Department of Homeland Security

Office of Inspector General

CBP Acquisition of Aviation Management Tracking System

OIG-12-104 (Revised)

August 2012

AUTHENTICATED U.S. GOVERNMENT INFORMATION GPO

OFFICE OF INSPECTOR GENERAL
Department of Homeland Security

Washington, DC 20528 / www.oig.dhs.gov

August 31, 2012

MEMORANDUM FOR: David V. Aguilar
Acting Commissioner
U.S. Customs and Border Protection

FROM: Carlton I. Mann
Acting Deputy Inspector General

SUBJECT: *Re-issuance of Audit Letter Report OIG-12-104, CBP Acquisition of Aviation Management Tracking System*

I am writing to inform you that the Department of Homeland Security (DHS) Office of Inspector General (OIG) has recalled the subject report and is now re-issuing it to modify the statement of compliance with generally accepted government auditing standards (GAGAS). We took these actions because it recently came to our attention that the family member of a senior OIG official was employed by an entity associated with this audit.

To ensure that this impairment did not affect our findings and conclusions, we thoroughly reviewed our work on this audit, as well as the results. Through this review, we verified that the impairment did not affect our results; our evidence is sound and fully supports our findings and conclusions. Therefore, we are re-issuing this report and re-posting it on our website. The report is unchanged except for the statement of compliance with GAGAS found on page 7 (Appendix A – Objectives, Scope, and Methodology).

We remain committed to assisting the Department in improving its effectiveness and efficiency to better carry out its mission, and we appreciate your support of our work. Please do not hesitate to call me at (202) 254-4100 if you have any questions or concerns.

Background

The Department of Homeland Security (DHS) has the world's largest law enforcement aviation organization. Both U.S. Customs and Border Protection (CBP) and the United States Coast Guard (USCG) have fleets of rotary and fixed-winged aircraft to support their missions. Since 2009, there have been numerous efforts to find efficiencies between the two components' fleets including efforts directed by the Secretary of the Department of Homeland Security.

As a result, the Office of Inspector General (OIG) is performing an audit to determine whether DHS and its components have developed efficiencies for the acquisition, conversion, and maintenance of CBP and USCG H-60 helicopters. During our audit, it came to OIG's attention that the CBP Office of Air and Marine (OAM) plans to acquire a new information technology (IT) aviation logistics and maintenance information system. At a meeting with CBP OAM officials on May 9, 2012, they stated they would decide on an IT system in the next 30 days.

Results of Review

Although there is a joint strategy to unify its aviation logistics and maintenance system with those of the USCG, CBP plans to purchase a new, separate system that will not be coordinated with the USCG's already operational system. This acquisition does not comply with the Secretary's efforts to improve coordination and efficiencies among DHS components and will reduce CBP's estimated cost savings.

CBP IT Systems

CBP currently uses the Computerized Aircraft Reporting and Material Control (CARMAC) system to record aircraft maintenance, determine operational status, control inventory, and perform other functions. However, the CARMAC system was implemented in 1979, is written in an outdated programming language, and is not user friendly, which makes it excessively expensive to maintain. As a result, CBP has decided to move to a new system to track and analyze this vital aviation logistics and maintenance data.

According to officials, CBP originally planned to purchase two separate IT systems to replace CARMAC. One, NASA's Aviation Maintenance Information System (NAMIS), would support only CBP P-3 long range patrol aircraft programs. The other similar but

separate system, IBM's Maximo Asset Management System (MAXIMO), would track information for all remaining CBP aviation platforms. CBP's IT department denied OAM's plan to acquire two separate systems. Currently, OAM is determining which of the two systems it will select to replace CARMAC.

CBP OAM officials estimate it will cost more than $21 million to maintain CARMAC for the next 5 years. They estimate a new replacement system will cost approximately $7 million to acquire and operate over the next 5 years. OAM officials also stated that CBP would not migrate the legacy CARMAC information into the new system to preserve the new system's integrity because the CARMAC information is incomplete and cumbersome. CBP plans to keep CARMAC operational for an undetermined length of time to support any historical data requirements.

USCG IT Systems

Currently, the USCG owns and maintains the Asset Logistics Management Information System (ALMIS) for managing aircraft (and surface) logistics, maintenance, and operational information. ALMIS is accredited under National Institute of Standards and Technology (NIST) IT system security standards in NIST Special Publication 800-37 and supports comprehensive maintenance, operations, and logistics for more than 200 USCG aircraft across the nation. ALMIS is already cleared and operational in the DHS IT infrastructure. The USCG is updating its IT systems to the Coast Guard Logistics Information Management System (CG-LIMS). All data from ALMIS will be migrated to CG-LIMS during this technology refresh. The USCG has been conducting a detailed acquisition of this software since 2006.

