

**Audit**



**Report**

OFFICE OF THE INSPECTOR GENERAL

OFFICE OF THE SECRETARY OF DEFENSE  
STANDARD COST FACTORS FOR THE COST OF  
BASE REALIGNMENT ACTIONS COMPUTER MODEL

Report No. 95-237

June 14, 1995

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Department of Defense

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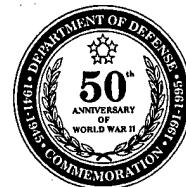
### **Acronyms**

BRAC  
COBRA  
TABS

Base Realignment and Closure  
Cost of Base Realignment Actions  
The Army Basing Study



**INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
400 ARMY NAVY DRIVE  
ARLINGTON, VIRGINIA 22202-2884**



Report No. 95-237

June 14, 1995

**MEMORANDUM FOR DEPUTY ASSISTANT SECRETARY OF DEFENSE  
(INSTALLATIONS)**

**SUBJECT: Audit of Office of the Secretary of Defense Standard Cost Factors for the  
Cost of Base Realignment Actions Computer Model  
(Project No. 4CG-5016.14)**

### **Introduction**

We are providing this report for your information and use. This report discusses the support for the Department of Defense standard cost factors that were used in the Cost of Base Realignment Actions computer model (COBRA) to calculate the costs and savings for the 1995 Defense base realignment and closure (BRAC) recommendations. The Deputy Assistant Secretary of Defense (Installations) requested the Inspector General, DoD, to verify the adequacy of the supporting documentation of the standard cost factors used in COBRA.

### **Audit Results**

We verified that 27 of the 36 standard cost factors and 2 static factors were supported by adequate documentation. However, available documentation did not support nine joint factors. Changes to the joint factors could result in insignificant changes to costs and savings for all 1995 BRAC recommendations.

### **Audit Objectives**

The objective of this audit was to determine whether 36 DoD standard cost factors and 2 static factors used in COBRA were supported by adequate documentation.

### **Scope and Methodology**

**Audit Scope.** The Assistant Secretary of Defense policy memo three, dated December 29, 1994, established 61 standard cost factors and 2 static factors to use in COBRA to calculate the costs and savings for the 1995 BRAC recommendations. We reviewed the 36 standard cost factors and 2 static factors that were applicable to all DoD installations. The standard cost factors were a representation of standard DoD-wide rates and were applied consistently in all DoD BRAC scenarios.

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**Audit Methodology.** We reviewed supporting documentation at the office of the Director, Base Closure and Utilization, and at the Army Basing Study (TABS) office. When detailed documentation was not available, we requested updates from the appropriate DoD organization. We also verified excerpts from applicable regulations.

**Audit Standards and Locations.** The program audit was conducted from February through March 1995. The audit was made in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did not rely on statistical sampling techniques and did not use computer-processed data. See Enclosure 3 for a complete list of the organizations visited or contacted.

### **Prior Audits and Other Reviews**

The Army Audit Agency issued Audit Report SR 95-761, "1995 Army Basing Study," April 7, 1995. The report included results of six objectives. The report states that the TABS process was adequate for developing recommended closures and realignments that complied with DoD guidance and met the intent of the BRAC Act of 1990. The TABS process was consistent with its management control plan and analytical procedures handbook. One specific objective of that audit was to evaluate the standard factors used in COBRA that are unique to the Army. The review of the objective concluded that the TABS had adequate procedures for developing accurate and reliable standard factors for calculating the costs and savings of Army basing alternatives.

The Army Audit Agency issued Audit Report SR 95-755, "Cost of Base Realignment Actions (COBRA) Model, The Army Basing Study 1995," January 6, 1995. The report states that the COBRA reliably calculated costs, savings, and net present values. Accuracy and consistency of COBRA are dependent on the accuracy of the factors and data. Thus, users should continue to have strong management controls to ensure that information in the system is accurate and complete.

