals, explosives, VOCs, SVOCs, PCBs, and pesticides. One 5-point composite sample was collected for every 5000 cy of fill material. These sample results are presented in **Appendix X**.

[Company X] loaded and hauled the fill material from [Borrow pit location] to the OB Grounds where it was staged adjacent to the excavations to perform backfill and compaction activities. Prior to backfilling, the excavations were dewatered. The fill was compacted with a [TBD]. However, soil density measurements were not performed since this was not a requirement of the Specifications.

8.1.2 12-inch Soil Cover [Optional based on ROD requirements]

The areas of the OB Grounds with total lead concentrations greater than 60 mg/kg that required a 12-inch soil cover are shown in Figure 8-1. These areas were covered with 8 inches of fill followed by 4 inches of topsoil [Fill areas TBD]. The fill material was obtained from [TBD] and the topsoil was obtained from [TBD]. Both materials were sampled and analyzed for TAL metals.

Figure 8-1
OB Grounds Areas Exceeding Cleanup Goal

metals, explosives, VOCs, SVOCs, PCBs, and pesticides. One 5-point composite sample was collected for every 5000 cy of material. These sample results are presented in Appendix X.

The fill and topsoil were placed in [TBD] ft. layers and compacted with [TBD] passes of a vibratory roller by WESTON. Soil density measurements were not performed since this was not a requirement of the Specifications.

Fill was not placed in sections of the OBG that were previously characterized with lead levels < 60 mg/kg in accordance with the ROD [TBD}

8.2 RESTORATION

Site restoration activities commenced after EODT completed excavation and backfill activities in the OB Grounds. Site restoration was performed concurrently with soil cover placement activities. The final grade of the OB Grounds is shown in Figure 8-2.

8.2.1 Wetlands

The wetlands delineation for the OB Grounds is shown in Figure 8-3. Section may be omitted in final report [TBD].

8.2.2 Hydroseeding

[TBD]

Figure 8-2
OB Grounds Final Grade

Figure 8-3
OB Grounds Wetland Delineation

9. WASTE DISPOSAL

Several types of wastes were generated from onsite activities which were disposed both onsite and offsite.

9.1 OFFSITE DISPOSAL

Table 9-1 summarizes the wastes transported for offsite disposal. This table includes: the type of waste generated, the quantity, the date transported offsite, the transporter, and the disposal facility.

9.2 ONSITE DISPOSAL/STAGING

All soils excavated from the OB Grounds with total lead concentrations between 60 mg/kg and 500 mg/kg are currently staged in the south section of the soil stockpile area. This area is lined and bermed as described in Subsection 2.3, and the stockpile is covered and secured with XX. These soils were screened by EODT and may be used by the SEDA for backfill in specifically designated areas of the base.

The stumps and brush generated from clearing and grubbing activities in the stockpile staging area and along the west bank of Reeder Creek are staged adjacent to these areas at SEDA's request. Offsite disposal was not requested for these materials.

Table 9-1
Transportation and Disposal

10. DEMOBILIZATION

WESTON demobilized equipment and materials from the site during the project as tasks were completed. The site was temporarily shut down between 25 December 1999 and 2 January 2000. During this time period all heavy equipment was off-rent but remained onsite. WESTON demobilized again in August 2000 and in May 2001[TBD]. All equipment and materials were demobilized and site work was completed by X DATE 2000. The decontamination pad and temporary facilities were left in place per SEDA request until OBG activities are complete. These facilities may be used for future base remediation projects.

11. CONCLUSION

This report summarizes the remedial activities performed by WESTON under contract with CENAN for soil and sediment remediation of the OB Grounds. This contract employed two separate contractors for OB Grounds remediation. The OE contractor, EODT, performed all intrusive activities in areas with OE, was responsible for OE disposal, and provided OE construction support for WESTON. WESTON performed all activities under the HTRW contract and provided support to EODT for remediation activities.

The tasks performed under this contract include OB Grounds berm and pad excavation, Reeder Creek sediment excavation, confirmation sampling, surveying, monitoring well installation and decommissioning, soil characterization, treatment and disposal, wastewater collection, treatment and disposal, and site restoration.

The soil cleanup goal of 60 mg/kg total lead , 500 mg/kg total lead level for offsite disposal, and 100,000 mg/kg explosives was applied to the OB Grounds. Wastewater discharged to Reeder Creek was treated to meet the requirements in the Revised NYSDEC SPDES permit for Class C receiving waters. Also, soils with TCLP lead concentrations greater than 5 mg/l were stabilized to meet this criteria prior to offsite disposal.

All soils in the OB Grounds under the scope of work were remediated to meet the ROD and Parsons Specification objectives. In addition, all sediments in Reeder Creek under the scope of work were remediated [North transect TBD]. All materials generated as a result of remediation activities in the OB Grounds and Reeder Creek were properly treated and/or transported offsite for disposal.

Additional supporting information for this report includes: photographs (Appendix X) and validated data (Appendix X).

12. REFERENCES

Malcolm Pirnie, Inc. 1996. *Groundwater Monitoring Well Decommissioning Procedures*, Prepared for New York State Department of Environmental Conservation (NYSDEC).

NYSDEC. 1989. *Division Technical and Administrative Guidance Memorandum – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites*.

Parsons Engineering Science, Inc. 1998. *Final Section C – Technical Specifications, Soil and Sediment Remediation at the Open Burning (OB) Grounds*, Prepared for U.S. Army Engineer Division, Huntsville, Alabama (CEHND).

Parsons Engineering Science, Inc. 1997. *Draft Record of Decision, Former Open Burning (OB) Grounds Site*, Seneca Army Depot Activity (SEDA), Romulus, NY, Prepared for the U.S. Army Corps of Engineers, Contract No. DACW33-95-D-00005.

Seneca Army Depot Activity (SEDA). 1998. *Well Installation Procedures*, Taken from Appendix A, Field Sampling and Analysis Plan and Generic Installation RI/FS Work Plan.

U.S. Army Corps of Engineers, New England District (CENAN). 1997. *Superfund Proposed Plan, The Open Burning (OB) Grounds at the Seneca Army Depot Activity*, Seneca Army Depot Activity, Romulus, NY, Contract No. DACW33-95-D-00005.

APPENDIX A

Permits

1. SEDA Camera Permit
2. Maryland XRF License
3. NYSDOH XRF Permit
4. SEDA Radioactive Materials Permit
5. NYSDEC SPDES Permit
6. Revised NYSDEC SPDES Permit
7. Permit for Discharge of Wastewater to SEDA Building 4 Wastewater Treatment Plant

APPENDIX B

Data Summary Tables

1. Health and Safety Personnel Air Sampling
2. OB Grounds Excavation Confirmation Sampling
3. OB Grounds Grid/Perimeter Sampling
4. OB Grounds Stockpile Characterization Sampling
5. Reeder Creek Excavation Confirmation Sampling
6. Reeder Creek Stockpile Characterization Sampling
7. Solidification/Stabilization Bench-Scale Test
8. Soil and Sediment Disposal Characterization Sampling
9. Additional Materials Disposal Characterization Sampling
10. Wastewater Treatment System Pilot Tests and Bench-scale Tests
11. Wastewater Disposal Confirmation/Characterization Sampling
12. Backfill Sampling
13. Demobilization Confirmation Sampling

APPENDIX C

Summary of Truckloads Transported from the OB Grounds to the Stockpile Staging Area by EODT

APPENDIX D

Confirmation Sample Location and Excavation Figures

1. OB Grounds Excavation Confirmation Sampling
2. OB Grounds Perimeter/Grid Sampling
3. OB Grounds 1 Foot Cut Pre- and Post- Excavation Elevations
4. Reeder Creek Excavation Confirmation Sampling
5. Reeder Creek Background Sampling

APPENDIX E

Reeder Creek Cross-Sections

APPENDIX F

Well Decommissioning Logs

APPENDIX G

Well Installation Logs

APPENDIX H

Transportation and Disposal Manifests and Shipping Papers

APPENDIX I

Site Photos

APPENDIX J

Validated Data

FINDING A: PROJECT MANAGEMENT OF THE OPEN BURNING GROUNDS REMEDIATION

For the Chief,
Base Realignment and Closure Office

SUMMARY

Additional controls were needed for the project management process for remediation projects involving removal of unexploded ordnance. Remediation of the open burn grounds included removal of both unexploded ordnance and hazardous waste materials. For most of the life of the remediation project, project management responsibilities were compartmentalized among persons separately responsible for unexploded ordnance removal, hazardous waste removal, and integration with overall installation remediation efforts. This separation adversely affected efficient and effective communication among key players from the activities executing ordnance and hazardous waste removal actions and the installation up through DA, especially with regard to increases in project scope and estimated costs to complete the project. As a result senior managers did not have the opportunity to assess options and to take actions to minimize impacts of scope increases, time extensions, and remediation solutions. agreed

To complete the project, the New England District combined the ordnance and hazardous waste removal actions in a single delivery order and delegated contract management responsibilities to the New York District. While late in coming, the concept of combining all actions under the direct authority of a single district with overall site responsibilities is a move in the right direction. Other, complementary actions are needed to:

- Facilitate communication of project status among all the key players by establishing a periodic progress/status reporting requirement.

- Strengthen the management process by establishing a re-evaluation point in the life cycle of unexploded ordnance removal projects to reassess the continued feasibility of the specific project with other remediation options.

Our recommendations to improve these situations begin on page XX.

