

ER-B-00-01

# AUDIT REPORT

CENTRAL SHOPS  
AT BROOKHAVEN NATIONAL  
LABORATORY



MAY 2000

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



**DEPARTMENT OF ENERGY**  
Washington, DC 20585

May 11, 2000

MEMORANDUM FOR THE MANAGER, CHICAGO OPERATIONS OFFICE

FROM: Terry L. Brendlinger, Manager (Signed)  
Eastern Regional Audit Office  
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on "Central Shops at Brookhaven National Laboratory"

BACKGROUND

Brookhaven National Laboratory's (Brookhaven) Central Shops Division (Central Shops) provides support services for research and development programs and user facilities. The Department requires its management and operating contractors to evaluate, by performing a make-or-buy analysis, whether their services could be obtained at a lower cost by outsourcing to commercial entities. The objective of the audit was to determine whether Brookhaven prepared a make-or-buy analysis for its Central Shops.

RESULTS OF AUDIT

Brookhaven did not prepare a make-or-buy analysis for its Central Shops. Brookhaven and the Department did not give a high priority to performing a make-or-buy analysis in part due to outsourcing restrictions in Brookhaven's collective bargaining agreement. Also, limitations in its financial system impeded the performance of a make-or-buy analysis. As a result, Brookhaven and the Department may be missing opportunities to reduce fabrication costs.

MANAGEMENT REACTION

Management concurred with the audit finding and recommendations.

# CENTRAL SHOPS AT BROOKHAVEN NATIONAL LABORATORY

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# OVERVIEW

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## INTRODUCTION AND OBJECTIVE

Brookhaven's Central Shops provides mechanical fabrication, quality control, and machine maintenance services in support of research and development programs and user facilities. Central Shops has an annual budget of about \$6 million with 75 employees. In 1994, the Department implemented the requirement for its management and operating contractors to evaluate whether their services could be obtained at a lower cost by outsourcing to commercial entities. Consistent with this approach, Brookhaven's contract requires Brookhaven to develop and implement a make-or-buy plan that establishes a preference for providing supplies and services on a least-cost basis while also weighing factors such as program needs and quality.

Prior audits have reported the need for a more proactive approach for managing the Department's make-or-buy program. For example, *The Department's Management and Operating Contractor Make-or-Buy Program*, DOE/OIG-0460, February 2000, reported that three of the four contractors reviewed had either not included all functions in their make-or-buy plans or had not scheduled cost-benefit analyses for many functions that were candidates for outsourcing. Also, *Outsourcing Opportunities at the Los Alamos National Laboratory*, WR-B-00-03, January 2000, reported that the contractor had not identified all support services with outsourcing potential. In addition, a prior report on Brookhaven's Central Shops, *Audit of Central Shops at the Brookhaven National Laboratory*, ER-OC-89-10, May 1989, had reported that, for certain types of fabrication, Brookhaven could have saved costs of 25 to 40 percent if the work had been done by commercial machine shops rather than by Central Shops.

The objective of the audit was to determine whether Brookhaven prepared a make-or-buy analysis for its Central Shops.

## CONCLUSIONS AND OBSERVATIONS

Brookhaven did not prepare a make-or-buy analysis for its Central Shops. Even though Central Shops was one of Brookhaven's largest service functions, Brookhaven and the Department did not give a high priority to performing a make-or-buy analysis in part due to outsourcing restrictions in Brookhaven's collective bargaining agreement. Also, limitations in its financial system impeded the performance of a make-or-buy analysis. As a result, the Department and Brookhaven may be missing opportunities to reduce fabrication costs.

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Management should consider the issues discussed in this audit report when preparing its yearend assurance memorandum on internal controls.

(Signed)  
Office of Inspector General

## MAKE-OR-BUY ANALYSIS

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### **Make-or-Buy Analysis Was Not Performed for Central Shops**

Brookhaven had not prepared a make-or-buy analysis for its Central Shops. In its 1995 laboratory-wide make-or-buy plan, Brookhaven had identified Central Shops as a function that should be subjected to a make-or-buy analysis that would evaluate lower cost alternatives such as outsourcing. However, even though Central Shops is one of Brookhaven's largest service functions, an analysis was neither performed nor scheduled.

Furthermore, Brookhaven had not prepared a make-or-buy analysis to evaluate the impact on Central Shops of recent program changes. For example, recent completion of the Relativistic Heavy Ion Collider (RHIC), a high-energy physics user facility, will have a significant negative impact on Central Shops' workload. During its construction, RHIC had been the major user of Central Shops, and, over the last 3 years, 63 percent of Central Shops' productive hours had been spent on RHIC-related tasks. Also, in November 1999, the Department announced the permanent closure of another Brookhaven user facility, the High Flux Beam Reactor. While new work associated with the Large Hadron Collider, the Spallation Neutron Source, and the Booster Accelerator Facility will require Central Shops support, it is not expected to fully replace the RHIC workload.