### **Audit Background**

COBRA is a computer model used by DoD to estimate the costs and savings of BRAC scenarios. COBRA estimates the costs and savings associated with a proposed BRAC action, using data that are readily available to DoD without extensive field studies. COBRA incorporates data pertaining to three major costs: the cost of current operations, the cost of operation after the realignment or closure, and the cost of implementing the realignment or closure action. Using those costs, COBRA calculates the return on investment or the number of years necessary to generate enough savings to offset the cost of the realignment or closure. COBRA also computes the net present value of the BRAC action over a 20-year period, as well as one-time costs, 6-year costs and savings, and annual recurring costs and savings.

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The Assistant Secretary of Defense for Economic Security designated the Department of the Army as the executive agent for COBRA. The Department of the Army established the TABS office to coordinate and implement changes to COBRA. The TABS office established a Joint Process Action Team, which consisted of representatives from the Office of the Secretary of Defense, Military Departments, and Defense agencies. The Joint Process Action Team was responsible for controlling and documenting all changes to COBRA.

COBRA uses a set of formulas, or algorithms, that relies on the following three types of data elements in its calculations:

- base-specific data,
- scenario-specific data, and
- standardized data.

Base-specific data are applied to all BRAC scenarios involving a specific base. Examples of base-specific data include base operating costs and family housing costs. Scenario-specific data change with each BRAC scenario. Examples of scenario-specific data include the number of personnel to be relocated and the cost of military construction projects. Standardized data are applicable for all BRAC scenarios. Examples of standardized data are average unemployment cost and household goods packing cost.

The Assistant Secretary of Defense policy memo three established the standardized data (joint factors) that were to be applied consistently in all DoD BRAC scenarios. The Director, Base Closure and Utilization Office, and the TABS office retained the supporting documentation for the COBRA standard cost factors.

## Discussion

We reviewed the 36 joint factors and 2 static factors that were applicable to all BRAC scenarios. See Enclosure 1 for a complete list of the joint factors reviewed. The Military Department audit agencies reviewed the base-specific and scenario-specific factors for each Military Department.

Of the 36 joint factors and 2 static factors we reviewed, 27 joint factors and the 2 static factors were supported by adequate documentation. Of the 27 joint factors, 9 were supported by special studies prepared by the Military Department. We did not question the validity of those studies and accepted the joint factors as adequate. Two joint factors were properly supported by a citation in the Joint Travel Regulations. The two factors were not changed when the Joint Travel Regulations were updated in December 1994. However, the two factors only increased by 0.5 percent.

Available documentation did not support the following nine joint factors, as shown in Table 1.

**Table 1. Unsupported Standard Cost Factors**

| <u>Factor Number</u> | <u>Description of Standard Cost Factor</u>                         |
|----------------------|--|
| 8                    | Average Unemployment Cost  |
| 11                   | Civilian Turnover  |
| 12                   | Civilian Early Retirement  |
| 13                   | Civilian Regular Retirement  |
| 16                   | Priority Placement   |
| 17                   | Priority Placement System involving<br>Permanent Change of Station |
| 26                   | Homeowners Assistance Program Home Value Rate                      |
| 27                   | Homeowners Assistance Program Receiving Rate                       |
| 51                   | Household Goods Packing Cost                                       |

The average unemployment cost was incorrect because the wrong escalation factor was used in the calculation. The five joint factors related to civilian personnel (joint factors numbered 11, 12, 13, 16, and 17) were provided by the Civilian Assistance and Re-Employment Division, DoD Civilian Personnel Management Service, in a May 1994 letter. However, the Chief of the Civilian Assistance and Re-Employment Division did not have documentation to support the rates cited in the letter and the personnel who originated the May 1994 letter were no longer employed by the organization. We obtained information updated as of September 1994. The information was significantly different for four of the five factors.

Our calculation of the two joint factors related to the Homeowners Assistance Program resulted in different answers for those two factors. The Army Corps of Engineers is the executive agent for the Homeowners Assistance Program. The Army Corps of Engineers personnel were unable to explain the difference in the calculations.

The household goods packing cost joint factor was calculated incorrectly because the calculation did not consistently apply the same Joint Travel Regulations values used in calculating the other household goods joint factors, (joint factor numbers 47 through 50).

