



INSTALLATION REPORT OF AUDIT

**F2010-0006-FDM000
REVISED**

**American Recovery and Reinvestment
Act of 2009
Military Construction Requirements
167th Airlift Wing
West Virginia Eastern Regional
Airport, Martinsburg, WV**

Atlantic Area Audit Office

15 October 2009

INTRODUCTION

This report rescinds Audit Report F2010-0006-FDM000, American Recovery and Reinvestment Act of 2009, Military Construction Requirements, 167th Airlift Wing, West Virginia Eastern Regional Airport, Martinsburg WV dated 15 October 2009. Report is reissued to include audit results on an additional audit objective on Economic Analysis that was inadvertently excluded from the original report. On 17 February 2009, the President signed into law the American Recovery and Reinvestment Act of 2009. This provided the Department of Defense with \$2.3 billion in military construction projects. Of the \$2.3 billion in Military Construction Funds, the 167th Airlift Wing, West Virginia Air National Guard, Martinsburg, West Virginia received \$4.3 million to construct a C-5 Avionics shop.

OBJECTIVES

The Department of Defense Inspector General requested this centrally directed audit to determine if the 167th Airlift Wing properly managed Recovery Act Military Construction requirements. Specifically, we determined whether wing personnel:

- Conducted environmental studies for the Recovery Act project.
- Properly justified the Recovery Act project.
- Prepared an economic analysis or obtained a certificate of exception.
- Properly scoped and supported facility costs identified on the Department of Defense Form 1391, *Military Construction Project Data*.

CONCLUSIONS

The 167th Airlift Wing effectively managed the C-5 Avionics shop project requirements in two of the three areas reviewed. Specifically, wing personnel:

- Accurately identified environmental considerations and completed required analysis. Completion of these assessments ensures leadership considers environmental factors prior to commitment of resources and prevents environmental damage. (Tab A, page 1)
- Properly justified the Recovery Act project, therefore, the Air Force received a valid infrastructure improvement at

the installation. (Tab A, page 1)

- Properly obtained an economic analysis certificate of exception. As a result, it was determined that new construction was the best alternative for the C-5 Avionics shop project at the 167th Airlift Wing.
- Properly scoped the military construction project. However, National Guard Bureau/A7 personnel prepared the revised Department of Defense Form 1391, *Military Construction Project Data* and did not calculate the unit cost per square foot correctly, nor did they provide support documentation for the costs of the project identified on the military construction project data form. This resulted in approximately \$959,000 in cost overstatements. By eliminating the overstated costs, the Air Force could use these funds for other valid Recovery Act projects. (Tab B, page 2)

MANAGEMENT CORRECTIVE ACTION

During the audit, management implemented one corrective action to help correct the condition identified by audit. (Tab B, page 4).

RECOMMENDATIONS

Since management implemented corrective action during the audit, we made no recommendations in this report.

MANAGEMENT'S RESPONSE

Management officials agreed with the audit results contained in this report. Corrective actions taken are responsive to the issues included in this report. Therefore, this report does not contain disagreements requiring elevation for resolution.



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BACKGROUND

While the purpose of the American Recovery and Reinvestment Act of 2009 is to quickly infuse money into the United States economy, civil engineers must ensure military construction projects are fully justified and follow environmental guidelines. When a military construction project is planned, an environmental assessment must be completed to document the construction's impact on the environment. It also identifies any additional costs due to environmental factors.

Civil engineers must ensure military construction projects are fully justified and follow construction program guidelines. During the project planning stage, the civil engineer programmer justifies the need for the project by completing a Department of Defense Form 1391, *Military Construction Project Data*. The justification data on the form includes information about the project such as mission impact, people and productivity, and the effect if the project is not accomplished.

AUDIT RESULTS 1 — ENVIRONMENTAL CONSIDERATIONS

Condition. Civil engineer personnel accurately identified environmental considerations and completed required analysis. Specifically, a review of the Environmental Assessment disclosed that all required environmental analyses were accomplished.

Cause. This positive condition occurred because wing environmental personnel properly identified all local studies conducted and maintained evidence of completed analyses to evaluate the resource commitment and prevention of environmental damage.

