

DOE/IG-0555

AUDIT  
REPORT

CLOSURE OF THE FERNALD  
ENVIRONMENTAL MANAGEMENT  
PROJECT



JUNE 2002

U.S. DEPARTMENT OF ENERGY  
OFFICE OF INSPECTOR GENERAL  
OFFICE OF AUDIT SERVICES



U. S. DEPARTMENT OF ENERGY  
Washington, DC 20585

June 5, 2002

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman (Signed)  
Inspector General

SUBJECT: INFORMATION: Audit Report on "Closure of the Fernald  
Environmental Management Project"

BACKGROUND

From 1954 through 1989, the mission of the Department of Energy's Fernald Environmental Management Project (FEMP) was the production of high-purity uranium metals for use in the Department's nuclear weapons program. The Department suspended all production operations at the site in 1989 and, in 1991, it formally ended the site's production mission. The first environmental restoration contract at the FEMP was awarded to the Fernald Environmental Restoration Management Corporation, now known as Fluor Fernald, Inc. (Fluor), in 1992. From December of that year through November 2000, Fluor managed the site's cleanup activities, and in November 2000, was awarded the FEMP's closure contract.

To focus attention on site closure activities, Congress established the Defense Facilities Closure Projects account. For accelerated clean-up sites such as FEMP, which are funded through this account, Congress requires that the Department request adequate funding to keep cleanup projects on schedule for closure in Fiscal Year (FY) 2006 or earlier. Congress intends for any savings resulting from early closure of the FEMP to be retained and used for cleanup activities at other Department sites. Through December 2001, the Department spent about \$2.8 billion at the FEMP, and Fluor estimates that it will need an additional \$1.7 billion to achieve site closure.

The objective of this audit was to determine whether the FEMP was on schedule to achieve cleanup and closure in FY 2006.

RESULTS OF AUDIT

As of December 2001, only about 35 percent of cleanup activities required to achieve site closure had been completed, and Fluor's newest baseline estimate was that site closure would not be achieved until December 2009. Our audit disclosed that the Department did not seek an adequate funding level to ensure closure in 2006, nor had the Department and Fluor inserted necessary requirements in the relevant contractual instrument to effectuate a 2006 closure. Any delays in site closure have an obvious impact on the safety and

health risks at FEMP. Further, the Department could incur about \$152 million in additional infrastructure support costs at the site if closure is completed in 2009 rather than 2006 as planned. We recommended that the Department align its funding requests and seek to modify the Fluor contract, as appropriate, to achieve site closure in 2006.

During the audit, Fluor presented the Department with a plan to achieve site closure in December 2006. However, this plan is not complete in that it does not include all of the funding or work that is necessary to achieve site closure as intended by Congress. Further, Fluor has not yet developed a detailed project baseline to support its plan.

In addition to FEMP, my office has recently reviewed the remediation and closure activities at the Department's Miamisburg and Ashtabula Environmental Management Projects. Like FEMP, the Department was not on schedule to close these sites by the expected closure dates. Our findings were consistent with conclusions reached by the "Top-to-Bottom" Review Team which you chartered and which recently issued its report on *A Review of the Environmental Management Program*. For FEMP, the review team noted that the current baseline for site closure is beyond 2006 and suggested that the Department focus on accelerating that timeframe.

#### MANAGEMENT REACTION

The Assistant Secretary for Environmental Management agreed with all of the recommendations except our suggestion that the Fluor contract be modified to require site closure in FY 2006. The Assistant Secretary stated that the Department has every intent to put an acquisition mechanism in place that is focused on 2006 once an evaluation of the contract is completed. We consider these comments responsive to the intent of the recommendation.