With the assistance of the General Accounting Office, we changed the four joint factors related to civilian personnel and the joint factor for average

unemployment cost in COBRA to determine the impact on the 1995 BRAC recommendations. The General Accounting Office also updated the two joint factors from the Joint Travel Regulations changes in December 1994. Table 2 provides a list of the seven revised cost factors.

**Table 2. Standard Cost Factors Revisions**

| Standard Factor Number | DoD COBRA Standard Factor            | Standard Factors |            |
|------------------------|--------------------------------------|------------------|------------|
|                        |                                      | Old              | New        |
| 8                      | Average Unemployment Cost            | \$174            | \$179      |
| 11                     | Civilian Turnover                    | 15 percent       | 4 percent  |
| 12                     | Civilian Early Retirement            | 10 percent       | 13 percent |
| 13                     | Civilian Regular Retirement          | 5 percent        | 7 percent  |
| 16                     | Priority Placement                   | 60 percent       | 50 percent |
| 22                     | Maximum Home Sale Reimbursement Rate | \$22,385         | \$22,492   |
| 24                     | Maximum Home Purchase Reimbursement  | \$11,191         | \$11,245   |

We processed COBRA for 14 installations that had the greatest number of civilian positions being eliminated and realigned. The return on investment increased by 1 year for only 2 of the 14 installations. The 14 installations' net present value decreased by 0.6 percent and their one-time costs increased by 3.2 percent. The General Accounting Office processed COBRA for all the DoD installations. The General Accounting Office concluded that the seven revised joint factors resulted in a decrease in net present value of 0.3 percent and increase in one-time cost of 2.7 percent.

We discussed our results with personnel of the Base Closure and Utilization Office. They indicated that the decreases and increases were within acceptable limits and believed that no action should be taken to officially change the joint factors.

**Management Comments**

We provided a draft of this report to the Deputy Assistant Secretary of Defense (Installations) on April 28, 1995. Because this report contains no findings or recommendations, written comments are not required. However, the Deputy Assistant Secretary of Defense (Installations) provided comments and concurred that no official action should be taken to change the standard cost factors used to calculate the costs and savings estimates. For the full text of management comments, see Enclosure 2.

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We appreciate the courtesies extended to the audit staff. If you have questions on this report, please contact Mr. Wayne K. Million, Audit Program Director, at (703) 604-9312 (DSN 664-9312), or Mr. John M. Delaware, Audit Project Manager, at (703) 604-9314 (DSN 664-9314). See the Enclosure 4 for the report distribution. The audit team members are listed inside the back cover.

