



INSTALLATION REPORT OF AUDIT

F2009-0076-FDM000

**American Recovery and Reinvestment
Act of 2009 Requirements
169th Fighter Wing
McEntire Joint National Guard Base,
SC**

Atlantic Area Audit Office

18 September 2009

INTRODUCTION

On 17 February 2009, the President signed into law the American Recovery and Reinvestment Act of 2009, with the express purpose of stimulating the economy. The Recovery Act provided the Department of Defense with \$3.4 billion for facilities sustainment, restoration, and modernization projects. As of June 2009, the 169th Fighter Wing awarded one military construction project totaling \$1.5 million using Recovery Act funding.

OBJECTIVES

The Department of Defense Inspector General requested this centrally-directed audit to determine whether 169th Fighter Wing personnel properly managed Recovery Act sustainment, restoration, and modernization requirements. Specifically, we determined whether wing personnel:

- Conducted environmental studies for the Recovery Act project.
- Properly justified the Recovery Act project.
- Properly scoped and supported primary and supporting facility costs identified on the Department of Defense Form 1391, *Military Construction Project Data*.

CONCLUSIONS

The 169th Fighter Wing could improve management of Recovery Act requirements in two of the three areas reviewed. Specifically, wing personnel:

- Conducted environmental studies for the one Recovery Act project. Accomplishing environmental studies ensures Air National Guard leaders consider environmental factors prior to commitment of resources. Further, these studies can help prevent environmental damage. (Tab A, page 1)
- Properly justified the Recovery Act project; however, although the Wing's Vehicle Maintenance Complex sustainment and minor construction project was a valid project presented for Recovery Act funding, the project did not represent the most urgent requirement, greatest need, or most jobs created/retained. As a result, the Air Force spent \$1.6 million on a lower priority project, instead of using the \$500,000 difference for other Recovery Act construction efforts. Effectively identifying and correcting the higher priority

infrastructure problems will help improve Air Force operational productivity, mission readiness, and morale. (Tab B, page 2)

- Did not properly scope and support primary and supporting facility costs identified on the military construction project data form. By eliminating the \$310,053 of overstated costs, the Air Force could use these funds for other valid Recovery Act projects. (Tab C, page 4)

MANAGEMENT CORRECTIVE ACTIONS

During the audit, wing personnel implemented one corrective action to help correct the condition identified by audit. Specifically, the wing civil engineer documented the specific source of each cost estimate recorded on the original DD Form 1391. (Tab C, page 6)

RECOMMENDATIONS

We made no recommendations at the installation level to improve the overall effectiveness of Recovery Act projects. Issues contained in this report will be forwarded to the Audit Control Point for review and possible inclusion in an Air Force-wide report of audit.

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. During the planning stage of a military construction project, 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.

AUDIT RESULTS 1 – ENVIRONMENTAL CONSIDERATIONS

Condition. Civil engineer personnel conducted environmental studies for the Vehicle Maintenance Complex military sustainment and minor construction project for the 169th Fighter Wing at McEntire Joint National Guard Base. Specifically, reviews 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. Accomplishing environmental studies ensures Air National Guard leaders consider environmental factors prior to commitment of resources. Further, these studies can help prevent environmental damage.

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 construction programming guidelines. Installation commanders determine which facility needs cannot be met with existing facilities. 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. The National Guard Bureau Civil Engineer (NGB/A7) normally reviews and approves the Department of Defense Form 1391 submitted by the wing civil engineers for accuracy prior to submission to Congress for funding.

AUDIT RESULTS 2 – PROJECT JUSTIFICATION

Condition. Although the 169th Fighter Wing’s Vehicle Maintenance Complex sustainment and minor construction project was a valid project presented for Recovery Act funding, the project did not represent the most urgent requirement, greatest need, or most jobs created/retained. For example, another “shovel-ready” project (100 percent design) for an aircraft arresting system, totaling \$1.1 million, was not selected for Recovery Act funding, even though it was a higher priority and was estimated to cost at least \$350,000 less than the project selected.¹

Cause. This occurred because NGB/A7 selected the project and the National Guard Bureau Facility Programmer (NGB/A7AD) did not evaluate projects selected for special funding consideration to ensure they represented the most urgent requirements or were the highest priority for the 169th Fighter Wing per the Recovery Act goals. For example, NGB/A7 personnel did not request the 169th Fighter Wing Civil Engineer to provide a prioritized list of projects, though one was readily available (Facility Board Prioritization List). Further, the NGB/A7 did not consider which projects were the most urgent wing requirements, presented the greatest need, or created/retained the most jobs in accordance with the Act.