#### Attachment

cc: Chief of Staff  
Under Secretary for Energy, Science and Environment  
Assistant Secretary for Environmental Management  
Manager, Ohio Field Office

# CLOSURE OF THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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# OVERVIEW

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## INTRODUCTION AND OBJECTIVE

The Fernald Environmental Management Project (FEMP) is a Government-owned, contractor-operated facility located on about 1,050 acres near Ross, Ohio. From 1954 through 1989, the mission of the site was the production of high-purity uranium metals for use in the Department of Energy's (Department) nuclear weapons program. In 1989, the Department suspended all production operations at the site to focus on environmental, safety and health, and compliance issues, and formally ended the site's production mission in 1991. One year later, the Department awarded the first environmental restoration contract to the Fernald Environmental Restoration Management Corporation, now known as Fluor Fernald, Inc. (Fluor). Fluor managed the site's cleanup activities from December 1992 through November 2000, and was awarded the FEMP closure contract in November 2000.

To facilitate site closure, Congress provided funding to the Department for the accelerated cleanup and closure of the FEMP. For accelerated closure sites such as the FEMP, Congress required that the Department request adequate funding to keep the project on schedule for closure in Fiscal Year (FY) 2006 or earlier. Congress intended for any savings resulting from early closure of the FEMP to be retained and used for cleanup activities at other Department sites. From 1992 through December 2001, the Department spent about \$2.8 billion at the FEMP, and Fluor estimates that it will need an additional \$1.7 billion to achieve site closure.

The Office of Inspector General (OIG) and the General Accounting Office (GAO) have previously reported concerns with the Department's defense facility site closure projects. In our January 2002 report on *Remediation and Closure of the Ashtabula Environmental Management Project* (DOE/IG-0541), we concluded that the project was not on schedule and might not be completed until 2012 because the Department did not fully fund the project and oversee the contractor's progress to ensure timely completion and compliance with contract terms. Also, in May 2001, in our report on *Remediation and Closure of the Miamisburg Environmental Management Project* (DOE/IG-0501), we concluded that the project will not be closed on schedule because the Department and its contractor committed to a completion date without knowing whether the date was achievable, and did not develop a valid baseline to effectively manage the project. Finally, in February 2001, GAO reported, in GAO-01-284, *Progress Made at Rocky Flats, but Closure by 2006 Is Unlikely, and Costs May Increase*, that the Department faces a number of technical challenges and is unlikely

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meet the December 2006 target site closure date for Rocky Flats. Additionally, the Department's site closure contractor estimated that it only had about a 15 percent probability of completing the project in 2006.

The objective of this audit was to determine whether the FEMP was on schedule to achieve cleanup and closure in FY 2006.

## **CONCLUSIONS AND OBSERVATIONS**

Information developed during the audit indicated that cleanup and closure of the FEMP was not on schedule to be completed in FY 2006, as expected by Congress. In fact, Fluor's new baseline estimated that site closure will not be achieved until December 2009. The project was behind schedule because the Department did not develop a contractual requirement or seek an adequate level of funding to ensure closure in 2006. As a result, site workers and the public could be exposed to continued safety and health risks and the Department could incur about \$152 million in additional infrastructure support costs at the site.

During the audit, Fluor presented the Department with a plan to achieve site closure in December 2006; however, this plan does not include all of the funding or work that is necessary to achieve site closure as intended by Congress. Further, Fluor has not yet developed a detailed project baseline to support its plan. In fact, Fluor is not contractually required to achieve closure before December 2010.

This audit identified issues that management should consider when preparing its year-end assurance memorandum on internal controls.

(Signed)  
\_\_\_\_\_  
Office of Inspector General

## **SITE CLOSURE IS NOT ON SCHEDULE**

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### **Congress Expects Closure In 2006**

Congress established the Defense Facilities Closure Projects account (Closure Account) in 1997 to help focus management attention on cleanup activities at selected Departmental sites. Congress expected the Department to find ways to accelerate cleanup activities at the sites and ensure that site closure was achieved by the end of FY 2006. Also, Congress required the Department to seek the resources necessary to keep these projects on schedule for closure in 2006 or earlier. In fact, during development of the Department's FY 2002 budget, the House Committee on Appropriations made the following comments regarding Closure Account sites located within the State of Ohio:

*"If during fiscal year 2002, it appears that any of these projects will not meet the 2006 closure date, the Department is to notify the Committee immediately, reduce site funding to the minimum necessary to maintain safe surveillance and maintenance conditions, and submit a reprogramming to remove the site from the Defense Facilities Closure Project account."*

The Senate Committee on Appropriations made similar comments regarding sites in the Closure Account:

*"Once it becomes clear that a closure deadline cannot be met prior to 2006, the Department should propose moving the project into the post-2006 account. Such a move would ensure adequate attention and resources for the projects that remain in the closure account."*

In summary, Congress intended for the Department to achieve closure of the FEMP before the end of FY 2006, or initiate action to remove the site from the Closure Account before the end of this fiscal year.

### **Closure Schedule**

The Department was not on schedule to achieve closure of the FEMP by the end of FY 2006. In December 2001, ten years after the site's production mission ended, Fluor estimated that about 35 percent of the cleanup needed to achieve site closure had been completed. According to the most recently validated project baseline, site closure will not be achieved until December 2009. Although the Department does not have a validated baseline plan for completing cleanup and restoration work in 2006, it has not removed the site from the Closure Account.

The Department considered moving the FEMP from the Closure Account in May 2000, during development of the FY 2002 Environmental Management Budget. The FEMP closure schedule in

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effect at that time projected that site closure would not be achieved until September 30, 2010, or four years beyond the date Congress expects the work to be finished. The Ohio Field Office considered, but rejected, removing the FEMP from the Closure Account.

In December 2001, Fluor presented the Department with a plan for achieving site closure in 2006. Depending on the amount of waste to be removed from the site's waste pits and the timing of future workforce reductions, Fluor estimated it would need between \$1.6 billion and \$1.7 billion to complete site cleanup. However, Fluor's new plan did not include all of the work or funding that was necessary to achieve site closure by the end of FY 2006. Fluor estimated it would need at least an additional \$25 million to \$31 million in funding during FY 2007 to complete tasks like removing railroad tracks, cleaning up the rail yard, and disposing of the silo waste treatment facility. Fluor projected that these activities would not be completed until March 2007. Also, Fluor has not yet developed a detailed project baseline that supports its proposal.

## **Contractual Requirements and Project Funding**

The FEMP closure project was behind schedule because the Department did not establish contractual requirements or seek the funding necessary to ensure that the 2006 closure deadline would be achieved.

### Contractual Requirements

After the Secretary of Energy designated the FEMP as a closure site in 1997, the Department failed to modify its existing contract with Fluor to place additional emphasis on the 2006 closure date. Also, in November 2000, the Department awarded a new closure contract to Fluor; however, the contract did not require Fluor to:

- achieve site closure in 2006;
- perform site cleanup activities in accordance with its response to the Department's request for proposals; and,
- prepare a baseline to achieve closure in 2006.



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The Department's contract with Fluor did not require closure in 2006. In fact, the contract's 2010 target closure date was four years beyond the date Fluor believed it could achieve closure when it responded to the Department's request for proposals. The Department's request for proposals required that bidders develop their responses using a baseline that allowed for increased levels of funding. Under that scenario, Fluor believed it could achieve site closure in 2006 and reduce the overall cost of the project by \$400 million. However, the Department did not include this scenario in its contract.

Also, after awarding the FEMP closure contract, the Department did not require Fluor to prepare a baseline to achieve closure in 2006. Rather, the Department required Fluor to develop a baseline premised on a flat funding profile of \$290 million per year. This baseline estimated that some site cleanup activities would be completed in 2006, while the completion of others are delayed until December 2009. Appendix 2 contains a copy of the FEMP closure schedule developed by Fluor for the new contract.