Secretary's Direction

DHS' FY 2013 budget submitted to Congress emphasizes the importance of consolidating and streamlining systems and operations as much as possible to ensure cost savings for the Department. In a March 21, 2012 hearing before the Senate Appropriations Committee, the Secretary of the Department of Homeland Security highlighted senior leadership's efforts to analyze the roles and missions of DHS' aviation assets to increase their effectiveness through increased coordination and collaboration. The Secretary specifically mentioned "increased cross-Component collaboration for aviation-related equipment and maintenance by establishing excess equipment sharing, maintenance services, and contract teaming agreements, as well as other opportunities for aviation related efficiencies."

Joint CBP/USCG Strategy-Aviation Information Management Systems

In DHS' Customs and Border Protection FY 2011-15 Resource Allocation Decision, DHS directed:

> CBP and USCG will provide to the PRB by January 29, 2010, a joint strategy to achieve compatible or unified information management systems, with the goal of interoperable systems (to include a common lexicon and capacity to automatically share information) by 2014.

In response, CBP and the USCG drafted the *Joint CBP/USCG Strategy - Aviation Information Management Systems (2010)* (joint CBP/USCG strategy) outlining the numerous systems used by the two agencies to track aviation logistics, maintenance, and other information. The strategy concludes that integration of legacy systems is generally more difficult and expensive than migrating to a new generation data system. It further states that "a phased approach to achieving compatible or unified aviation management information systems between CBP and the USCG will likely achieve the best results." More importantly, the strategy calls for first unifying the CARMAC and ALMIS logistic and maintenance systems because they have the most commonality and require the least effort and resources. Finally, the strategy details steps to plan and implement unification of CBP and the USCG's information management systems.

Conclusion

Although there is a joint CBP/USCG strategy to unify the two components' aviation management information systems, OAM plans to acquire a new, separate IT system for its aircraft. This plan would continue past practices of obtaining disparate systems that cannot share information with other components, including the USCG. Instead, CBP should promptly terminate this planned acquisition and instruct OAM to transition its aviation logistics and maintenance tracking to the USCG's ALMIS, in accordance with the Secretary's efficiency initiatives and the joint CBP/USCG strategy. By transitioning to the USCG's ALMIS, CBP will improve the effectiveness of aviation management information tracking for itself and DHS and save more than the OAM-estimated $7 million.

Recommendations

We recommend that the Acting Commissioner of the U.S. Customs and Border Protection:

Recommendation #1:

Terminate any new acquisitions by the Office of Air and Marine of aviation logistics and maintenance information management IT systems; and

Recommendation #2:

Direct the Office of Air and Marine to coordinate with the United States Coast Guard to transition its aircraft reporting and material control processes and procedures to the United States Coast Guard's Asset Logistics Management Information System.

Management Comments and OIG Analysis

CBP submitted formal comments to our report. A copy of the response is included as appendix B. The USCG also provided technical comments to CBP for the report, but CBP did not provide these to OIG. We obtained them through USCG representatives. Both the USCG's technical comments and CBP's management comments are summarized below and incorporated in the final report where appropriate. CBP did not concur with our two recommendations. Our analysis of CBP's non-concurrence follows.

USCG Technical Comments

The USCG provided technical comments to CBP and subsequently forwarded those comments to the OIG for review and consideration. USCG's technical comments focused on two elements—its work to upgrade its own systems and the difficulties in transitioning CBP to the USCG's system. Upon receipt, OIG staff discussed the comments with USCG technical representatives for additional clarification.

OIG is aware that the USCG is updating its IT systems to CG-LIMS. This technology refresh will include ALMIS, and all data from ALMIS will be migrated to CG-LIMS. The USCG has been conducting a detailed acquisition of this software beginning in 2006. USCG officials confirmed that the sooner CBP commits to transitioning to ALMIS, the more input CBP could have into the final CG-LIMS.

The USCG is concerned about both ALMIS' ability and the cost to communicate with CBP finance and human resources systems. OIG understands that CARMAC does not currently share information directly with either CBP's finance system or its human resource systems. Managing CBP logistics and maintenance information in the USCG's ALMIS would be similar to CBP CARMAC's current processes, but would include the potential to integrate CBP finance and human resource systems with CG-LIMS in the future, if properly planned and implemented. The USCG questioned CBP's current technological integration and cost estimates for procuring any new logistics and maintenance system, concluding that for CBP to acquire either of the two systems would cost much more than $7 million.

CBP Management Comments

Management Comments to Recommendation #1

CBP did not concur: CBP stated that due to the size of its fleet, and the inefficient and ineffective CARMAC system currently used to track vital aviation logistics and maintenance data, OAM cannot wait indefinitely to transition to a new aviation information system when sufficient CBP resources are neither available nor likely to be available soon for implementation.

