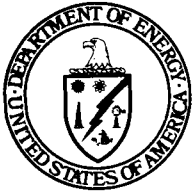




U.S. Department of Energy
Office of Inspector General
Office of Audit Services

Audit Report

The Advanced Mixed Waste Treatment
Facility Contract at the Idaho National
Engineering and Environmental
Laboratory



Department of Energy

Washington, DC 20585

September 30, 2003

MEMORANDUM FOR THE SECRETARY

FROM:

William S. Mahoney for
Gregory H. Friedman
Inspector General

SUBJECT:

INFORMATION: Audit Report on "The Advanced Mixed Waste Treatment Facility Contract at the Idaho National Engineering and Environmental Laboratory"

BACKGROUND

In 1996, the Department of Energy awarded a \$912 million fixed-price contract to BNFL, Inc. for services associated with a planned Advanced Mixed Waste Treatment Facility (AMWTF) at the Idaho National Engineering and Environmental Laboratory (INEEL). The bulk of this amount, \$569 million, was for construction of the AMWTF and its processing equipment. Although construction of the AMWTF was completed in December 2002, as of June 2003 the facility was not yet fully operational. Once online, the AMWTF will be used to characterize, treat, and prepare 65,000 cubic meters of contact-handled transuranic waste and mixed low-level waste for disposal. Most of this waste was generated at the Department's Rocky Flats Plant near Denver, Colorado, and shipped to the INEEL for processing. The operation of the AMWTF, as well as the ultimate disposition of the waste processed through the facility, is a major component of the Department's environmental remediation program. Part of the operating strategy of the environmental program is to accomplish clean-up projects in the most economical and efficient manner possible.

We performed this audit to determine whether the Department was paying a reasonable price for the design, construction, and operation of the AMWTF.

RESULTS OF AUDIT

The Department had not acted to minimize costs associated with the AMWTF. Specifically, the Idaho Operations Office did not seek price adjustments after several major waste treatment technologies initially proposed by BNFL were eliminated from the scope of work. Understandably, Operations Office officials focused primarily on achieving the intended end product at the agreed-to total price. This approach, however, overlooked the fact that major facility components, which were reflected in the original estimate of construction costs, had been deleted from the project and should, in our judgment, have been the subject of an equitable price adjustment. The BNFL contract included provisions for equitable price adjustment under circumstances such as these.



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We estimated that without an equitable price adjustment to reflect the scope changes, the Department could pay at least \$90 million more than necessary under the AMWTF contract. Accordingly, we recommended that the Idaho Operations Office work to obtain an equitable price adjustment commensurate with reductions in the scope of work to be performed under the contract. We also recommended that management controls over contract pricing be strengthened.

The Office of Inspector General recently issued a related report on *Waste Reduction Plans for the Advanced Mixed Waste Treatment Project at the Idaho National Engineering and Environmental Laboratory* (DOE/IG-0611, July 2003). That audit disclosed that, based on current plans for the AMWTF, the volume of waste to be shipped to Waste Isolation Pilot Plant (WIPP) would decrease by only about 6 percent, rather than the 65 percent originally specified in the BNFL contract. As a result, WIPP may receive substantially more waste than originally planned, and the Department could spend \$205 million more than expected to dispose of the waste. The Assistant Secretary for Environmental Management agreed with the finding in that report and accepted our recommendations.

MANAGEMENT REACTION

Management generally concurred with the finding and recommendations in the attached report and agreed to perform an analysis to determine if appropriate adjustments were made to the contract based on scope reductions. In addition, management agreed to improve management controls in this area.

Attachment

cc: Deputy Secretary
Under Secretary for Energy, Science and Environment
Assistant Secretary for Environmental Management
Director, Office of Nuclear Energy, Science and Technology
Manager, Idaho Operations Office

THE ADVANCED MIXED WASTE TREATMENT FACILITY CONTRACT AT THE IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY

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CONTRACT PRICE

Work Scope Reductions

The contract between the Department of Energy (Department) and BNFL, Inc. includes a standard Federal Acquisition Regulation (FAR) clause¹ requiring that any change to the specifications or scope of work of the contract be reflected in the price of the contract. Specifically, the clause states that "If any such change causes an increase or decrease in the cost of, or the time required for, performance of any part of the work under this contract... the Contracting Officer shall make an equitable adjustment in the contract price ... and shall modify the contract." The audit disclosed, however, that while BNFL's original planned technologies were replaced with a compaction process that is technologically simpler and significantly less costly, the Department had not sought to modify the contract price downward to account for the reduced scope.