While the Department did not contractually require Fluor to achieve closure in 2006, the Department believed that the monetary incentives contained in the FEMP closure contract would accelerate the 2010 target closure date. However, the structure of the contract incentives indicate that the Department was more focused on controlling total project costs and the completion of certain cleanup tasks, rather than on achieving overall closure of the site in FY 2006. For example, only \$53 million in incentive fees were available for accelerating tasks associated with the Department's 2010 target closure date. However, Fluor could earn up to \$235 million in incentive fees for controlling total project costs. In fact, Fluor could, conceivably, earn the majority of available incentive fees – both for task acceleration and for cost control – and still not close the site until beyond 2006.

#### Project Funding

Contrary to Congressional guidance, the Department did not seek adequate funds to keep the site on schedule for closure in 2006. Since the Department did not have a validated baseline for closing the site in 2006, it could not determine and did not request adequate funding to meet a 2006 closure schedule.

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Furthermore, for FYs 2001 and 2002, the Department's Congressional Budget Request was not consistent with the level of funding requested by the Ohio Field Office. Specifically, the Ohio Field Office submitted a budget request to Department Headquarters of \$313.8 million and \$324.3 million in FY 2001 and FY 2002, respectively, for the FEMP closure activities. However, the Department's request to Congress included only \$290 million per year for the FEMP closure project. Due to concerns with the Department's progress in meeting the 2006 closure deadline, Congress provided the Department with a supplemental appropriation of \$20 million in FY 2001 and \$10 million in FY 2002. Despite the additional funding from Congress, the FEMP is still behind schedule to achieve site closure in 2006.

**Health and Safety Risks,  
Additional Costs, and  
Scarce Resources**

If FEMP remained open past 2006, site workers and the public would continue to be exposed to safety and health risks; the Department would incur about \$152 million in additional costs at the site; and scarce resources would not be available for the long-term cleanup of the Department's more complex sites around the country.

The current site closure baseline plan indicated that the soil characterization and excavation, on-site disposal facility, aquifer restoration, and silos projects would not be completed by the date expected by Congress. Specific examples of the types of risks associated with delaying these projects include migration of uranium contaminated groundwater and radiation uptake from exposure to thorium, radium, and radon.

Additionally, the Department would incur about \$152 million in additional costs if site closure was delayed until December 2009. These additional costs result from the need to continue supporting the FEMP infrastructure until the closure date contained in the current closure baseline was reached. Specific examples of infrastructure support costs include site security, utilities, Fluor management and administrative functions, and Departmental oversight activities.

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Further, the Department incurred substantial costs to develop and validate a project baseline that did not support achieving site closure in 2006. Fluor estimated that it spent nearly \$1.5 million over 6 months developing the current baseline premised on a flat funding profile. Additionally, the Department spent about \$530,000 reviewing and validating a baseline, which projected that site closure would not be achieved until December 2009.

Finally, failure to achieve site closure in 2006 would result in scarce resources not being made available for the long-term cleanup of the Department's more complex sites around the country. The Department's 1997 Closure Management Plan recognized that achieving the 2006 closure date at the FEMP would require an aggressive schedule and would result in substantial savings. The Department planned to devote those savings to cleanup efforts at locations like the Hanford Site in Washington, and the Savannah River Site in South Carolina. At these two sites, the Department has about 91 million gallons of high-level radioactive waste that needs to be treated and disposed.

## **RECOMMENDATIONS**

We recommend that the Assistant Secretary for Environmental Management:

1. Ensure that project completion dates and funding requests are based on current and complete project baselines;
2. Request adequate funding to achieve site closure in FY 2006 as required by Congress; and,
3. Notify the Secretary of Energy and Congress if the FY 2006 closure deadline cannot be achieved.

We recommend that the Manager, Ohio Field Office:

1. Modify the Fluor contract to require site closure in FY 2006; and,
2. Require Fluor to develop a project baseline that supports achieving the FY 2006 site closure deadline as soon as possible.

Management agreed with all of the recommendations except modifying the Fluor contract to require site closure in FY 2006.