Impact. As a result, the Air Force spent \$1.6 million on a lower priority project, instead of using the \$500,000 difference for other Recovery Act construction efforts.² Effectively identifying and correcting the higher priority infrastructure problems will help improve Air Force operational productivity, mission readiness, and morale.

¹ The Add/Alter Vehicle Maintenance Complex project was originally estimated to cost \$1.45 million. The Aircraft Arresting System project was estimated to cost \$1.1 million, a total of \$350,000 less than the Vehicle Maintenance project.

² When Add/Alter Vehicle Maintenance Complex project contract was awarded, the contracted cost totaled almost \$1.6 million, fully \$500,000 more than the Aircraft Arresting System cost estimate.

Audit Comments.

- Comment B.1. The Aircraft Arresting System project was listed as a number one priority on the wing Facility Board meeting minutes, while the Vehicle Maintenance Complex was listed as a number three priority. The 169th Civil Engineer Commander stated although it appears the aircraft arresting system would have been a better justified project for Recovery Act funding; it may also have not been selected by the National Guard Bureau due to its relationship with a companion Airfield Pavement project, currently estimated to cost \$7.2 million. This is because it is assumed the wing would delay construction of the Airfield Pavement and Aircraft Arresting System projects until their planned deployment in May 2010. However, the 169th Civil Engineer Commander also stated he is not familiar with how the National Guard Bureau Facility Programmers selected potential Recovery Act projects for funding, as the NGB/A7AD did not request a prioritized project list from the 169th Fighter Wing.

- Comment B.2. This condition cannot be corrected at the wing level. Therefore, it will be forwarded to the audit control point for review and possible inclusion in an Air Force-wide report of audit.

Management Comments. Although formal management comments were not required, The Commander, 169th Fighter Wing, desired to comment on the report. The Commander concurred with the audit results and stated “This project was likely selected by the National Guard Bureau under severe time constraints and without the benefit of appropriate higher headquarters’ rules, oversight, and guidance required to implement the Act. NGB/A7 considered a number of factors in the nationwide selection of projects from 88 ANG wings. Our wing facility board minutes provide a basis for our wing’s facility and infrastructure project priorities for NGB/A7 to fund. Our understanding is that National leaders and Defense leaders had indicated *executability* of projects was of the utmost priority in terms of the program stimulating the economy; thus projects that were designed and ready to execute (“shovel ready”) were prioritized highly. McEntire JNGB is relatively unusual for the ANG in that the airfield is owned by the government, not jointly used by the ANG tenant and a civilian authority. The NGB planned a major airfield pavement renovation (\$7.2M) for FY10 to coincide with the projected deployment of our fighter wing aircraft; the right time to repair the airfield would be when the fighters are deployed. Thus NGB/A7 grouped the combined \$8.3M in projected airfield pavement repair and aircraft arresting system repairs into a single effort to be accomplished in FY10. This placed the project outside the boundaries of rapid execution needed to meet ARRA intent. This operational decision superseded the attractiveness of executing the arresting system repair project using ARRA funds. We agree in principle that whenever able, the wing should be involved in project selection for specialized funds when the decision is made at the Guard Bureau level.

Evaluation of Management Comments. Management’s comments are responsive to the issues in this tab.

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 (DD) Form 1391, *Military Construction Project Data*. Cost 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. The DD Form 1391 must be closely scrutinized by the installation civil engineer to validate cost estimates are in-line with guidance and are fully justified with historical and supporting cost data. Then, Air Force Instruction 32-1021, *Planning and Programming Military Construction Projects*, paragraph 1.3.6, requires Major Command Military Construction program managers to validate costs listed on the DD Form 1391 provided by the installation and ensure each line item is supported with *Parametric Cost Estimating System* (PACES), Unified Facilities Criteria, and/or the Historical Air Force Construction Cost Handbook, or fully justified with other acceptable cost data. The DD Form 1391 is documented in the *Automated Civil Engineer System – Project Management Module* (ACES-PM) and is used to explain and justify the project to all levels of the Air Force, Office of Secretary of Defense, Office of Management and Budget, and Congress.