For the Chief,
Base Realignment and Closure Office

A-1 **<u>Recommendation</u>:** Ensure that policies and lines of authority provide clearly-designed single person with overall authority for execution on future remediation projects when more than one Corps of Engineers activity is involved in remediation actions.

....

Response: Under the Corps' Project Management Business Process (PMBP), the geographic project manager is the designated person responsible for all aspects of a project. Specific roles and responsibilities for COE activities are defined in Project Management Plans.

The format of the audit report should be specific finding of fact and specific recommendation. Generalized discussions and statements can be interpreted differently, and tend to imply perspectives that may not be consistent with factual findings. Additionally, corrective actions, if needed, need to be directed to specific findings and recommendations; otherwise, closure of the audit cannot be effectively obtained.

....

A-2 **<u>Recommendation</u>:** Establish a formal, status reporting process from the closing installation to the Base Closure Office that periodically and comprehensively summarizes and documents the status of remediation at the installation. The report would include specific information about each individual project such as execution progress, funding status, problem and potential problem situations that would delay timely completion, activities responsible for corrective actions, suspense dates. Management activities would use the reports as the single source of project status and for monitoring corrective actions needed to ensure timely completion within established funding levels.

....

Response: This recommendation pertains to programmatic BRAC rather than COE project management.

....

A-3 **<u>Recommendation</u>:** Establish a formal, decision re-evaluation point in the life-cycle of ordnance removal projects to reassess technical feasibility and financial implications of the selected

course of remediation action and evaluate alternative courses/methods of remediation if initially determined course of remediation is no longer technically or financially feasible. Results of this formal re-evaluation should be subject to an approval process similar to the process used for the initial determination.

Response: Independent technical reviews are conducted annually on selected Seneca projects. Issues identified in this review are subject to validation by the Army Environmental Center. The OB Grounds project was reviewed in this process. (annually? as stated in the first sentence?)

FINDING B: Financial Management

For the Chief,
Base Realignment and Closure Office

SUMMARY

Additional controls were needed and established financial management practices were not followed to provide adequate financial controls over funds expended on the ordnance removal project. We found that:

- Major unexploded ordnance removal sites on the installation did not have separate management structure codes to account for funds used.

Response: Many sites were combined under parent projects due to geographic location and/or contaminants of concern, including OE. This avoids duplicative costs by managing the similar or nearby sites as an operable unit. These can be separated by AMSCO.

- Funding designated for other sites was used to fund work at the Rifle Grenade Range, an undesignated site that was not identified in the unexploded ordnance removal survey.

Response: The work efforts in support of the OE contractor were performed under the OE EECA project. These costs could have been budgeted for under the 44A AMSCO. The OE EECA is a parent project that included the Area 44A Rifle Grenade Range. The Area 44A project was expedited due to imminent reuse of the property. ~~and~~ this was done to expedite the project.

- Estimates of remediation costs were not updated to reflect current conditions and status of execution efforts.

- Reprogramming actions were made without updating estimates in the cost-to-complete funding system.

Response: The CTC system does not capture reprogramming actions. Total costs are captured on the DFAS report by AMSCO. The CTC system looks at current time-to-future completion, but does not capture or track reprogramming actions in a given fiscal year.

Reprogramming actions move funds from previously funded projects to fund a given need and to liquidate funds more effectively. This action is forwarded to DA, and upon review and approval, a new FAD is issued. The CTC is integrated in the DSERTS system, and this ~~may~~ DSERTS? address this. The action office is the Army Environmental Center. Future funding for projects is revised in CTC if needed.

Projects that have had delays due to regulator issues, decreases in funds required due to Peer Review, or where funds have not been progressing to liquidation for other reasons are identified to both liquidate the funds and fund the requirement.

- Proper management structure codes were not used to account for specific phases of the cleanup process.

Response: "S" code for "Study" for much of the OB Grounds was used. All OB Grounds funds under BRAC dollars should have been "R" codes for "Remediation", which includes Remedial Design. All studies were completed before the installation was closed.

Prior to FY99, the field levels (USACE and installation) were not tracking whether or not the appropriate AMSCOs were used. After guidance was provided, the installation and on-site support COE personnel were required to, and ensured that, proper AMSCOs were indicated on the BRAC work plan and funding documents. A reprogramming action was requested in FY01 to correct all AMSCOs.

These conditions resulted from unanticipated cost increases. However, established procedures requiring updates of the information were not followed. As a result of these conditions, financial reports regarding

site-specific cost data were misleading; work plan estimates did not accurately reflect funding requirements; and information provided to higher headquarters contained inaccuracies.

....

Response: Specific findings of facts should be stated with respect to findings of misleading data, accuracy of work plan estimates, and inaccuracies of information provided to higher headquarters.

General statements such as this cannot effectively be responded to, and adequate implementation of corrective actions cannot be accomplished without knowing the specific data or information this is in reference to.

Programmatically, work plan estimates show CTC amounts. The bi-annual work plan meeting is used to change these estimates if more accurate estimates are contained in feasibility studies or contracting estimates. Unanticipated cost increases that are required in a given fiscal year may or may not be able to be included in the work plan, depending upon the time of year.

Reprogramming to fund such requirements is viewed as good financial management, since the requirement is "paid for" out of the installation program and new funds are not requested. This concurrently liquidates funds in the projects that have delays due to other issues, and new funds for these losing projects are included in CTC updates and subsequent Work plans if needed.

a previous response stated CTC "does not capture reprogramming actions"

....

Our recommendations to correct these conditions begin on page xx.

For the Chief,
Base Realignment and Closure Office

B-1 **Recommendation:** Establish Army Management Structure Codes for major ordnance removal sites at closing installations.

....

Response: The OE sites that are grouped can be separated. This will increase the number of DSERTS sites to be tracked, including funding needs, and monitored.

Sites are grouped due to geographic area and type of contaminants, and managed as one project to minimized duplication of work efforts for documents, reviews, etc. Separation can be easily done, but this will increase the overall costs due to additional documents and subsequent management efforts as well.

....

B-2 **Recommendation:** Revise the installation unexploded ordnance removal estimate to include the Rifle Grenade Range

....

Response: This recommendation needs to be clarified with respect to which range is being referred to.

....

B-3 **Recommendation:** Update remediation cost estimates in the cost-to-complete funding system to reflect current conditions.

....

Response: This is currently performed during the CTC updates. The CTC system does not accommodate or track reprogramming in a given fiscal year. The tracking is only addressed in the DFAS Report.

....

B-4 **Recommendation:** Ensure that all reprogramming actions are entered into the Defense Sites Environmental Restoration Tracking System to ensure that accurate and timely financial information is reported to higher levels of Command.

....

Response: Reprogramming actions could be loaded and updated in DSERTS in its annual update if required and permitted by the Army Environmental Center. This currently cannot be performed at the field levels. NAN has a complete tracking of all reprogramming actions.

....

B-5 **Recommendation:** Monitor the use of the Army management Structure codes to ensure that the "study" and "remedial" codes accurately report the proper costs for specific phases of remediation projects.

....

Response: The installation and supporting COE personnel are ~~currently~~ strictly monitoring of ~~this.~~ these codes

....

BACKGROUND

Ordnance removal remediation for the open burning grounds project involved two delivery orders placed against two different basic agreements.

- Basic agreements are a contracting method the Huntsville Engineering Center uses to facilitate ordnance removal remediation at multiple locations. The basic agreement is a written instrument of understanding, negotiated between the Huntsville Engineering Center contracting activity and the contractor that (1) contains contract clauses applying to future delivery orders between the parties during its term and (2) contemplates separate delivery orders that will incorporate by reference or attachment the required and applicable clauses agreed upon in the basic agreement.

- The basic agreement is not a contract. However, delivery orders issued under the basic contract are binding contractual agreements to obtain ordnance removal at specific installations. The contractor can accept delivery orders up to the total amount identified in the basic agreement. Each delivery order incorporating a basic agreement includes a scope of work and price, delivery, and other appropriate terms that apply to the particular contract at a specific location. The delivery order incorporates the basic agreement by specific reference or by attachment.

In September 1997, the Huntsville Center awarded a time and materials delivery order under provisions of a December 1996 basic agreement for the ordnance removal portion of the open burning grounds remediation project. Under terms of the basic agreement, the contractor could accept orders for a period of three years; performance of any delivery order placed during the ordering period could not exceed the end of the ordering period by more than one hundred eighty (180) days. On-site remediation actions began in July 1999 after the Record of Decision was finalized in June 1999 and the Department of Defense Explosives Safety Board approved the safety plan in July 1999. However, ordnance removal remediation actions were not complete when ordering/performance period lapsed in December 1999. Cumulative obligations for the ordnance removal remediation under this delivery order were $3.6 million as of December 2000.

In April 2001, the New England District awarded another time and materials delivery order to a second contractor to complete the ordnance

Cost plus

removal remediation. We estimated costs to complete the remediation were $3.7 million as of December 2001.

A time-and-materials delivery order provides no positive profit incentive to the contractor for cost control or labor efficiency. Federal Acquisition Regulation 16.601 requires appropriate Government surveillance of contractor performance to give reasonable assurance that efficient methods and effective cost controls are in use throughout the life of the project.

DISCUSSION

This section discusses five areas.

- Cost Growth
- Contract Surveillance
- Contract Terms
- Communications
- Payment Calculation Errors

Cost Growth

Ordnance removal remediation under the initial delivery order experienced significant cost growth from the $532,000 estimated cost in September 1997. Cumulative obligations for the first delivery order were $3.6 million when ordering authority expired in December 2000. Remediation work still needed to complete the ordnance removal portion of remediation project under the second delivery order was estimated to cost $3.7 million. Time to complete the ordnance removal actions also grew from the initial estimate of 3 ½ months to over 3 years.