*David K. Steensma*

David K. Steensma  
Deputy Assistant Inspector General  
for Auditing

Enclosures

## DoD Standard Cost Factors Reviewed

| Cost<br>Factor<br>Number | <u>DoD COBRA Standard Factor</u>                                   | OSD<br>Memo Three as of<br>December 29, 1994 |
|--------------------------|--|--|
| 8                        | Average Unemployment Cost  | \$174  |
| 9                        | Unemployment Eligible  | 18 weeks                                     |
| 11                       | Civilian Turnover  | 15 percent                                   |
| 12                       | Civilian Early Retirement  | 10 percent                                   |
| 13                       | Civilian Regular Retire  | 5 percent                                    |
| 14                       | Civilian Reduce in Force Pay Factor                                | 39 percent                                   |
| 15                       | Civilian Retirement Pay  | 9 percent                                    |
| 16                       | Priority Placement   | 60 percent                                   |
| 17                       | Priority Placement System Involving<br>Permanent Change of Station | 50 percent                                   |
| 18                       | Civilian Permanent Change of Station Cost                          | \$28,800                                     |
| 20                       | National Median Home Price   | \$106,800                                    |
| 21                       | Home Sale Price  | 10 percent                                   |
| 22                       | Maximum Home Sale Reimbursement Rate                               | \$22,385                                     |
| 23                       | Home Purchase Reimbursement Rate                                   | 5 percent                                    |
| 24                       | Maximum Home Purchase Reimbursement                                | \$11,191                                     |
| 25                       | Civilian Homeowning Rate   | 64 percent                                   |
| 26                       | Homeowners Assistance Program Home Value Rate                      | 22.9 percent                                 |
| 27                       | Homeowners Assistance Program Receiving Rate                       | 5 percent                                    |
| 30                       | Real Property Maintenance Activity Building Rate                   | .93  |
| 31                       | Base Operating Support Population Index                            | .54  |
| 32                       | Program Management   | 10 percent                                   |
| 33                       | Caretaker Administrative Space                                     | 162 SF                                       |
| 34                       | Mothball Cost  | \$1.25                                       |
| 43                       | Discount Rate  | 2.75 percent                                 |
| 44                       | Inflation Rate   | 0 percent                                    |
| 45                       | Inflation Rate for FY 1996   | 2.9 and 3 percent                            |
| 46                       | Material Per Assigned Person                                       | 710 lbs.                                     |
| 47                       | Officer Household Goods Weight                                     | 14,500 lbs.                                  |
| 48                       | Enlisted Household Goods Weight                                    | 9,000 lbs.                                   |
| 49                       | Military Household Goods Weight                                    | 6,400 lbs.                                   |
| 50                       | Civilian Household Goods Weight                                    | 18,000 lbs.                                  |
| 51                       | Household Goods Packing Cost                                       | \$35   |
| 52                       | Equipment Packing & Crating  | 284/ton                                      |
| 55                       | Privately-Owned Vehicle Reimbursement Cost                         | \$.18 per mile                               |
| 56                       | Air Transport Cost   | \$.20 per mile                               |
| 57                       | Miscellaneous Expenses   | \$700  |
| SC4                      | Civilians Not Willing to Move                                      | 6 percent                                    |
| SC4                      | Freight Cost per Ton-Mile  | \$.07  |

# Deputy Assistant Secretary of Defense (Installations) Comments



ECONOMIC SECURITY

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE  
3300 DEFENSE PENTAGON  
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30 MAY 1995

MEMORANDUM FOR INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

SUBJECT: Draft Audit Report on the Audit of the Secretary of Defense Standard Cost Factors for the Cost of Base Realignment Action Computer Model (Project No. 4CG-5016.14)

I have reviewed the draft report and concur in the auditor's conclusion that no official action should be taken to change the Standard Cost Factors used to calculate the costs and savings estimates for the Secretary's 1995 Defense base realignment and closure (BRAC) recommendations.

The Inspector General, DoD, has been a key part of the Department's BRAC process by providing a review of the support for the Department's Standard Cost Factors used in the Cost of Base Realignment Actions computer model. The involvement of the Inspector General enhanced the process by helping to ensure the accuracy, completeness, and integrity of the information used as a basis for development of the BRAC 95 cost and savings estimates.

Robert E. Bayer  
Deputy Assistant Secretary of Defense  
Installations



Enclosure 2

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## **Organizations Visited or Contacted**

### **Office of the Secretary of Defense**

Assistant Secretary of Defense (Economic Security), Washington, DC  
Deputy Assistant Secretary of Defense (Installations), Washington, DC  
Director, Base Closure and Utilization, Washington, DC

### **Department of the Army**

The Army Basing Study, Washington, DC  
Army Corp of Engineers, Washington, DC

### **Department of the Navy**

Base Structure Analysis Team, Alexandria, VA

### **Department of the Air Force**

Base Closure Working Group, Washington, DC

### **Other Defense Agency**

Department of Defense, Civilian Personnel Management Service,  
Civilian Assistance and Re-Employment Division, Falls Church, VA

### **Other Federal Organizations**

Department of Labor, Unemployment Insurance Service, Washington, DC  
Office of Personnel Management, Office of Actuaries, Washington, DC  
Department of Housing and Urban Development, Assistant Secretary for Policy  
Development and Research, Washington, DC  
Office of Management and Budget, Office of Economic Policy, Washington, DC  
General Accounting Office, Washington, DC

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House Subcommittee on National Security, International Affairs, and Criminal  
Justice, Committee on Government Reform and Oversight  
House Committee on National Security

## **Audit Team Members**

This report was produced by the Contract Management Directorate, Office of the Assistant Inspector General for Auditing, DoD.

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