Impact. The accomplishment of environmental analyses ensures that Air National Guard decision-makers consider environmental factors prior to commitment of resources and prevent environmental damage.

AUDIT RESULTS 2 — PROJECT JUSTIFICATION

Condition. Civil engineer personnel properly justified the Recovery Act project; therefore, the Air Force received a valid infrastructure improvement at the installation.

Cause. This positive condition occurred because civil engineer personnel followed the guidelines set forth in the Recovery Act and submitted their two most urgent requirements to the National Guard Bureau/A7 for consideration. The National Guard Bureau then made the selection of the C-5 Avionics shop based on available funds.

Impact. Effectively identifying the higher priority infrastructure problems will help improve Air Force operational productivity, mission readiness, and morale.

AUDIT RESULTS 3 — ECONOMIC ANALYSIS

Condition. Civil engineer personnel properly obtained an economic analysis certificate of exception.

Cause. This positive condition occurred because civil engineer personnel followed the guidelines set forth in the Recovery Act and properly obtained an economic analysis certificate of exception.

Impact. Based on the results of the economic analysis certificate of exception it was determined that new construction was the best alternative for the C-5 Avionics shop project at the 167th Airlift Wing.

BACKGROUND

Civil engineer programmer's plan or "scope" military construction projects. Part of scoping a project requires the programmer to develop space and infrastructure requirements, cost estimates, and record the data on the Department of Defense Form 1391, *Military Construction Project Data*. Costs estimates are categorized into primary (price per space unit, anti-terrorism force protection, and environmental conservation design costs) and supporting facility costs (utilities, pavements, communications, site improvements and other special requirements). Cost estimates are developed by using Department of Defense and Air Force guidance or other fully justifiable cost data. Air Force Instruction 32-1021, *Planning and Programming Military Construction (MILCON)*, 24 January 2003, paragraph 1.3.6, requires Major Command Military Construction program managers to validate costs listed on the Department of Defense Form 1391, *Military Construction Project Data* provided by the installation and ensure each line item is supported with *Parametric Cost Estimating System, Unified Facilities Criteria, and/or the Historical Air Force Construction Cost Handbook*, or fully justified with other acceptable cost data.

AUDIT RESULTS 3 — SCOPE AND SUPPORT

Condition. National Guard Bureau/A7 personnel did not properly prepare the revised Department of Defense Form 1391, *Military Construction Project Data*, when they selected the project for Recovery Act funding. Specifically, National Guard Bureau personnel did not:

- Accurately compute the unit costs of the square footage; therefore, the basis for all other costs was incorrect.
- Properly maintain support documentation for all other costs identified on the Department of Defense Form 1391, *Military Construction Project Data*.

DD Form 1391 Line Item ¹	Overstatement/ (Understatement)	Cause
Primary Facility Costs, General	\$581,000*	Incorrect unit cost per square meter.
Primary Facility Costs, LEED	\$ 48,000	Based on percentage of the incorrect Primary Facility Cost.
Contingency Cost	\$ 40,000	Based on percentage of the incorrect Primary Facility Cost.
Pavement	\$ 85,000	Could not determine how these costs were calculated.
Site Improvements	\$ 25,000	Could not determine how these costs were calculated
Utilities	\$ 100,000	Could not determine how these costs were calculated
Communications	\$ 20,000	Could not determine how these costs were calculated
Supervision, Inspection, and Overhead	\$ 59,000	Based on percentage of the incorrect Primary Facility Cost.
Approximate Overstatement/(Understatement)²	\$ 959,000	
*Personnel used an inaccurate <i>Unified Facilities Criteria</i> (UFC 3-701-07, 2 July 2007) formula to determine the unit cost per square meter. The unit costs used by personnel were \$2,565. The correct cost per square meter should be \$2,148, resulting in a difference of \$417 per square meter.		

Table 1. Inaccurate DD Form 1391 Requirements.

Cause. This condition occurred for three reasons:

- National Guard Bureau/A7 Facility Programmer did not calculate the square meters unit cost accurately per *Unified Facilities Criteria* (UFC 3-701-07, 2 July 2007).
- National Guard Bureau/A7 Facility Programmer did not recalculate and validate each construction line item to make certain that it was in line with PACES, *Unified Facilities Criteria*, and/or the *Historical Air Force Construction Cost Handbook*, or fully justified with other acceptable cost data.