Our review showed that the majority of cost and time increases under the first delivery order was due to unexpected site conditions involving higher quantities of ordnance and other debris and higher levels of lead contamination in the soil. The initial ordnance removal concept envisioned using "mag and flag" methods. The "mag and flag" method employs a magnetometer to locate potential ordnance items, excavating and identifying the item and then disposing of any unexploded ordnance

and ordnance scrap. The higher densities of ordnance required using an "excavate and sift" methodology in which all the soil to a given depth is excavated and processed through a sifter to isolate unexploded ordnance and ordnance scrap. The higher concentrations of lead caused excavation to go deeper than initially planned.

- On 19 June 1999, prior to the first contractor starting work, the Huntsville Engineering Center issued a modification to the delivery order to increase in the original estimated excavated and sifted quantity of 33,400 cubic yards of soil to approximately 63,000 cubic yards. This resulted in a cost increase of $1.4 million.

- On 12 January 2000, Huntsville Engineering Center issued a modification to the delivery order to reflect another increase to the estimated quantity of soil excavated. The estimated quantity of excavated soil increased from 63,000 cubic yards to 90,000 cubic yards due to the level of lead contamination. This resulted in cost increase of $860,000.

- By the time the ordering period for this delivery order expired, the quantities of excavated and sifted soil rose to over 102,000 cubic yards of first sift soil and over 46,000 cubic yards of resift soil. The cumulative obligated amount for this delivery order was $3.6 million.

In April 2001, the New England District issued the second delivery order to complete the ordnance removal. In this delivery order, ordnance removal was included with hazardous waste removal to consolidate all remediation actions under a single contractor. The estimated cost of this delivery order was $5.1 million. We estimated that about $3.7 million of that total was related to completion of the ordnance removal portion of the total project.

Weaknesses we discuss in Finding A: Project Management of the Open Burning Grounds Remediation also contributed to the increases to some extent. And, we identified about $328,000 of cost increases associated with inefficiencies occurring on-site. We concluded that these cost increases might have been avoided or minimized if on-site contract surveillance and other surveillance techniques had been available.

Contract Surveillance

The first delivery order for ordnance removal did not provide provisions for an on-site contracting officer's representative or include other

provisions for government surveillance of the contractor's costs. About $328,000 of cost increases associated with inefficiencies occurring on-site that may have been avoided or minimized with improved surveillance procedures:

Potential Avoidable Contract Costs Increases

Condition	Amount
Subcontractor Downtime	$ 203,367
Detailed Scope of work	106,000
Contractor/Subcontractor Coordination	19,187
Total	$ 328,554

For the open burning grounds project, the Huntsville Engineering Center followed its normal practice of requiring an on-site safety inspector, but not an on-site contracting officer's representative. The Center's rationale, based on DOD policy, focused on safety in that only mission essential personnel were allowed within the predetermined work area or "exclusion zone."

We agree with these safety concerns, but the situations we identified would not have all required the on-site person to be in the "exclusion zone" to provide surveillance. Also, the Corps of Engineer's project integrator management system gives the on-site project manager authority to provide on-site surveillance. However, the New York District's on-site manager did not exercise that type of authority of either the ordnance removal or hazardous waste portions of the project.

In August 2000, 12 months after the start of the Ordnance Removal remediation, the Huntsville Engineering Center initiated the process to appoint a Contracting Officer's Representative from one of the on-site staff of the New York District Field Office and provided $40,000 to fund the position. The process was not completed because, as we were told, the New York District Field Office personnel would not accept the appointment.

Subcontractor Downtime

The government paid $203,367 for Subcontractor downtime that may not have occurred with adequate government surveillance.

The Ordnance Removal Subcontractor (Subcontractor) was responsible for excavating and sifting the designated work area to remove ordnance and explosives from the soil. In addition, the Subcontractor provided soil excavation support to the Hazardous Toxic Radiological Waste Remediation Contractor. The Subcontractor was solely responsible for transporting the sifted soil to predetermined areas and transferring control of the soil to the Hazardous Toxic Radiological Waste Remediation Contractor. During this work, the Subcontractor accrued a substantial amount of unanticipated downtime and felt it should receive monetary compensation for approximately 219 downtime hours incurred during the period of July through December 1999.

Based on that assumption, the Subcontractor submitted a request for payment through the Ordnance Removal Prime Contractor. Prior to payment, the Huntsville Engineering Center determined several items that were not reimbursable as downtime. Those items included the completion of a survey by the Hazardous Toxic Radiological Waste Remediation Contractor which delayed the start of the sifting operations, all safety briefings held prior to the start of the work day, any repairs or cleaning performed on the equipment during working hours, and any weather-related delays. The request for reimbursement also did not included 40 minutes a day for the Subcontractor's contracted two twenty-minute break periods as specified in the delivery order.

On 31 July 2000, after reductions of the above-mentioned items, the government processed a voucher for payment in the amount $232,278 for a total of 153 hours of allowable downtime to the Ordnance Removal Prime Contractor. We reviewed the calculation of allowable downtime prepared by the Subcontractor and determined that it was understated by $11,810 due primarily to five days not being included in the calculation. We further discuss this underpayment in the subsequent paragraph titled "Payment Calculation Errors."

Of the $232,278 paid for allowable downtime, adequate government surveillance could have prevented, or resolved on a timelier basis, the following issues:

Avoidable Downtime Costs

Condition	Amount
Debris removal	$110,140
Removal Site – Other Shutdowns	66,528
Dump Site Coordination	26,699
Total	$203,367

Debris Removal. The government incurred additional cost of $110,140 for debris removal around the sifter. In June 1999, the Ordnance Removal Prime Contractor realized that the magnetometer could not efficiently remove ordnance and explosives because of the amount of metal scrap in the soil. It should have anticipated an increased amount of debris as a result of excavation and sifting and included the cost of downtime due to the removal of normal debris from around the sifter in the contract price. Adequate government surveillance could have determined the nature of the debris around the sifter and whether the government should have incurred the entire additional cost of $110,140.

Removal Site-Other Shutdowns. The government incurred $66,528 for downtime to meet the needs of the Ordnance Removal Prime Contractor and the Hazardous Toxic Radiological Waste Remediation Contractor. Government surveillance could have determined if better scheduling could have averted these and other shutdowns, thus eliminating costs of $66,528.

Dumpsite Coordination. The government incurred $26,699 for downtime due to contractor coordination problems at the dumpsite.

The Ordnance Removal Prime Contractor had the responsibility of providing ordnance removal support for the Hazardous Toxic Radiological Waste Remediation Contractor. The Hazardous Toxic Radiological Waste Remediation Contractor had the responsibility for detecting and ensuring that soil with lead contamination above 500 milligrams per kilograms did not remain on site. If needed, the Hazardous Toxic Radiological Waste Remediation Contractor stabilized or solidified the contaminated soil removed from the open burning grounds.

In its supportive role to the Hazardous Toxic Radiological Waste Remediation Contractor, the Ordnance Removal Prime Contractor was responsible for excavating and sifting the soil to remove any unexploded ordnance and delivering the sifted soil to the Hazardous Toxic Radiological Waste Remediation stockpile area according to contamination level.

Our review of invoices, correspondence and other supporting documentation revealed that over a six-month period, the Ordnance Removal Contractor reported approximately 18 hours in downtime as a result of waiting for the Hazardous Toxic Radiological Waste Remediation Contractor to arrive to receive delivery. Adequate government surveillance could have resolved this issue on a timelier basis and prevented the government from incurring an additional $26,699 in costs.

Detailed Scope of Work

The government incurred an additional cost of $106,000 under the second delivery order to assess site conditions after the first delivery order expired.

In April 2001, the New England Engineering District issued a new delivery order to complete the remaining remediation work. In May 2001, Modification 1 to this delivery order was issued for a site visit to Seneca Army Depot to assess site conditions and to determine at what stage the previous Ordnance Removal Prime Contractor terminated work. The modification also included the cost of surveying the open burning grounds and the entire area of the Rifle Grenade Range. Adequate government surveillance and proper communications with the contractor would have ensured that detailed information was available to complete the project when the contract expired without the government incurring an additional cost of $106,000.

Contractor/Subcontractor Coordination

The government incurred $19,187 of costs during a two-week period when the first Prime Contractor was on site without the Subcontractor.

The Ordnance Removal Prime Contractor had two major functions during the environmental remediation project at Seneca. The Ordnance Removal Prime Contractor was to perform unexploded ordnance remediation and provide ordnance removal support for the Hazardous Toxic Radiological Waste Remediation Contractor. In order to perform its major functions, the Ordnance Removal Prime Contractor hired a subcontractor to excavate and sift soil. The Prime Contractor provided the ordnance removal expertise and monitored the work of the Subcontractor.

Our review of the Prime Contractor's invoices and supporting documentation revealed that during April through May 2000, the Prime Contractor mobilized on site. Once mobilized, the Prime Contractor realized that the Subcontractor refused to work since the government and the Prime Contractor had not satisfactorily resolved the Subcontractor's concerns about underpayment of invoices. The Prime Contractor stayed on site for two weeks without the Subcontractor. There was no documentation indicating the work performed during this time period even though the government was charged $19,187. Government surveillance could have prevented or limited the amount of time the Prime Contractor mobilized when the Subcontractor was not on-

site. In addition, government surveillance could have determined the nature of the work performed while the Prime contractor was on-site without the Subcontractor.