AUDIT RESULTS 3 – SCOPE AND SUPPORT

Condition. Civil engineer personnel did not properly scope or support the *Add/Alter Vehicle Maintenance Complex* sustainment and minor construction project at McEntire Joint National Guard Base. For example, of the \$1.4 million programmed, personnel did not properly adjust program primary facility costs amounting to \$310,053. Specifically, the 169th Civil Engineer personnel initially programmed the DD Form 1391 in 2005; however, when the National Guard Bureau Facility Programmer (NGB/A7AD) selected the project for Recovery Act funding in 2009, civil engineers overstated some requirements by \$351,697 while understating others by \$41,643 (Table 1). Specifically, personnel:

- Overstated costs when they did not adjust the DD Form 1391 for a scope change to exclude the vehicle operations parking shed, totaling \$250,000 and by an additional \$101,697 by using an incorrect Area Cost Factor.³
- Excluded \$15,081 in required environmental conservation design (aka Leadership in Engineering and Environmental Design or LEED) costs, understated material costs by

³ The Area Cost Factor adjusts the cost of a facility based on the project location and cost of materials and contracting relative to that location. The Area Cost Factor for McEntire JNGB is 0.78, or 78 percent of Historical Cost Handbook estimated costs.

\$23,332 by using an incorrect Escalation rate,⁴ and inaccurately excluded Anti-terrorism/Force Protection costs worth \$3,230.

.DD Form 1391 Line Item	Overstatement/ (Understatement)	Cause
Construct Vehicle Operations Parking Shed	\$ 250,000	Inaccurate Scope Calculation; Scope Adjustment
Primary Facility Costs, General	101,697	Incorrect Area Cost Factor Used
Primary Facility Costs, LEED	(15,081)	Not Required When Originally Programmed; Required for FY09
Primary Facility Costs, Adjustment for Inflation	(23,332)	Not Required When Originally Programmed; Required for FY09
Primary Facility Costs, Anti- terrorism/Force Protection	(3,230)	Inaccurate Scope Calculation
Net Overstatement/(Understatement)	\$ 310,053	

Table 1. Inaccurate DD Form 1391 Requirements

Cause. The 169th Fighter Wing civil engineer did not document the specific source of each cost estimate recorded on the original DD Form 1391 or identify how the costs were derived. In addition, the NGB/A7AD Facility Programmer:

- Selected a “shovel-ready” (100 percent designed) project from ACES-PM and assumed the scope of the project would not change significantly after it was 100 percent designed. However, the original funding request in November 2007 was for \$1.45 million, and only \$1.4 million was approved for stimulus funding in April 2009. This funding amount then forced a change to the project scope, as the project funds would not allow all originally programmed construction work to be accomplished.⁵
- Did not validate requested square foot space requirements, consider changes in construction material costs, or adjust for inflation.
- 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.
- Did not document the specific source of each revised cost estimate when the project scope and cost estimates changed, record the changes on a new or revised DD Form 1391, or identify how the costs were derived.

⁴ Escalation or inflation factors are used to adjust current unit costs to the target or program year.

⁵The project scope change included the removal of a 10,000 square foot vehicle operations parking shed from the project specifications, totaling \$250,000, although the cost estimate was not removed from the approved DD Form 1391.

- Stated the Congressional Staffer requesting Recovery Act project lists did not provide any guidance requiring the NGB/A7AD to update the cost estimates, and the programmer may have misinterpreted the lack of guidance to mean the DD Form 1391 did not require new, updated cost estimates. Further, time constraints to provide a project list to Congress may also have prevented proper cost estimate updates.
- Stated neither NGB/A7 nor 169th Civil Engineer personnel were trained on Recovery Act construction project requirements.

Impact. By eliminating the \$310,053 of overstated costs, the Air Force could use these funds for other valid Recovery Act projects and achieve a potential monetary benefit.

Audit Comment. The NGB/A7AD cause issues identified above 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 National Guard report of audit.

Management Corrective Action. As of 15 September 2009, 169th Fighter Wing civil engineer personnel implemented a corrective action which should correct a portion of the condition identified. Specifically, personnel documented the specific source of each cost estimate recorded on the original DD Form 1391 and identified how the costs were derived. Therefore, no further recommendations are necessary.

Management Comments. Although formal management comments were not required, The Commander, 169th Fighter Wing, desired to comment on the report. The Commander concurred with the audit results and stated “A process is in place at NGB/A7AD to provide project scrutiny per their normal process; however, that process did not address construction requirements specific to the Recovery Act or other special funding situations. In this case, 169 FW and NGB/A7 staff members considered multiple factors in setting the Programmed Amount (PA) for the project. The ANG was granted \$25.8M in ARRA SRM funding; of necessity some project scope adjustments were made to keep the total program within this cap and the best known PA-per-unit-scope. Some engineering judgment was necessary to produce the required project list within the specified constrained timeline applied to the ARRA program. Some market conditions changed since the project was programmed and estimated. The selected contractor’s bid prices reflected an additional \$154,800 above the PA. Multiple bids were received; the project was competitively bid; the market price was fairly determined; the award price accurately reflects what the prevailing market in South Carolina would support at the moment bids were opened. We agree that the process could be refined for future reviews in the event additional stimulus or other special project funds become available.”