When the contract was awarded in 1996, Department officials believed that the Waste Isolation Pilot Plant (WIPP), the final repository for the waste, would require treatment to Land Disposal Restrictions² -- a treatment level specified in the Resource Conservation and Recovery Act (RCRA) for shallow land disposal of hazardous waste. Based on this assumption, BNFL proposed to build a facility, with estimated construction costs totaling \$569 million, that would include the following technologies:

- Thermal Desorption. Organic and inorganic wastes were to be treated by incineration and related thermal desorption technologies.
- Vitrification. The ash product of thermal desorption, along with inorganic waste and glass additive, was to have been fed into the vitrification system to produce a final glass-like waste product.
- Grit-blast decontamination. This process would have removed surface contamination from metal waste using an abrasive cleaning method, allowing the decontaminated metal debris to be disposed of as low-level or non-hazardous waste.

¹ FAR 52.243-1, *Changes-Fixed Price*

² Land Disposal Restrictions identify hazardous wastes that are restricted from shallow land disposal and defines those limited circumstances and treatment regimens under which an otherwise prohibited waste may be disposed.

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- Macro-encapsulation. Macro-encapsulation, which involved placing waste materials into sealed overpacks, was to be used for quantities of bulk metal that were not treated by surface decontamination, and for metals having higher levels of transuranic contamination.

Because of changes that occurred in 1999 and 2000, however, none of these treatment processes will actually be constructed. First, in 1999, the WIPP waste acceptance criteria no longer required that waste be treated to RCRA Land Disposal Restrictions. This change reflected the fact that WIPP's repository is over 2000 feet underground. All of the treatment processes proposed by BNFL were in some way related to the requirement to treat the waste to Land Disposal Restrictions. When the waste acceptance criteria were changed, there was no longer a need for many of BNFL's treatment systems. Additionally, in March 2000, the Department settled a lawsuit with an environmental group by agreeing not to build the Advanced Mixed Waste Treatment Facility (AMWTF) incineration systems, including both the thermal desorption and vitrification processes.

In light of the public's concern over incineration, the Department and BNFL modified the AMWTF design to add a super-compaction system – a treatment process that was not in BNFL's original contract. By adding a super-compactor, BNFL was able to reduce the volume of waste slated for incineration. However, in 2000, when the lawsuit was settled, BNFL removed all of the proposed treatment technologies and relied on super-compaction as the primary treatment system. Super-compaction is a relatively simple process in which barrels of waste are crushed to about 20 percent of their original size for debris waste.

Despite the modifications, which represent a major reduction in the scope of work to be performed, the Department made only one downward price adjustment of \$18 million, based on labor and material costs for encapsulation. No similar reductions have been taken, or even proposed, for the elimination of construction requirements for encapsulation or the other processes of desorption, vitrification, and grit-blast.

Contract Management

Idaho Operations Office (Idaho) officials were principally concerned with achieving the intended end product at the agreed-to total price. Specifically, the contracting officer reasoned that the BNFL contract is a "service contract," whereby BNFL's primary requirement is to process the 65,000 cubic meters of waste such that it can be disposed of at

WIPP. Idaho officials told us they were not concerned that BNFL's original treatment technologies were replaced with a simpler, less-expensive treatment process.

This approach, however, overlooked the fact that major facility components, which were reflected in the original estimate of construction costs, will not be built. As noted, the FAR contemplates this situation and provides a process for seeking a contract price adjustment for a material change in the scope of work. In our judgment, the Department should pursue this process and seek a lower contract price. Our conclusion is consistent with comments made by the Defense Contract Audit Agency (DCAA) in September 2001, advising Idaho's contracting officer to seek a reduction in BNFL's contract price for removal of the incinerator from the scope of work. Although Idaho has made no formal determination on the DCAA recommendation, the contracting officer informed us that Idaho had no intention of seeking a downward price adjustment for changes in the Land Disposal Restrictions requirement beyond the \$18 million already received.

Cost Impact

We estimated that without an equitable price adjustment to reflect the scope changes, the Department could pay at least \$90 million more than necessary under the AMWTF contract. As part of the AMWTF environmental impact statement completed in 1999, the Department reviewed the cost of various alternatives for treating INEEL's waste. The review determined that removing the incineration equipment could reduce the cost of the project by \$90 to \$100 million. We could not determine the costs associated with removing grit-blast decontamination and encapsulation technologies from the project because they were not addressed in the Department's previous review, and they were not specifically identified in BNFL's original cost proposal.

RECOMMENDATIONS

We recommend that the Manager, Idaho Operations Office:

1. Direct the contracting officer to negotiate an equitable price adjustment for reductions in the scope of the BNFL contract; and,
2. Improve management controls to ensure that contract prices are adjusted commensurate with changes in the scope of work to be performed.