We discuss actions needed to ensure that there is adequate on-site surveillance of contractor's performance during a Time and Materials delivery order in Recommendation C-1.

Contract Terms

A three-month delay in the project occurred because contract terms were not clear regarding the basis of payment for quantities of soil excavated and allowable and non-allowable downtime costs. The Ordnance Removal Prime Contractor Statement of Work stated that excavation would be done to specific depths, thereby implying that in-place densities would be the basis for payment. The modified Statement of Work, dated 19 March 1999, stated: "The volume of soil will be based on survey done by another contractor; however, the *(Ordnance Removal Prime Contractor)* will consider alternative methods of calculating the volume. Payment will be made by the volume (in cubic yards) of soil successfully screened and delivered to the stockpile." The Ordnance Removal Subcontractor approached this project under the assumption that it was to be paid for truckloads of finished product (soils) moved.

Excavated soils incorporated a certain amount of "fluff" (air) into the volume of soil. A truckload of excavated soil has more cubic yards then in-place soil. The Subcontractor submitted invoices for truckloads of soil that included the fluff as opposed to in-place density. After the Huntsville Engineering Center had discussions with the Ordnance Removal Prime and Subcontractor, they agreed that there would be some fluff involved and that payments for fluffed quantities were not appropriate. Huntsville Engineering Center reduced the Subcontractor's invoices for the period October through December 1999 by a 40% "fluff" factor.

The Subcontractor did not agree with this calculation. In April 2000, a subsequent interim survey of the site determined that the "fluff" factor was in the range of 23.6%. The Subcontractor agreed to this calculation. The Huntsville Engineering Center approved adjusted payments based on the 23.6% in July 2000. The difficulties associated with coming to this agreement created a three-month delay in recommencing sifting operations. The contract should have clearly stated that in-place densities would be the basis for payment and that a post-survey would determine the final payment.

The 21 February 1997, US Army Corps of Engineers Environmental Lessons Learned, noted that problems with contaminated soil treatment measurement commonly arise during construction activities when there is not a clear understanding between the contractor and the Government as to the method and means of measurement. The lesson learned was that it is advantageous to determine the method of measurement in advance and a backup procedure prior to initiation of remediation work. This lesson learned was not applied to the open burning grounds project.

Contractual language was also unclear as to events authorized as allowable downtime. The contract stated only that the contractor was allowed two 20-minute breaks per day. The contract did not contain a list of specific allowable and non-allowable downtime costs making it unclear as to payment of downtime costs.

We discuss actions needed to minimize cost increases due to "fluff" and downtime in Recommendation C-2.

Communications

Communications among all parties involved with the contract were not smooth. As a result, there were delays in timely communication of project status and resolution of on-going problems. Engineering Pamphlet 415-1-260, Resident Engineer Management Guide, Chapter 6, requires that preconstruction conferences be held before physical work begins. The Basic Contract provided a communication vehicle by requiring "periodic meetings to be scheduled whenever requested by the Contractor or directed by the Contracting Officer for the resolution of questions or problems encountered in the performance of the work. The contractor and/or the appropriate representative(s) shall be required to attend and participate in all conferences pertinent to the work required under this contract as directed by the Contracting Officer." Neither the Contracting Officer nor the Contractor requested periodic meetings to resolve questions or problems in a timely manner. Four problems, that were not resolved in a timely manner, resulted in increased project costs and delays.

- From 6 July through 9 December 1999, the Ordnance Removal Subcontract recorded over 100 times when the Hazardous, Toxic and Radiological Waste Remediation Contractor was not present to receive delivery of excavated soil. This increased costs by $26,699.

- Given the exploratory nature of the soil sampling, one could not know in advance how much contaminated soil remained to be processed, and, accordingly, one could not establish fixed

completion dates or budgets for the work remaining. This aspect of the project was never well communicated to the Base Environmental Coordinator and the on-site project manager. Their expectations, set on the presumption of the total amount of soil to require processing, were a continuing difficulty and never met. As a result, when the Ordnance Removal contract expired without the project being completed, a new contract for the completion of all portions of the project was awarded to Hazardous, Toxic and Radiological Waste Remediation Contractor. Total additional costs could not be quantified. However, at least $106,000 of costs to ascertain the status of the site would not have been incurred if the Ordnance Removal Contractor had completed the ordnance removal portion of the project.

- There was an on-going communication problem between government parties involved in the project. The Base Environmental Coordinator and the on-site Project Manager felt they were not receiving enough information concerning various aspects of the project and the Huntsville Engineering Center believed they provided all information available.

- Contract terms were not clear regarding the basis of payment for quantities of soil excavated. A three-month delay in the project occurred in 2000 due to a disagreement in the payment of "fluff."

We discuss actions needed to ensure that regular meetings and/or telephone conference calls are held in accordance with contractual terms in Recommendation C-3.

Payment Calculation Errors

Our review of contractors' invoices and supporting documentation revealed the following calculation errors:

Payment Calculation Errors

Type of Error	Amount
"Fluff" Adjustment Calculation	$47,960
Downtime Charges Calculation	(11,810)
Total Overpayment of Invoices	$36,150

A "fluff" adjustment calculation error resulted in an overpayment to the Ordnance Removal Prime Contractor by $47,960. As indicated in the Contract Terms section of this report, Huntsville Engineering Center made several adjustments to the contractor's invoices for the "fluff" (air) incorporated into the volume of soil excavated. Our review of the "fluff" adjustments revealed two payments that were inadvertently not included in the Huntsville Technical Manager's calculation. This resulted in an overpayment to the contractor for $47,960.

The payment of downtime charges was understated by $11,810. As indicated in the Subcontractor Downtime section of this report, the government incurred additional costs for downtime experienced by the Subcontractor. Our review of the allowable downtime revealed that five days were not included in the calculation. This resulted in a net underpayment to the contractor for $11,810

We discuss actions needed to recoup the net over payment of $36,150 in Recommendation C-4.

RECOMMENDATIONS AND COMMENTS

C-1 **Recommendation:** Add a specific decision point and establish criteria for determining when unexploded ordnance removal contracts should have on-site contract surveillance.

Command Comments:

C-2 **Recommendation:** Review other on-going unexploded ordnance removal contracts and assess the risk of cost increases due to "fluff" and downtime, and initiate appropriate actions to minimize high risk situations. In addition, review lessons learned from past projects and apply the appropriate lessons to future projects.

Command Comments:

C-3 **Recommendation:** Hold preconstruction conferences prior to any physical work being performed. Establish a minimum number of meetings that should be held between the contractor and contracting officer to maintain effective working relationships, regardless of problems encountered. Maintain written documentation of all meetings and significant discussions with the contractor. Distribute written documentation to all responsible parties involved with the contract and contract results.

Command Comments:

C-4 **Recommendation:** Ensure appropriate actions to recoup $36,150 from the initial Ordnance Removal Prime Contractor.

Command Comments:

FINDING A: PROJECT MANAGEMENT OF THE OPEN BURNING GROUNDS REMEDIATION

For the Chief,
Base Realignment and Closure Office

SUMMARY

Additional controls were needed for the project management process for remediation projects involving removal of unexploded ordnance. Remediation of the open burn grounds included removal of both unexploded ordnance and hazardous waste materials. For most of the life of the remediation project, project management responsibilities were compartmentalized among persons separately responsible for unexploded ordnance removal, hazardous waste removal, and integration with overall installation remediation efforts. This separation adversely affected efficient and effective communication among key players from the activities executing ordnance and hazardous waste removal actions and the installation up through DA, especially with regard to increases in project scope and estimated costs to complete the project. As a result senior managers did not have the opportunity to assess options and to take actions to minimize impacts of scope increases, time extensions, and remediation solutions.

To complete the project, the New England District combined the ordnance and hazardous waste removal actions in a single delivery order and delegated contract management responsibilities to the New York District. While late in coming, the concept of combining all actions under the direct authority of a single district with overall site responsibilities is a move in the right direction. Other, complementary actions are needed to:

- Facilitate communication of project status among all the key players by establishing a periodic progress/status reporting requirement.

- Strengthen the management process by establishing a re-evaluation point in the life cycle of unexploded ordnance removal projects to reassess the continued feasibility of the specific project with other remediation options.

Our recommendations to improve these situations begin on page XX.

For the Chief,
Base Realignment and Closure Office

A-1 **Recommendation:** Ensure that policies and lines of authority provide clearly-designed single person with overall authority for execution on future remediation projects when more than one Corps of Engineers activity is involved in remediation actions.

A-2 **Recommendation:** Establish a formal, status reporting process from the closing installation to the Base Closure Office that periodically and comprehensively summarizes and documents the status of remediation at the installation. The report would include specific information about each individual project such as execution progress, funding status, problem and potential problem situations that would delay timely completion, activities responsible for corrective actions, suspense dates. Management activities would use the reports as the single source of project status and for monitoring corrective actions needed to ensure timely completion within established funding levels.

A-3 **Recommendation:** Establish a formal, decision re-evaluation point in the life-cycle of ordnance removal projects to reassess technical feasibility and financial implications of the selected course of remediation action and evaluate alternative courses/methods of remediation if initially determined course of remediation is no longer technically or financially feasible. Results of this formal re-evaluation should be subject to an approval process similar to the process used for the initial determination.

FINDING B: Financial Management

For the Chief,
Base Realignment and Closure Office

SUMMARY

Additional controls were needed and established financial management practices were not followed to provide adequate financial controls over funds expended on the ordnance removal project. We found that:

- Major unexploded ordnance removal sites on the installation did not have separate management structure codes to account for funds used.