Evaluation of Management Comments. Management’s comments and the corrective actions taken are responsive to the issues in this tab.

AUDIT SCOPE

Audit Coverage. To determine whether 169th Fighter Wing personnel properly managed Recovery Act sustainment, restoration, and modernization requirements, we reviewed military construction data and other documentation dated from December 2002 to August 2009. We performed audit field work from 25 August to 2 September 2009 and issued a draft report to management on 17 September 2009.

- **Environmental Considerations.** To determine whether civil engineer personnel conducted environmental studies for the project, we obtained and reviewed the Environmental Assessment report. 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 Vehicle Maintenance Complex construction project, we discussed this project with installation and National Guard Bureau civil engineer personnel. We obtained and reviewed the DD Form 1391, 169th Fighter Wing Facility Board meeting minutes, a User Manning Document, Industrial Ventilation Surveys, 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*, construction project specifications, and other various guidance.
- **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 DD Form 1391 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, AF Form 1477, *Construction Inspection Records*, various contracting data (including but not limited to bid estimates), a User Manning Document, and other supporting 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.

Criteria. We reviewed the Unified Facilities Criteria 3-701-07, *DOD Facilities Pricing Guide*, 2 July 2007, a draft version of the Air National Guard regulation 32-1084, *Facility Requirements*, 24 April 2006, to calculate space requirements and unit cost estimates and to determine if personnel used appropriate size adjustment factors, area cost factors, escalation rates, and other

calculation factors when preparing project cost estimates. We also reviewed the Air National Guard Engineering Technical Letter 01-1-1, *ANG Design Policy*, March 2004, on communications design, technical reviews, and other ANG-specific design criteria. We reviewed the following Air Force criteria to identify policies and procedures associated with military construction: Air Force Handbook 32-1084, *Facility Requirements*, 1 September 1996; Air Force Instruction 32-1021, *Planning and Programming Military Construction Projects*, 24 January 2003; Air Force Instruction 65-501, *Economic Analysis*, 10 November 2004; *United States Air Force Project Managers Guide for Design and Construction*, 28 November 2007; and the *Historical Air Force Construction Cost Handbook*, February 2007. Finally, we reviewed all available Recovery Act guidance, including Public Law 111-5 on *The American Recovery and Reinvestment Act of 2009*, Office of Management and Budget guidance, Air Force Deputy Assistant Secretary for Contracting and Assistant Secretary for Acquisition guidance, Federal Acquisition Regulations, and the US Small Business Administration Office of the Inspector General Recovery Act Oversight Framework guidance.

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 list of all Air Force Recovery Act FSRM projects, to include Family Housing, Air Force Reserves, and Air National Guard. This list contained 1,548 projects at 107 locations valued at \$1.15 billion. The Audit Agency then judgmentally selected all locations with a project over \$7.5 million, resulting in six locations. We then selected 14 additional locations using a simple random sample, for a total of 20 audit locations. McEntire Joint National Guard Base was selected in the predictive analysis performed by the Department of Defense Inspector General.

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 (TAS) report dated 5 August 2009 from the Federal Procurement Data System (FPDS). 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 TAS 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 FPDS for the 169th 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 (ACES-PM)*. 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 to Unified Facilities Criteria, 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 this audit in accordance with generally accepted government auditing standards and, accordingly, included tests of management controls over documentation of transactions, document retention, and management oversight.

Discussion with Responsible Officials. We discussed/coordinated this report with the 169th Fighter Wing, 169th Mission Support Group, 169th Civil Engineer Squadron, and 169th Financial Management (Comptroller) Commanders, and other interested officials. We advised management that this audit was part of an Air Force-wide evaluation of *American Recovery and Reinvestment Act of 2009* facilities sustainment, restoration, and maintenance projects (Project F2009-FD1000-0516.000). Therefore, selected data not reflected in this report, as well as data contained herein, may be included in a related Air Force or Air National Guard report of audit. Management's formal comments were received on 15 September 2009 and are included in this report.

PRIOR AUDIT COVERAGE

A review of audit files and contact with installation officials disclosed no other audit reports issued to the 169th Fighter Wing by the Department of Defense or Air Force Inspectors General, the Government Accountability Office, or any audit agency within the past 5 years that related to our specific audit objectives.

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We accomplished this audit under project number F2009-FD1000-0516.032.

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.