### **Department Policy Required Make-or-Buy Analysis**

The Department has stressed the importance of make-or-buy decisions and outsourcing as a potential lower cost alternative. A 1994 report, *Making Contracting Work Better and Cost Less*, concluded that significant savings could accrue to the Government if functions not essential to the Department's core mission were performed by outside contractors. Likewise, a 1997 report, *Harnessing the Market: The Opportunities and Challenges of Privatization*, emphasized the need for a make-or-buy screening process that identifies services with outsourcing potential and conducting a cost-benefit analysis to determine whether such services can be outsourced at a lower cost.

Brookhaven's contract, which implements the requirements of the Department of Energy Acquisition Regulations (DEAR), requires Brookhaven to develop and implement a make-or-buy plan that establishes a preference for providing supplies and services on a least-cost basis. The contract also cites several other factors besides cost that need to be factored into the make-or-buy decision such as excellence in institutional management and facilities operations, quality considerations, and core institutional management competencies. In addition, DEAR 970.15407-2 requires the contracting officer to ensure that a make-or-buy plan is developed and implemented for all services with annual costs in excess of \$1 million or over 1 percent of the

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management and operating contractor's estimated operating costs, whichever is less.

**Make-or-Buy Analysis Was Not a High Priority**

Brookhaven and Department management did not give a high priority to performing a make-or-buy analysis. Brookhaven management did not consider Central Shops to be a function that offered a high probability to deliver savings through outsourcing. In addition, Brookhaven believes that a core competency of staff and equipment in Central Shops is essential to support Brookhaven's mission. However, Brookhaven management had not performed a formal cost-benefit study to support these assumptions. Moreover, the Department did not require Brookhaven to perform a make-or-buy analysis even though Central Shops exceeded the DEAR threshold for requiring such an analysis.

In addition, Brookhaven's ability to evaluate lower-cost alternatives was hindered by its collective bargaining agreement that placed certain restrictions on outsourcing. The agreement, effective August 1997, generally prevents Brookhaven from outsourcing a labor skill for one year if the number of union employees with the same skill drops below a fixed minimum level due to involuntary lay offs. For example, if a welder is involuntarily laid off and, as a result, the number of welders drops below the agreed-to level, the collective bargaining agreement prevents Brookhaven from outsourcing welding services for one year. This agreement is scheduled for renegotiation later this year.

Furthermore, Brookhaven's financial system could not readily provide sufficient cost data for a make-or-buy analysis because the system accounts for all Central Shops' work at a single average cost rate. Therefore, Brookhaven could not accurately compare the costs of specific tasks and functions at Central Shops to the costs of comparable tasks and functions at commercial machine shops. Brookhaven representatives advised us that they have been exploring ways to refine the rate charging methodology through use of Brookhaven's new financial system, which Brookhaven plans to implement this fiscal year.

**Opportunities to Reduce Costs May Have Been Missed**

Without a make-or-buy analysis, the Department and Brookhaven may be missing opportunities to reduce fabrication costs through outsourcing or other privatization initiatives. For example, we visited five local commercial machine shops and found that their rates for computerized numerically-controlled machining, manual

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machining, welding, and sheet metal work ranged from \$13 to \$33 per hour less than the Central Shops' charging rate. Other factors such as production time, craftsmen skills and experience, and machine precision can heavily influence final job costs, and Brookhaven's scientific programs will likely require that some level of core competency be maintained in-house. However, these significant rate differences point out that an analysis of potential savings through outsourcing is warranted.

Because Brookhaven's collective bargaining agreement has had a significant impact on outsourcing opportunities, it would behoove Brookhaven to perform a make-or-buy analysis prior to the upcoming renegotiation of the agreement. An evaluation of lower-cost alternatives would provide both parties with data to consider during the upcoming negotiations.

## **RECOMMENDATIONS**

We recommend that the Manager, Chicago Operations Office, direct Brookhaven, before negotiation of its next collective bargaining agreement, to:

1. Review its methodology for measuring and charging the costs of Central Shops services and make appropriate changes.
2. Perform a make-or-buy analysis for Central Shops that evaluates opportunities to reduce costs such as outsourcing and privatization.

## **MANAGEMENT REACTION**

Management concurred with the audit finding and recommendations.

## **AUDITOR COMMENTS**

We consider management's comments to be responsive.

## Appendix

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### SCOPE

The audit was performed from July 1999 to March 2000 at Brookhaven National Laboratory in Upton, New York.

### METHODOLOGY

To accomplish the audit objective, we reviewed:

- Brookhaven's contract provisions relating to its make-or-buy program;
- Brookhaven's policy and practices for obtaining machine services and charging Central Shops users;
- Prior audit reports;
- Central Shops' productivity and certain individual shop jobs;
- Brookhaven's collective bargaining agreement;
- Rates and productivity information from local commercial machine shops; and,
- Performance measures relevant to Central Shops.

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 and performance measures related to Brookhaven's Central Shops. 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. Our review did not rely on computer-processed data. Also, Brookhaven established performance measures under the Government Performance Results Act of 1993 for Central Shops. However, these measures did not specifically require a make-or-buy analysis.

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