- Funding designated for other sites was used to fund work at the Rifle Grenade Range, an undesignated site that was not identified in the unexploded ordnance removal survey.

- Estimates of remediation costs were not updated to reflect current conditions and status of execution efforts.

- Reprogramming actions were made without updating estimates in the cost-to-complete funding system.

- Proper management structure codes were not used to account for specific phases of the cleanup process.

These conditions resulted from unanticipated cost increases. However, established procedures requiring updates of the information were not followed. As a result of these conditions, financial reports regarding site-specific cost data were misleading; work plan estimates did not accurately reflect funding requirements; and information provided to higher headquarters contained inaccuracies.

Our recommendations to correct these conditions begin on page xx.

For the Chief,
Base Realignment and Closure Office

B-1 **Recommendation:** Establish Army Management Structure Codes for major ordnance removal sites at closing installations.

B-2 **Recommendation:** Revise the installation unexploded ordnance removal estimate to include the Rifle Grenade Range

B-3 **Recommendation:** Update remediation cost estimates in the cost-to-complete funding system to reflect current conditions.

B-4 **Recommendation:** Ensure that all reprogramming actions are entered into the Defense Sites Environmental Restoration Tracking System to ensure that accurate and timely financial information is reported to higher levels of Command.

B-5 **Recommendation:** Monitor the use of the Army management Structure codes to ensure that the "study" and "remedial" codes accurately report the proper costs for specific phases of remediation projects.

FINDING C: Contract Surveillance

For the Chief,
Base Realignment and Closure Office

SUMMARY

Management needed to consider using on-site, government contract surveillance on base closure unexploded ordnance removal projects. Unexploded ordnance removal at the open burning grounds was primarily accomplished with a multi-task, time and materials delivery order against a base contract awarded by the Huntsville Engineering Center. Normally, time and materials contracting requires specific surveillance actions to protect the government interest. For the open burning grounds project, Huntsville Center used an on-site safety inspector, but did not have an on-site contracting officer's representative or use other contract surveillance methods. Our review showed that costs grew from $532,000 to $3.6 million and completion time expanded from an initial estimate of three and a half months to three years during the life of the project. We determined that most of the cost growth and time extensions in the open burning grounds remediation project could be attributed to:

- Changes in "excavation" methodology.

- Increases in project scope.

Weaknesses we discuss in Finding A: Project Management of the Open Burning Grounds Remediation also contributed to the increases to some extent. However, we identified about $328,000 of cost increases associated with inefficiencies occurring on-site. We concluded that these cost increases might have been avoided or minimized if on-site contract surveillance and other surveillance techniques had been available.

In addition, we identified a net overpayment of $36,150 to the initial ordnance removal contractor that should be recouped. The net overpayment was due to computation errors in calculations of the adjustment for "fluff" and downtime charges.

Our recommendations to correct these conditions begin on page xx.

For the Chief,
Base Realignment and Closure Office

C-1 <u>**Recommendation**</u>**:** Add a specific decision point and establish criteria for determining when unexploded ordnance removal contracts should have on-site contract surveillance.

C-2 <u>**Recommendation**</u>**:** Review other on-going unexploded ordnance removal contracts and assess the risk of cost increases due to "fluff" and downtime, and initiate appropriate actions to minimize high risk situations.

C-3 <u>**Recommendation**</u>**:** Establish a minimum number of meetings that should be held between the contractor and contracting officer to maintain effective working relationships, regardless of problems encountered. Maintain written documentation of all meetings and significant discussions with the contractor. Distribute written documentation to all responsible parties involved with the contract and contract results.

C-4 <u>**Recommendation**</u>**:** Ensure appropriate actions to recoup $36,150 from the initial Ordnance Removal Prime Contractor.

prime contractor having overall responsibility over all operations eliminates scheduling and downtime issues. These scheduling efforts are the responsibility of the prime contractor, and incentives for fee exist to accomplish the work effort efficiently.

....

C-2 **Recommendation:** Review other on-going unexploded ordnance removal contracts and assess the risk of cost increases due to "fluff" and downtime, and initiate appropriate actions to minimize high risk situations. In addition, review lessons learned from past projects and apply the appropriate lessons to future projects.

Command Comments:

....

Response: Concur. See the comments above.

....

C-3 **Recommendation:** Hold preconstruction conferences prior to any physical work being performed. Establish a minimum number of meetings that should be held between the contractor and contracting officer to maintain effective working relationships, regardless of problems encountered. Maintain written documentation of all meetings and significant discussions with the contractor. Distribute written documentation to all responsible parties involved with the contract and contract results.

Command Comments:

....

Response: Concur.

....

C-4 **Recommendation:** Ensure appropriate actions to recoup $36,150 from the initial Ordnance Removal Prime Contractor.

Command Comments:

....

Response: Concur.

....

Our review of contractors' invoices and supporting documentation revealed the following calculation errors:

Payment Calculation Errors

Type of Error	Amount
"Fluff" Adjustment Calculation	$47,960
Downtime Charges Calculation	(11,810)
Total Overpayment of Invoices	$36,150

A "fluff" adjustment calculation error resulted in an overpayment to the Ordnance Removal Prime Contractor by $47,960. As indicated in the Contract Terms section of this report, Huntsville Engineering Center made several adjustments to the contractor's invoices for the "fluff" (air) incorporated into the volume of soil excavated. Our review of the "fluff" adjustments revealed two payments that were inadvertently not included in the Huntsville Technical Manager's calculation. This resulted in an overpayment to the contractor for $47,960.

The payment of downtime charges was understated by $11,810. As indicated in the Subcontractor Downtime section of this report, the government incurred additional costs for downtime experienced by the Subcontractor. Our review of the allowable downtime revealed that five days were not included in the calculation. This resulted in a net underpayment to the contractor for $11,810

We discuss actions needed to recoup the net over payment of $36,150 in Recommendation C-4.

RECOMMENDATIONS AND COMMENTS

C-1 **Recommendation:** Add a specific decision point and establish criteria for determining when unexploded ordnance removal contracts should have on-site contract surveillance.

Command Comments:

....

Response:

Contract surveillance and COE procedures for contract QA were implemented for the HTRW contract to complete the work. One

Expectations and communication are not causes of cost growth. OE and HTRW contamination found in excess of estimates based upon previous studies are differing site conditions that cause cost growth. OE that is found that requires additional safety measures (1181 feet) is a cause of cost growth. These were costs that were not predictable based on extensive prior investigations.

The statement "Their expectations, set on the presumption...were a continuing difficulty and never met. As a result, when the Ordnance Removal contract expired without the project being completed, a new contract for the completion of all portions of the project was awarded...never met" appears to be an interpretation and not factual. The on-site project manager was not asked about his expectations.

The new contract was a result of the DA letter to the COE, not the result of the expectations of the Base Environmental Coordinator and on-site project manager.

....

- There was an on-going communication problem between government parties involved in the project. The Base Environmental Coordinator and the on-site Project Manager felt they were not receiving enough information concerning various aspects of the project and the Huntsville Engineering Center believed they provided all information available.

- Contract terms were not clear regarding the basis of payment for quantities of soil excavated. A three-month delay in the project occurred in 2000 due to a disagreement in the payment of "fluff."

....

Response:

HNC?

....

We discuss actions needed to ensure that regular meetings and/or telephone conference calls are held in accordance with contractual terms in Recommendation C-3.

Payment Calculation Errors

Response:

At no time during the period 6 July to 9 Dec 1999 was the HTRW contractor absent. Despite this fact, the OE contractor had total, unobstructed access to the soil staging area at all times and no delivery was prevented by the HTRW contractor's actions or failure to act. During the 2000 effort, the HTRW contractor was not on site and the OE contractor delivered 10,000CY and 20,000CY to the respective soil staging areas.

- Given the exploratory nature of the soil sampling, one could not know in advance how much contaminated soil remained to be processed, and, accordingly, one could not establish fixed completion dates or budgets for the work remaining. This aspect of the project was never well communicated to the Base Environmental Coordinator and the on-site project manager. Their expectations, set on the presumption of the total amount of soil to require processing, were a continuing difficulty and never met. As a result, when the Ordnance Removal contract expired without the project being completed, a new contract for the completion of all portions of the project was awarded to Hazardous, Toxic and Radiological Waste Remediation Contractor. Total additional costs could not be quantified. However, at least $106,000 of costs to ascertain the status of the site would not have been incurred if the Ordnance Removal Contractor had completed the ordnance removal portion of the project.

Response:

See the response above regarding the $106,000 task order.

This paragraph is not a statement of facts, and references to communication are simply not accurate.

The COE establishes schedules, budgets, and completion dates for HTRW and OE work efforts for numerous projects. Soil sampling to determine excavations and confirmatory sampling is conducted for all HTRW projects that involve soils. The COE uses a Work Breakdown Structure to estimate the cost, negotiate the contract, budget, and schedule these work efforts. This was performed in the RIFS for this site.

....

Response:

HNC Response?

....

We discuss actions needed to minimize cost increases due to "fluff" and downtime in Recommendation C-2.

Communications

Communications among all parties involved with the contract were not smooth. As a result, there were delays in timely communication of project status and resolution of on-going problems. Engineering Pamphlet 415-1-260, Resident Engineer Management Guide, Chapter 6, requires that preconstruction conferences be held before physical work begins. The Basic Contract provided a communication vehicle by requiring "periodic meetings to be scheduled whenever requested by the Contractor or directed by the Contracting Officer for the resolution of questions or problems encountered in the performance of the work. The contractor and/or the appropriate representative(s) shall be required to attend and participate in all conferences pertinent to the work required under this contract as directed by the Contracting Officer." Neither the Contracting Officer nor the Contractor requested periodic meetings to resolve questions or problems in a timely manner. Four problems, that were not resolved in a timely manner, resulted in increased project costs and delays.