¹ The Department of Defense Form 1391, *Military Construction Project Data*, provided by the National Guard Bureau programmer included costs based on square footage. For the purposes of this audit the square footage was converted to square meters and resulting costs data is based on square meter costs.

² Based on the conversion to square meters from square footage, the unit cost per square meter may vary slightly from the unit cost per square foot.

- Finally, wing civil engineer personnel did not request the specific source of every line item recorded on the Department of Defense Form 1391, *Military Construction Project Data* from the National Guard Bureau/A7 Facility Programmer to ensure cost estimates were accurate.

Impact. As a result, cost estimates listed on the construction data form were overstated by \$959,000. By eliminating the \$959,000 of overstated costs, the Air Force could use these funds for other valid Recovery Act projects.

Audit Comment. The following issues cannot be corrected at the wing level; therefore, they will be forwarded to the Audit Control Point for review and possible inclusion in an Air Force or Air National Guard report of audit.

- National Guard Bureau/A7 Facility Programmers did not calculate the square footage unit cost accurately.
- National Guard Bureau/A7 Facility Programmers did not recalculate and validate each construction line item to make certain that it was in line with *Parametric Cost Estimating System, Unified Facilities Criteria*, and/or the *Historical Air Force Construction Cost Handbook*, or fully justified with other acceptable cost data.

Management Corrective Action. On 17 September 2009, the 167th Lead Project Engineer contacted the National Guard Bureau/A7 and requested they provide support data for each cost estimate listed on the Defense Form 1391, *Military Construction Project Data* for placement in the project file. On the same day, National Guard Bureau/A7 personnel responded to the request and stated they were gathering the information and would provided to the Lead Project Engineer.

Evaluation of Management's Corrective Actions. Management's corrective actions taken are responsive to the issues in this tab.

AUDIT SCOPE

Audit Coverage. To determine whether 167th Airlift Wing personnel properly managed Recovery Act Military Construction requirements, we reviewed documentation dated from 13 February to 4 August 2009. We performed audit field work from 5 August to 17 September 2009 and issued a draft report to management on 30 September 2009.

- Environmental Considerations. To determine whether civil engineer personnel conducted environmental analyses for the project, we obtained and reviewed the Environmental Impact Statement. We compared assessed areas (air installation compatible zone/land use, air quality, water resources, safety and occupational health, hazardous materials/waste, biological resources, cultural resources, geology and soils and socioeconomic) to guidance and determined if appropriate areas were reviewed.
- Project Justification. To determine whether wing personnel properly justified the C-5 Avionics Shop construction project, we discussed this project with installation and National Guard Bureau civil engineer personnel. We obtained and reviewed the Department of Defense Form 1391, *Military Construction Project Data*, 167th Fighter, 167th Avionics Flight Manning Document, solicitation documents, specifications, drawings, and other project documentation. We also reviewed guidance including the Unified Facilities Criteria 3-701-07, *DOD Facilities Pricing Guide*, Air National Guard draft regulation 32-1084, *Facility Requirements*.
- Economic Analysis. To determine whether wing personnel prepared an economic analysis or certificate of exception, we requested a copy of the completed documentation, reviewed Air Force Instruction 65-501, *Economic Analysis*, 10 November 2004 and discussed requirements with installation and National Guard Bureau civil engineer personnel.
- Scope and Support. To determine whether civil engineer programmers properly scoped and supported primary and supporting facility costs, we compared square foot space requirements, unit costs, anti-terrorism force protection, environmental conservation design, utilities, pavements, communications, site improvements, contingency, design, and supervision, inspection and overhead costs estimates listed on the Department of Defense Form 1391, *Military Construction Project Data* against guidance requirements, such as *Unified Facilities Criteria 3-701-07*, *DOD Facilities Pricing Guide*, Air National Guard draft regulation 32-1084, *Facility Requirements*, Air National Guard Engineering *Technical Letter 01-1-1*, *ANG Design Policy*, and other relevant guidance. We obtained and reviewed documentation including construction cost estimates, Air Force Form 1477, *Construction Inspection Records*, various contracting data (including but not limited to construction specifications and drawings), manning document, and other support documentation. Additionally, we determined if personnel used appropriate size adjustment factors, area cost factors, escalation rates, and other calculation factors when preparing project cost estimates. We also discussed design and cost estimate