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**MANAGEMENT  
REACTION**

Management stated that the Department has every intent to put an acquisition mechanism in place that is focused on 2006 once an evaluation of the contract is completed. However, at the conclusion of our review, management had not determined whether simply modifying the Fluor contract was the most effective means of achieving closure by 2006. Management's comments are attached in their entirety as Appendix 3.

**AUDITOR COMMENTS**

Although management did not concur with the recommendation to modify the contract to require closure by FY 2006, we consider the comments responsive to the intent of the recommendation.

## Appendix 1

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### SCOPE

The audit was performed from September 2001 through February 2002 at the Fernald Environmental Management Project (FEMP) near Ross, Ohio; the Ohio Field Office in Miamisburg, Ohio; and the Office of Environmental Management in Germantown, Maryland. The scope of the audit included site remediation, closure activities, and costs incurred by the Department from FY 1992 through December 2001 at the FEMP.

### METHODOLOGY

To accomplish the audit objective, we:

- Reviewed Congressional requirements for Defense Facilities Closure Projects account sites;
- Analyzed the Department's FY 2002 Congressional budget request and Congressional committee reports related to the development of the Department's FY 2002 budget;
- Analyzed the Department's current FEMP site closure baseline;
- Assessed the terms of the Department's request for proposals for the FEMP closure contract, Fluor's contract proposal, and the contract awarded by the Department;
- Calculated the cost of infrastructure support activities that will be incurred if site closure is not achieved until December 2009; and,
- Interviewed Department and contractor officials at Headquarters, the Ohio Field Office, and the Fernald Environmental Management Project.

The audit was performed in accordance with generally accepted Government auditing standards for performance audits and included tests of internal controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. Accordingly, we assessed the significant internal controls related to the Department's management of the FEMP. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We did not assess the reliability of computer processed data because only a limited amount of computer processed data was used during the audit.