....

Response:

Again, this is a very generalized discussion. These status meetings occurred with the HTRW contractor; are the comments specific to the OE effort? This paragraph is not consistent with the specific recommendations.

....

- From 6 July through 9 December 1999, the Ordnance Removal Subcontract recorded over 100 times when the Hazardous, Toxic and Radiological Waste Remediation Contractor was not present to receive delivery of excavated soil. This increased costs by $26,699.

as to the method and means of measurement. The lesson learned was that it is advantageous to determine the method of measurement in advance and a backup procedure prior to initiation of remediation work. This lesson learned was not applied to the open burning grounds project.

....

Response:

HNC- response?

For the HTRW work effort:

The soil handling and treatment for HTRW, determined the method of measurement in advance and a backup procedure prior to initiation of remediation work.

Measure of payment was determined up front when cost items are determined, and the unit of measure for tracking quantities was determined at that time as well.

Treatment processing was determined using an in- line manufacturer- calibrated weigh scale to weigh soil as it was transported into the equipment, hence payment was based upon actual weight of soil treated. All costs are based upon wet weight of soils.

Off site T&D is paid by weight of trucks on certified weigh scales.

“Back up” involves a 3 phase inspection is conducted for definable features of work, for all critical path items. The phases are Initial, Preparatory, and Final inspection for methods of measurement for payment.

Follow up inspections are conducted by the QC representative for variations and are addressed in weekly project status meetings.

For the soil stabilization process, 1200 tons per day were estimated for a processing rate, and 1400 tons/day were processed.

....

Contractual language was also unclear as to events authorized as allowable downtime. The contract stated only that the contractor was allowed two 20-minute breaks per day. The contract did not contain a list of specific allowable and non-allowable downtime costs making it unclear as to payment of downtime costs.

Response:

HNC to respond?

....

Contract Terms

A three-month delay in the project occurred because contract terms were not clear regarding the basis of payment for quantities of soil excavated and allowable and non-allowable downtime costs. The Ordnance Removal Prime Contractor Statement of Work stated that excavation would be done to specific depths, thereby implying that in-place densities would be the basis for payment. The modified Statement of Work, dated 19 March 1999, stated: "The volume of soil will be based on survey done by another contractor; however, the *(Ordnance Removal Prime Contractor)* will consider alternative methods of calculating the volume. Payment will be made by the volume (in cubic yards) of soil successfully screened and delivered to the stockpile." The Ordnance Removal Subcontractor approached this project under the assumption that it was to be paid for truckloads of finished product (soils) moved.

Excavated soils incorporated a certain amount of "fluff" (air) into the volume of soil. A truckload of excavated soil has more cubic yards then in-place soil. The Subcontractor submitted invoices for truckloads of soil that included the fluff as opposed to in-place density. After the Huntsville Engineering Center had discussions with the Ordnance Removal Prime and Subcontractor, they agreed that there would be some fluff involved and that payments for fluffed quantities were not appropriate. Huntsville Engineering Center reduced the Subcontractor's invoices for the period October through December 1999 by a 40% "fluff" factor.

The Subcontractor did not agree with this calculation. In April 2000, a subsequent interim survey of the site determined that the "fluff" factor was in the range of 23.6%. The Subcontractor agreed to this calculation. The Huntsville Engineering Center approved adjusted payments based on the 23.6% in July 2000. The difficulties associated with coming to this agreement created a three-month delay in recommencing sifting operations. The contract should have clearly stated that in-place densities would be the basis for payment and that a post-survey would determine the final payment.
The 21 February 1997, US Army Corps of Engineers Environmental Lessons Learned, noted that problems with contaminated soil treatment measurement commonly arise during construction activities when there is not a clear understanding between the contractor and the Government

Validation of the cost to complete estimate at this time was needed and involved surveying of quantities rather than estimates or assumptions for the stockpiles and excavations that needed to be quantified.

This type of pre-award engineering data gathering, evaluation, and scoping is common for HTRW projects to define quantities and validate cost estimates by quantifying site information.

Contractor/Subcontractor Coordination

The government incurred $19,187 of costs during a two-week period when the first Prime Contractor was on site without the Subcontractor.

The Ordnance Removal Prime Contractor had two major functions during the environmental remediation project at Seneca. The Ordnance Removal Prime Contractor was to perform unexploded ordnance remediation and provide ordnance removal support for the Hazardous Toxic Radiological Waste Remediation Contractor. In order to perform its major functions, the Ordnance Removal Prime Contractor hired a subcontractor to excavate and sift soil. The Prime Contractor provided the ordnance removal expertise and monitored the work of the Subcontractor.

Our review of the Prime Contractor's invoices and supporting documentation revealed that during April through May 2000, the Prime Contractor mobilized on site. Once mobilized, the Prime Contractor realized that the Subcontractor refused to work since the government and the Prime Contractor had not satisfactorily resolved the Subcontractor's concerns about underpayment of invoices. The Prime Contractor stayed on site for two weeks without the Subcontractor. There was no documentation indicating the work performed during this time period even though the government was charged $19,187. Government surveillance could have prevented or limited the amount of time the Prime Contractor mobilized when the Subcontractor was not on-site. In addition, government surveillance could have determined the nature of the work performed while the Prime contractor was on-site without the Subcontractor.

We discuss actions needed to ensure that there is adequate on-site surveillance of contractor's performance during a Time and Materials delivery order in Recommendation C-1.

Response:

This should specify the cause of the delay charges were five minutes for each delivery, 18 instances of 1 hour delays, etc. and whether or not this was specifically attributable to the HTRW contractor.

Detailed Scope of Work

The government incurred an additional cost of $106,000 under the second delivery order to assess site conditions after the first delivery order expired.

In April 2001, the New England Engineering District issued a new delivery order to complete the remaining remediation work. In May 2001, Modification 1 to this delivery order was issued for a site visit to Seneca Army Depot to assess site conditions and to determine at what stage the previous Ordnance Removal Prime Contractor terminated work. The modification also included the cost of surveying the open burning grounds and the entire area of the Rifle Grenade Range. Adequate government surveillance and proper communications with the contractor would have ensured that detailed information was available to complete the project when the contract expired without the government incurring an additional cost of $106,000.

Response:

In December 2000, the HNC OE work efforts in progress were stopped. DA sent a letter I Jan 01 to the COE stating to complete the project with the HTRW contractor.

With this change, completion of the work efforts at the sites essentially involves a new project to be scoped, cost estimated, negotiated and executed.

Continuation of the work with the same contractor would have avoided this cost.

The budget for this surveying and engineering efforts for scoping was $106,000. Approximately $81,000 was expended to date. The wording in this paragraph implies it is a cost. This effort includes workplan revisions that were necessary to execute the new project scope, data evaluation, sampling and analysis, and other tasks.

Debris Removal. The government incurred additional cost of $110,140 for debris removal around the sifter. In June 1999, the Ordnance Removal Prime Contractor realized that the magnetometer could not efficiently remove ordnance and explosives because of the amount of metal scrap in the soil. It should have anticipated an increased amount of debris as a result of excavation and sifting and included the cost of downtime due to the removal of normal debris from around the sifter in the contract price. Adequate government surveillance could have determined the nature of the debris around the sifter and whether the government should have incurred the entire additional cost of $110,140.

Removal Site-Other Shutdowns. The government incurred $66,528 for downtime to meet the needs of the Ordnance Removal Prime Contractor and the Hazardous Toxic Radiological Waste Remediation Contractor. Government surveillance could have determined if better scheduling could have averted these and other shutdowns, thus eliminating costs of $66,528.

Dumpsite Coordination. The government incurred $26,699 for downtime due to contractor coordination problems at the dumpsite.

The Ordnance Removal Prime Contractor had the responsibility of providing ordnance removal support for the Hazardous Toxic Radiological Waste Remediation Contractor. The Hazardous Toxic Radiological Waste Remediation Contractor had the responsibility for detecting and ensuring that soil with lead contamination above 500 milligrams per kilograms did not remain on site. If needed, the Hazardous Toxic Radiological Waste Remediation Contractor stabilized or solidified the contaminated soil removed from the open burning grounds.

In its supportive role to the Hazardous Toxic Radiological Waste Remediation Contractor, the Ordnance Removal Prime Contractor was responsible for excavating and sifting the soil to remove any unexploded ordnance and delivering the sifted soil to the Hazardous Toxic Radiological Waste Remediation stockpile area according to contamination level.

Our review of invoices, correspondence and other supporting documentation revealed that over a six-month period, the Ordnance Removal Contractor reported approximately 18 hours in downtime as a result of waiting for the Hazardous Toxic Radiological Waste Remediation Contractor to arrive to receive delivery. Adequate government surveillance could have resolved this issue on a timelier basis and prevented the government from incurring an additional $26,699 in costs.

The cause of the downtime is not clear in this discussion.

Based on that assumption, the Subcontractor submitted a request for payment through the Ordnance Removal Prime Contractor. Prior to payment, the Huntsville Engineering Center determined several items that were not reimbursable as downtime. Those items included the completion of a survey by the Hazardous Toxic Radiological Waste Remediation Contractor which delayed the start of the sifting operations, all safety briefings held prior to the start of the work day, any repairs or cleaning performed on the equipment during working hours, and any weather-related delays. The request for reimbursement also did not included 40 minutes a day for the Subcontractor's contracted two twenty-minute break periods as specified in the delivery order.