development with installation and major command civil engineer personnel. Finally, based on audit scope we converted the square footage costs on the Department of Defense Form 1391, *Military Construction Project Data*, to square meters and recalculated the costs based on square meters. However, we did not change lump sum cost data found on the Department of Defense Form 1391, *Military Construction Project Data*.

Sampling Methodology. The Department of Defense Inspector General developed an American Recovery and Reinvestment Act military construction sample based on predictive analysis of critical risk factors (a form of judgmental sampling). The factors were summed for each location and selections were made based on the highest risk factors. The Air Force Audit Agency received a sample of 13 military construction projects at Air Force and Air National Guard bases from the Inspector General. The C-5 Avionics shop was one of the 13 projects.

Computer Assisted Auditing Tools and Techniques. We used computer-assisted auditing tools and techniques to interpret, analyze, and summarize our audit results. Specifically, we downloaded the Treasury Account Symbol report dated 5 August 2009 from the *Federal Procurement Data System*. We used the Microsoft Excel® 'Filter' function to determine the number of Recovery Act contract items. Specifically, in the Microsoft Excel® version of the report, we filtered the report data by Contracting Agency Name and searched for the Department of the Air Force. We then further filtered the report by the Treasury Account Symbol Major Program, and selected 3830 for the Air National Guard Military Construction appropriation. We also performed the same steps for the Department of the Army, as United States Property and Fiscal Officer Contracts are reported under the Army. We did not identify any appropriation 3830 contracting actions in *Federal Procurement Data System* for the 167th Fighter Wing. In addition, we sorted audit source documents to determine the date range of documents reviewed.

Data Reliability. We extensively relied on computer-generated data contained in the *Commanders Resource Integration System* and *Electronic Data Access*. We did not evaluate the systems' general and application controls. However, we established the data's reliability by comparing physical evidence and available manual records to determine whether the data was sufficiently reliable to support the audit conclusions. Based on these tests, we concluded that the data were reliable in meeting the audit objective.

We also relied on computer-generated data contained in the *Automated Civil Engineer System – Project Management Module*. However, we did not evaluate the system's general and application controls. Instead, we established the data's reliability by comparing physical evidence and available manual records, such as comparing the DD Form 1391, *Military Construction Project Data* to Unified Facilities Criteria 3-701-07, *DOD Facilities Pricing Guide*, Facilities Board construction requirement data, and other supporting data to determine whether the data was sufficiently reliable to support the audit conclusions. Based on these tests, we concluded that the data were reliable in meeting the audit objective.

Auditing Standards. We accomplished audit work in accordance with generally accepted government auditing standards and, accordingly, included tests of internal controls such as reviews of appropriate validation documentation as well as the accurate and timely recording of

the validation process. Further, we evaluated other internal controls as considered necessary under the circumstances.

Discussion with Responsible Officials. We discussed/coordinated this report with the National Guard Bureau/A7 personnel; Commander, 167th Airlift Wing; Vice Commander, 167th Airlift Wing; Commander, 167th Civil Engineer Squadron; Commander, 167th Financial Management, and other interested officials. Management was advised this was part of an Air Force-wide evaluation of projects selected for funding under the *American Recovery and Investment Act 2009*; project F2009-FD1000-0659.000. Therefore, selected data not contained in this report, as well as data contained herein, may be included in a related Air National Guard report of audit.

PRIOR AUDIT COVERAGE

We did not identify any Air Force Audit Agency; Office of the Inspector General, Department of Defense; or United States Government Accountability Office reports issued to the National Guard Bureau or the 167th Fighter Wing within the past 5 years that related to our specific objectives.

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We accomplished this audit under project number F2009-FD1000-0659.003.

FREEDOM OF INFORMATION ACT

The disclosure/denial authority prescribed in AFPD 65-3 will make all decisions relative to the release of this report to the public.