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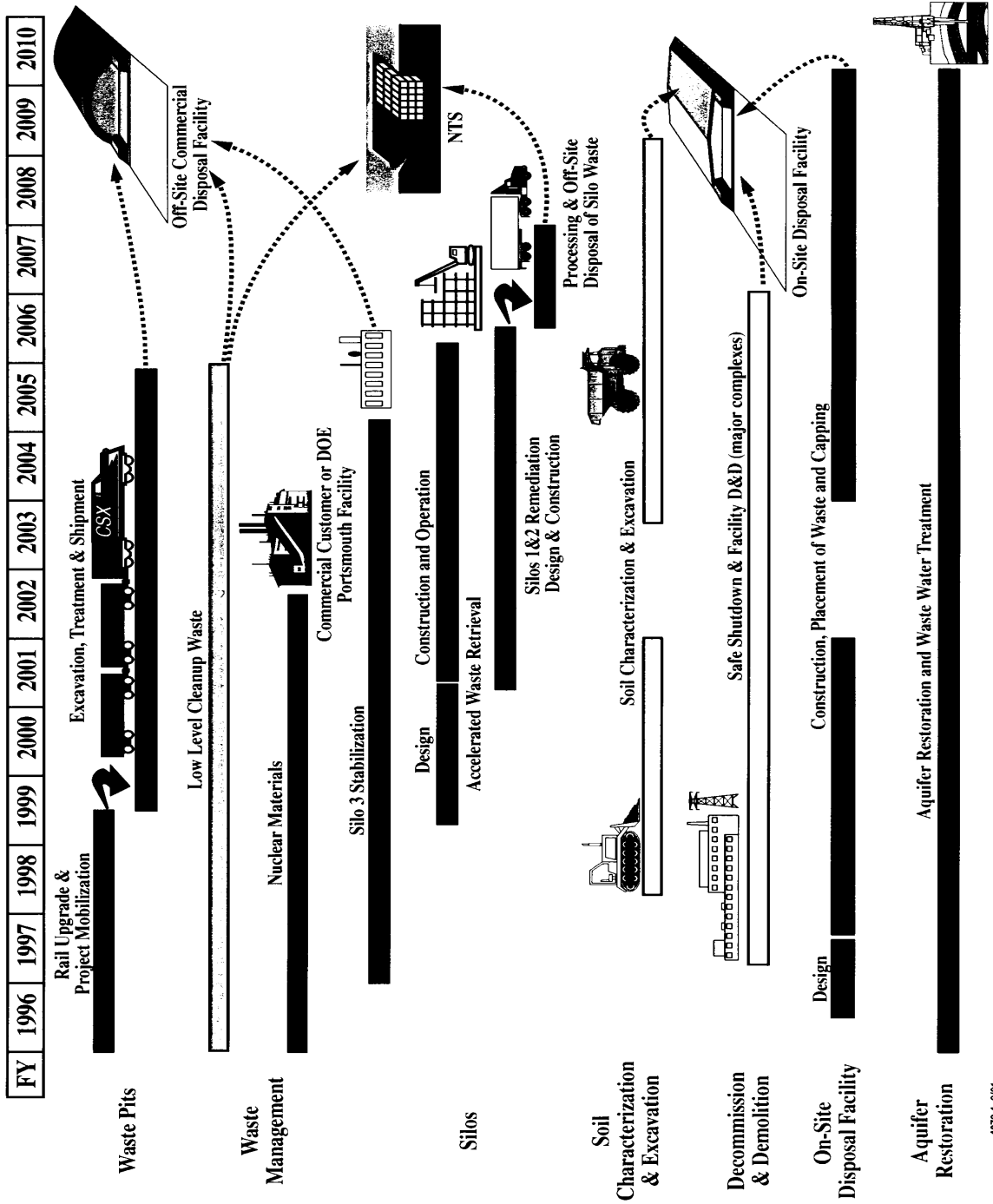
Finally, we assessed the Department's compliance with the Government Performance and Results Act of 1993. The Department's Annual Performance Plan for FYs 1999 through 2002 contained performance measures based on disposing of specific waste volumes and waste streams from its sites.

We held an exit conference with the Office of Environmental Management and the Ohio Field Office on May 23, 2002.

FEMP Closure Schedule

FERNALD ACCELERATED CLEANUP PLAN

Master Schedule



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(8-89)  
EFG (07-90)

United States Government

Department of Energy

## memorandum

DATE: **MAY 13 2002**

REPLY  
ATTN OF: EM-31 (S. Robison, 301-903-2328)

SUBJECT: Ohio Field Office Response to Office of the Inspector General Draft Report,  
"Closure of the Fernald Environmental Management Project"

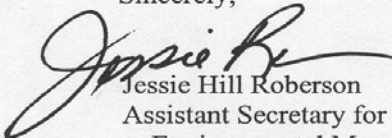
William S. Maharay  
TO: Assistant Inspector General  
for Audit Services, IG-30

Office of the Inspector General (IG) Draft Report, "Closure of the Fernald Environmental Management," made five recommendations. Three of the recommendations were addressed to the Assistant Secretary for Environmental Management (EM-1) and two were addressed to the Manager, Ohio Field Office (OH).

I am in agreement with the three recommendations that were addressed to EM-1 and with recommendation 2 to the Ohio (OH) Field Office and therefore, have no comments regarding these recommendations. I do however, non-concur with the first recommendation addressed to the Manager of OH:

- **Recommendation 1:** "...modify the Fluor contract to require site closure in fiscal year (FY) 2006...." We appreciate the OIG's recommendation since it is a natural next step to the actions that the Office of Environmental Management is taking. However, we non-concur with the recommendation at this time. The Department has every intent to put into place an acquisition mechanism that is focused on 2006. We have not however, completed our evaluation to determine whether simply modifying the Fluor contract is the most effective means of achievement.

Sincerely,



Jessie Hill Roberson  
Assistant Secretary for  
Environmental Management



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