Response:

The survey statement is not clear, since the HTRW contractor sampled during lunch breaks and at the end of the workday.

where are they mentioning anything about sampling?

On 31 July 2000, after reductions of the above-mentioned items, the government processed a voucher for payment in the amount $232,278 for a total of 153 hours of allowable downtime to the Ordnance Removal Prime Contractor. We reviewed the calculation of allowable downtime prepared by the Subcontractor and determined that it was understated by $11,810 due primarily to five days not being included in the calculation. We further discuss this underpayment in the subsequent paragraph titled "Payment Calculation Errors."

Of the $232,278 paid for allowable downtime, adequate government surveillance could have prevented, or resolved on a timelier basis, the following issues:

Avoidable Downtime Costs

Condition	Amount
Debris removal	$110,140
Removal Site – Other Shutdowns	66,528
Dump Site Coordination	26,699
Total	$203,367

Response:

Again, this statement is a generalized statement that is not consistent with the findings and recommendations. The relevance to the recommendations is not clear.

NAN follows specific contract management procedures that are undertaken from the start of a contract. NAN would not assume the contract surveillance at this point since it was not clear whether any of the procedures used by NAN were used and the contract was far into execution.

Subcontractor Downtime

The government paid $203,367 for Subcontractor downtime that may not have occurred with adequate government surveillance.

Response:

Downtime is expected with OE work, since OE is expected to be found that must be perforated in place. This is expected downtime, independent of contract surveillance.

The Ordnance Removal Subcontractor (Subcontractor) was responsible for excavating and sifting the designated work area to remove ordnance and explosives from the soil. In addition, the Subcontractor provided soil excavation support to the Hazardous Toxic Radiological Waste Remediation Contractor. The Subcontractor was solely responsible for transporting the sifted soil to predetermined areas and transferring control of the soil to the Hazardous Toxic Radiological Waste Remediation Contractor. During this work, the Subcontractor accrued a substantial amount of unanticipated downtime and felt it should receive monetary compensation for approximately 219 downtime hours incurred during the period of July through December 1999.

Response:

We agree with these safety concerns, but the situations we identified would not have all required the on-site person to be in the "exclusion zone" to provide surveillance. Also, the Corps of Engineer's project integrator management system gives the on-site project manager authority to provide on-site surveillance. However, the New York District's on-site manager did not exercise that type of authority of either the ordnance removal or hazardous waste portions of the project.

Response:

Again, this statement is a generalized statement that is not consistent with the findings and recommendations. The intent or point of this paragraph is not clear. The statements appear contradictory in themselves.

The "situations identified" that do not require an on-site person in the exclusion zone to provide contract surveillance are not specified.

"Integrator" activities are completely separate from project management of specific projects.

Is the reference to "on-site manager" the project engineer, who provided daily on site surveillance of the HTRW contract and coordinated with the OE efforts, or the project manager?

The authority for providing contract surveillance lies with the contracting officer for the given contract.

The on-site project manager made site visits and held status meetings as needed on a weekly basis.

Site visits in the exclusion zone were conducted during non- work times, such as lunch and at the end of the day.

In August 2000, 12 months after the start of the Ordnance Removal remediation, the Huntsville Engineering Center initiated the process to appoint a Contracting Officer's Representative from one of the on-site staff of the New York District Field Office and provided $40,000 to fund the position. The process was not completed because, as we were told, the New York District Field Office personnel would not accept the appointment.

Contract Surveillance

The first delivery order for ordnance removal did not provide provisions for an on-site contracting officer's representative or include other provisions for government surveillance of the contractor's costs. About $328,000 of cost increases associated with inefficiencies occurring on-site that may have been avoided or minimized with improved surveillance procedures:

Potential Avoidable Contract Costs Increases

Condition	Amount
Subcontractor Downtime	$ 203,367
Detailed Scope of work	106,000
Contractor/Subcontractor Coordination	19,187
Total	$ 328,554

....

Response:

Unexpected site conditions included types of OE that required that the staging area be moved 1,181 feet away from the other activities. This is an OE safety requirement and exclusion area that affected operations. This required changing the stockpile management activities from the OE contractor to the HTRW contractor. The downtime could be attributable to this change.

(now you are speculating.)

....

For the open burning grounds project, the Huntsville Engineering Center followed its normal practice of requiring an on-site safety inspector, but not an on-site contracting officer's representative. The Center's rationale, based on DOD policy, focused on safety in that only mission essential personnel were allowed within the predetermined work area or "exclusion zone."

....

Response:

HNC comment?

Response:

This section discusses increases in soil quantities and subsequent increases in cost. The most important perspective that should be emphasized here is that the increase in work effort was needed. There was undoubtedly work effort growth that was needed.

All HTRW and OE remediation project have uncertainties involved with site conditions, and assumptions need to be made regarding these uncertainties when scoping the work effort needed and the subsequent cost estimate for the work effort.

....

In April 2001, the New England District issued the second delivery order to complete the ordnance removal. In this delivery order, ordnance removal was included with hazardous waste removal to consolidate all remediation actions under a single contractor. The estimated cost of this delivery order was $5.1 million. We estimated that about $3.7 million of that total was related to completion of the ordnance removal portion of the total project.

....

Response:

The relevance of this paragraph should be explained. This action was directed by DA, and was a corrective action. Statements such as "we estimated that about $3.7M (sic) was related to the OE removal portion (sic)" is speculation and not factual.

....

Weaknesses we discuss in Finding A: Project Management of the Open Burning Grounds Remediation also contributed to the increases to some extent. And, we identified about $328,000 of cost increases associated with inefficiencies occurring on-site. We concluded that these cost increases might have been avoided or minimized if on-site contract surveillance and other surveillance techniques had been available.

....

Response:
See the responses to Finding A.
Again, specific cause and effect of a specific weakness and specific cost increase should be stated rather than generalized statements.

....

Cost Growth

Ordnance removal remediation under the initial delivery order experienced significant cost growth from the $532,000 estimated cost in September 1997. Cumulative obligations for the first delivery order were $3.6 million when ordering authority expired in December 2000. Remediation work still needed to complete the ordnance removal portion of remediation project under the second delivery order was estimated to cost $3.7 million. Time to complete the ordnance removal actions also grew from the initial estimate of 3 ½ months to over 3 years.

Our review showed that the majority of cost and time increases under the first delivery order was due to unexpected site conditions involving higher quantities of ordnance and other debris and higher levels of lead contamination in the soil. The initial ordnance removal concept envisioned using "mag and flag" methods. The "mag and flag" method employs a magnetometer to locate potential ordnance items, excavating and identifying the item and then disposing of any unexploded ordnance and ordnance scrap. The higher densities of ordnance required using an "excavate and sift" methodology in which all the soil to a given depth is excavated and processed through a sifter to isolate unexploded ordnance and ordnance scrap. The higher concentrations of lead caused excavation to go deeper than initially planned.

- On 19 June 1999, prior to the first contractor starting work, the Huntsville Engineering Center issued a modification to the delivery order to increase in the original estimated excavated and sifted quantity of 33,400 cubic yards of soil to approximately 63,000 cubic yards. This resulted in a cost increase of $1.4 million.

- On 12 January 2000, Huntsville Engineering Center issued a modification to the delivery order to reflect another increase to the estimated quantity of soil excavated. The estimated quantity of excavated soil increased from 63,000 cubic yards to 90,000 cubic yards due to the level of lead contamination. This resulted in cost increase of $860,000.

- By the time the ordering period for this delivery order expired, the quantities of excavated and sifted soil rose to over 102,000 cubic yards of first sift soil and over 46,000 cubic yards of resift soil. The cumulative obligated amount for this delivery order was $3.6 million.

....

A time-and-materials delivery order provides no positive profit incentive to the contractor for cost control or labor efficiency. Federal Acquisition Regulation 16.601 requires appropriate Government surveillance of contractor performance to give reasonable assurance that efficient methods and effective cost controls are in use throughout the life of the project.

....

Response:

This statement implies that a FAR was not complied with, is made in a "background" discussion, and is not consistent with the specific Findings and Recommendations. Either the surveillance was appropriate or not, and for a specific reason.

It should be noted that cost-plus fixed fee and cost-plus incentive fee contracts are not the same as "time and materials" contracts. There are distinct contractual definitions regarding this.

....

DISCUSSION

This section discusses five areas.

- Cost Growth
- Contract Surveillance
- Contract Terms
- Communications
- Payment Calculation Errors

....

Response:

Again, this format implies that these are the findings of fact, and this is not consistent with the Recommendations.

....

- The basic agreement is not a contract. However, delivery orders issued under the basic contract are binding contractual agreements to obtain ordnance removal at specific installations. The contractor can accept delivery orders up to the total amount identified in the basic agreement. Each delivery order incorporating a basic agreement includes a scope of work and price, delivery, and other appropriate terms that apply to the particular contract at a specific location. The delivery order incorporates the basic agreement by specific reference or by attachment.

In September 1997, the Huntsville Center awarded a time and materials delivery order under provisions of a December 1996 basic agreement for the ordnance removal portion of the open burning grounds remediation project. Under terms of the basic agreement, the contractor could accept orders for a period of three years; performance of any delivery order placed during the ordering period could not exceed the end of the ordering period by more than one hundred eighty (180) days. On-site remediation actions began in July 1999 after the Record of Decision was finalized in June 1999 and the Department of Defense Explosives Safety Board approved the safety plan in July 1999. However, ordnance removal remediation actions were not complete when ordering/performance period lapsed in December 1999. Cumulative obligations for the ordnance removal remediation under this delivery order were $3.6 million as of December 2000.