**MANAGEMENT
REACTION**

The Assistant Secretary for Environmental Management generally concurred with the finding and recommendations and stated that Idaho will perform an analysis to determine if the Department has received the appropriate equitable adjustments due to contract scope reductions. Based on this review, appropriate contractual action will be implemented. Additionally, management stated that Idaho will implement controls to ensure that prices are adjusted commensurate with changes in the scope of work performed. Environmental Management's verbatim comments are included as Appendix 3.

PRIOR REPORTS

- *Waste Reduction Plans for the Advanced Mixed Waste Treatment Project at the Idaho National Engineering and Environmental Laboratory* (DOE/IG-0611, July 2003). The audit concluded that the volume of waste to be shipped to the Waste Isolation Pilot Plant (WIPP) will decrease by only 6 percent rather than 65 percent, as contemplated under the contract. Also, the contract was unclear as to exactly how waste reduction would be measured, and reduction goals and plans were not modified to reflect changing assumptions. As a result, WIPP may receive substantially more waste than originally planned, and the Department could spend \$205 million more than expected to dispose of the waste.
- *Idaho Operations Office Mixed Low-Level Waste Disposal Plans* (DOE/IG-0527, September 2001). The audit determined that the Idaho Operations Office's plans to dispose of mixed low-level waste at WIPP were inconsistent with the Department's waste disposal strategy. Further, The Department could save about \$119 million by not blending mixed low-level waste with transuranic waste at the Idaho National Engineering and Environmental Laboratory. The audit recommended not blending the waste, and instead, disposing of the mixed low-level waste at the Hanford Site.
- *Waste Treatment Plans at the Idaho National Engineering and Environmental Laboratory* (DOE/IG-0440, February 1999). The audit determined that waiting until the Advanced Mixed Waste Treatment Facility (AMWTF) would be available to process 3,100 cubic meters of waste would be more economical and reduce the environmental risks to Laboratory employees. We estimated that the Department could save about \$66 million by deferring waste processing until the new AMWTF is operational.

Appendix 2

OBJECTIVE

The objective of this audit was to determine whether the Department is paying a reasonable price for the design, construction, and operation of the Advanced Mixed Waste Treatment Facility (AMWTF).

SCOPE

The audit was performed from October 31, 2002, to March 17, 2003, at the Idaho National Engineering and Environmental Laboratory (INEEL), near Idaho Falls, Idaho. The audit covered BNFL, Inc. performance from inception of the AMWTF contract, on December 20, 1996, through October 31, 2002.

METHODOLOGY

To accomplish the audit objective, we:

- Obtained and reviewed planning documents for AMWTF activities;
- Researched Federal and Department regulations;
- Reviewed findings from prior audit reports regarding the AMWTF Project;
- Reviewed the BNFL contract with the Department for the design, construction, and operation of the AMWTF;
- Assessed internal controls and performance measures established under the *Government Performance and Results Act of 1993*; and,
- Interviewed key personnel in the Idaho Operations Office and the Office of Environmental Management.

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. Specifically, we tested controls with respect to the Department's planning process for waste management activities. 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 rely on automated data processing equipment to accomplish our audit objective. We held an exit conference with the Chief Operating Officer, Office of Environmental Management, on August 18, 2003.



Department of Energy

Washington, DC 20585

September 10, 2003

MEMORANDUM FOR FREDERICK D. DOGGETT
ASSISTANT INSPECTOR GENERAL
FOR AUDIT SERVICES

FROM:


JESSIE HILL ROBERSON
ASSISTANT SECRETARY FOR
ENVIRONMENTAL MANAGEMENT

The Office of Environmental Management has reviewed the subject draft report attached to the IG-30 memorandum of June 4, 2003. EM's comments are as follows:

Recommendation 1:

That the Manager, ID, direct the contracting officer to negotiate an equitable price adjustment for reductions in the scope of the BNFL contract.

Management Comments:

DOE agrees that any change in the AMWTP contract Section C, Statement of Work, is subject to the contract changes clause including equitable price adjustment. Contract Modification Number M009 incorporated revised Waste Isolation Pilot Project Waste Acceptance Criteria (WIPP/WAC) that waived the RCRA LDR treatment requirements for certified waste. This modification also reduced the contract price to reflect this change. In regards to Recommendation 1, the Idaho Manager has been directed to perform an analysis of Contract Modification Number M009 to determine if the value of the equitable adjustment reasonably reflects the value of the requirement change. Based on the results of this analysis, appropriate contractual action will be implemented.

Recommendation 2:

That the Manager, ID, improve management controls to ensure that contract prices are adjusted commensurate with changes in the scope of work performed.

Management Comments:

EM accepts this comment.

If you have questions or would like to discuss this further please call me at (202) 586-7709.



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