In April 2001, the New England District awarded ~~another time and materials~~ a cost plus-incentive fee delivery order to a second contractor to complete the ordnance removal remediation. We estimated costs to complete the remediation were $3.7 million as of December 2001.

....

Response:

The format of the audit report should be Findings and Recommendations with background as an attachment if needed. This format emphasizes the discussion rather than the results.

The New England District (NAE) performed the contracting actions for the New York District (NAN).

NAE awarded a cost-plus, incentive fee task order under a Preplaced Remedial Action Contract (PRAC), not a time-and-materials contract. The initial task order award involved $106K for surveying and engineering in April 01; the task order to complete the site work was awarded in August 01.

....

Weaknesses we discuss in Finding A: Project Management of the Open Burning Grounds Remediation also contributed to the increases to some extent. However, we identified about $328,000 of cost increases associated with inefficiencies occurring on-site. We concluded that these cost increases might have been avoided or minimized if on-site contract surveillance and other surveillance techniques had been available.

....

Response:

Findings of cost increases due to project management need to be stated as specific factual findings versus cost increase, as a cause and effect, rather than attributing to cost increases to generalized statements of project management.

....

In addition, we identified a net overpayment of $36,150 to the initial ordnance removal contractor that should be recouped. The net overpayment was due to computation errors in calculations of the adjustment for "fluff" and downtime charges.

Our recommendations to correct these conditions begin on page xx.

BACKGROUND

Ordnance removal remediation for the open burning grounds project involved two delivery orders placed against two different basic agreements.

- Basic agreements are a contracting method the Huntsville Engineering Center uses to facilitate ordnance removal remediation at multiple locations. The basic agreement is a written instrument of understanding, negotiated between the Huntsville Engineering Center contracting activity and the contractor that (1) contains contract clauses applying to future delivery orders between the parties during its term and (2) contemplates separate delivery orders that will incorporate by reference or attachment the required and applicable clauses agreed upon in the basic agreement.

FINDING C: Ordnance Removal Contract Surveillance

For the Chief,
Base Realignment and Closure Office

SUMMARY

Management needed to consider using on-site, government contract surveillance on base closure unexploded ordnance removal projects. Unexploded ordnance removal at the open burning grounds was primarily accomplished with a multi-task, time and materials delivery order against a base contract awarded by the Huntsville Engineering Center. Normally, time and materials contracting requires specific surveillance actions to protect the government interest. For the open burning grounds project, Huntsville Center used an on-site safety inspector, but did not have an on-site contracting officer's representative or use other contract surveillance methods. Our review showed that ordnance removal costs grew from $532,000 to $3.6 million and completion time expanded from an initial estimate of three and a half months to three years during the life of the project. We determined that most of the cost growth and time extensions in the open burning grounds remediation project could be attributed to unexpected site conditions that caused:

- Changes in "excavation" methodology.
- Increases in project scope.

Response:

The format of the audit report should be specific finding of fact and specific recommendation. Generalized discussions and statements can be interpreted differently, and tend to imply perspectives that may not be consistent with factual findings. Additionally, corrective actions, if needed, need to be directed to specific findings and recommendations; otherwise, closure of the audit cannot be effectively obtained.

The emphasis appears to be on excavation methodology changes and scope increases, rather than the unexpected site conditions being the cause of these changes. These are non-specific statements that should be specific to the unexpected site conditions.

U.S.ARMY AUDIT AGENCY

Audit of Base Realignment Open Burn Project

Seneca Army Depot Activity (O1-128S)

US Army Corps of Engineers Entrance 12 July 2001

Audit Request

Requestor: Office of the Assistant Chief for Installation Management (OACSIM) Base Realignment and Closure Office

Problem: Significant cost over runs in environmental cleanup at BRAC sites that include unexploded ordnance removal.

Request: Review management at all levels in the cleanup effort at Seneca Depot Activity to include HQDA, AMC, Seneca, and USACE.

AUDIT STAFF

- John Williams — Fort Belvoir Field Office
- Joel McDonald — Fort Meade Field Office
- Marilyn Staggs — Fort Carson Field Office
- Francie Walker — Fort Belvoir Field Office
- Robert Woodward — Fort Belvoir Field Office

AUDIT OBJECTIVES

Overall Objective. Evaluate the management of remediation efforts on the Open Burn/Open Detonation Project at Seneca Army Depot Activity.

Objective 1. Were controls adequate to account for funds programmed for the project?

Objective 2. Were controls adequate to define and manage the scope of the project within established timeframes?

Objective 3. Were controls adequate to administer the remediation contracts?

Audit Timelines

Entrance: June 26, 2001

Audit work: June to August

Sites: Seneca Depot Activity
USACE – New York District
USACE – Huntsville Support Center
USACE – New England District

Exit: August (with report to follow)

Turcotte, Antoinette P NAE

Subject:	FW: Seneca Army Depot Activity Open Burn/Open Detonation Project -- AAA Entrance (O1128S)
Location:	3O85
Start:	Thu 7/12/01 10:00 AM
End:	Thu 7/12/01 11:00 AM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Required Attendees:	Papa, Raymond A NAD02; Kulick, Will NAN02; Pinede, Marie H NAE; Turcotte, Antoinette P NAE; Masters, Sherry HNC
Categories:	AAA, Entrance/Exit

We had the entrance this morning. Seems members of this team have already contacted some of you. AAA plans on having an IPR sometime in August with all parties. You are welcome to attend this event. I will provide more specific information as soon as I get it.

Pearlena

-----Original Appointment-----
From: Patters, Pearlena L HQ02
Sent: Tuesday, July 03, 2001 1:08 PM
To: CEMP-ZA HQ02; CEMP-ZB HQ02; Vogel, William M HQ02; Ballif, James D HQ02
Cc: Moerman, Stephanie J HQ02; Templeton, John E HQ02; Masters, Sherry HNC; Papa, Raymond A NAD02; Kulick, Will NAN02; Pinede, Marie H NAE; Turcotte, Antoinette P NAE; Potter, John C HNC; Douthat, Charles D HNC
Subject: Seneca Army Depot Activity Open Burn/Open Detonation Project -- AAA Entrance (O1128S)
When: Thursday, July 12, 2001 10:00 AM-11:00 AM (GMT-05:00) Eastern Time (US & Canada).
Where: 3O85

The Office of the Assistant Chief of Staff for Installation Management Base Realignment and Closure Office requested an audit of the Open Burn/Open Detonation Project at Seneca Army Depot Activity, New York. The overall objective is to evaluate management of remediation efforts on the project. Specific objectives focus on: Financial management; Project management; Contract administration.

USACE is not a primary focal point of this audit effort. We did some of the work and AAA wants to review what we did. AAA fieldwork may be required at Huntsville Center, New York District, and New England District.

If you have any questions or concerns, contact me.

Pearlena Patters
Audit Liaison
202-761-4461
3B64

DEPARTMENT OF THE ARMY
U.S. ARMY AUDIT AGENCY
Office of the Deputy Auditor General
Installations Management
3101 Park Center Drive
Alexandria, VA 22302-1596

SAAG-IMO (36-2c) 15 June 2001

MEMORANDUM FOR Assistant Chief of Staff for Installation Management, ATTN: DAMO-BO, 400 Army Pentagon, Washington, DC 20010-0400

Commander, U.S. Army Material Command, ATTN: AMCIR, 5001 Eisenhower Ave. Alexandria, Va. 22333-0001

Commander, U.S. Army Corps of Engineers, ATTN: CEIR, 441 G Street, Washington, DC 20314-1000

Base Environmental Coordinator, Seneca Army Depot Activity, ATTN: SIOSE-BEC, 5786 State Route 96, Seneca Depot Activity, NY 14541-5001

SUBJECT: Audit of Seneca Army Depot Activity Open Burn/Open Detonation Project, Seneca Army Depot Activity - Assignment Number O1128S

1. The Office of Assistant Chief of Staff for Installation Management Base Realignment and Closure Office requested an audit of the Open Burn/Open Detonation Project at Seneca Army Depot Activity, New York.

2. The overall audit objective is to evaluate management of remediation efforts on the project. Specific objectives focus on:

- Financial management.
- Project management.
- Contract administration.

3. We tentatively plan to initiate fieldwork at Seneca Army Depot Activity beginning on 26 June 2001. We anticipate that fieldwork may also be required at the Huntsville Engineer and Support Center, New York Engineer District, and New England Engineer District. We will coordinate directly with those organizations to make arrangements for visits.

4. Commands and organizations desiring a formal entrance conference should contact Mr. John Williams by 21 June 2001. Mr. Williams will also respond to any

questions you have about this review. Mr. Williams' e-mail is John.Williams@aaa.army.mil and telephone number is Commercial (703) 428-6478 or DSN 328-6478. Mr. Joel McDonald is the alternate point of contact. He can be contacted by e-mail Joel.McDonald@aaa.army.mil or by telephone at Commercial (703) 428-6659, DSN 328-6659.

FOR THE DEPUTY AUDITOR GENERAL:

/s/
John M. Williams
for
SHEILA B. CLARK
Program Director
Installation Operations

CF:
Commander, U.S. Army Operations Support Command, ATTN:AMSOS-IA
Commander, U.S. Army Engineer and Support Center, Huntsville, ATTN: CENHNC-IR
Commander, U.S. Army Engineer District, New York, ATTN: CENAN-IR
Commander, U.S. Army Engineer District, New England, ATTN: CENAE-IR