OIG Analysis: CBP implied IT planning time and resources are scarce. We contend that, when there are existing systems available to meet CBP's needs, quickly purchasing a new IT system outside of DHS is not the proper response. There is a high risk that the inadequately researched new system will not meet CBP's IT needs. CBP should instead use the available time and resources to thoroughly analyze and determine the most effective way to use the already functional system within DHS that the USCG owns and operates. This will mean adjusting CBP's business practices to align with the USCG's; however, CBP's transition to any new system will require this adjustment. Transitioning to the USCG's ALMIS and CG-LIMS would follow the joint CBP/USCG strategy, as well as the Secretary's goal for "one DHS."

Management Comments to Recommendation #2

CBP did not concur: CBP stated that it would be irresponsible to agree to implement the recommendation to transition to ALMIS without a substantive assessment of commercial and/or other government-owned alternatives. CBP also stated that the USCG is currently migrating from ALMIS to an upgraded system. CBP believes that transitioning to the USCG's system will cost more for itself and the USCG, especially during initial start-up, and that consolidating IT systems does not always lead to efficiencies that outweigh the costs. Finally, CBP stated that CBP's and the USCG's use

of different general ledger and human resource systems would adversely affect the joint use of a common logistics IT system.

OIG Analysis: Since 2004, studies and reports conducted by numerous internal and external organizations have pointed specifically to unifying CBP and USCG logistics and information management processes into one system. CBP has resisted efforts in the past and continues to not take the necessary first step to align similar systems and operations between DHS components.

CBP also continues to argue that "merging" systems is cumbersome, costly, and difficult. However, regardless of which new system is used, CBP will need to adjust its data collection processes, and most of the existing corrupt CARMAC data will not be moved to any new system. This is an ideal time for CBP to transition to the USCG system using the existing data fields and processes already developed and implemented by the USCG. CBP is correct that the USCG will eventually migrate the data from ALMIS to CG-LIMS during the process of refreshing the IT systems. However, this technology refresh is an updating process that will not interfere with ongoing ALMIS operation. With CBP's cooperation, the updated version could potentially be more suited to fit CBP and DHS's needs. The USCG is not migrating away from ALMIS, but improving the system with CG-LIMS to include functions for connecting maintenance, supply, logistics, finance, and human resources systems and functionality.

CBP believes that OIG did not consider commercial or other government-owned alternatives. OIG staff reviewed white papers provided by CBP on those systems and came to the conclusions in the report. The IT systems CBP is considering would be hosted outside of CBP and DHS, just as CARMAC has been in the past, which led to major data integrity and access problems. Furthermore, if CBP selects NASA's NAMIS, CBP would be transitioning more than 270 aircraft into a system that currently only supports 104 NASA aircraft. CBP would have more than a 72 percent stake in a system over which it has no ownership or control. In addition, acquiring the commercial alternative MAXIMO would neither align with the joint CBP/USCG strategy, nor follow the Secretary's direction to "increase cross-Component collaboration for aviation-related equipment and maintenance."

CBP did not disagree with OIG that the joint CBP/USCG strategy confirmed aligning these logistics and maintenance processes and systems is a first step. It has been more than 8 years since the Department formed and since ALMIS was identified as the system DHS components should use for aviation logistics and management tracking. However, CBP will further delay this alignment if it acquires yet another disparate IT system outside of DHS.

Appendix A
Objectives, Scope, and Methodology

The Department of Homeland Security (DHS) Office of Inspector General (OIG) was established by the *Homeland Security Act of 2002* (Public Law 107-296) by amendment to the *Inspector General Act of 1978*. This is one of a series of audit, inspection, and special reports prepared as part of our oversight responsibilities to promote economy, efficiency, and effectiveness within the Department.

We conducted this review within the scope of our audit *Developing Efficiencies for the Acquisition, Conversion, and Maintenance of CBP and USCG H-60 Helicopters* (12-102-AUD-DHS). During audit fieldwork information pertaining to the acquisition of a new IT system was brought to our attention. We talked with CBP personnel regarding their plans for acquiring a new system for tracking aviation management information, reviewed the joint strategy drafted by CBP and the USCG on the feasibility of joining systems, and reviewed white papers on the potential replacement systems CBP was considering purchasing. We also reviewed Congressional testimony provided by the Secretary of the Department of Homeland Security on improving efficiencies in DHS.

We conducted this performance audit between January and May 2012 pursuant to the *Inspector General Act of 1978*, as amended, and according to generally accepted government auditing standards, except that we identified an impairment to our independence in appearance. Following completion of our audit, it came to our attention that a family member of a senior OIG official was employed by an entity associated with this audit. We took steps to re-evaluate the evidence supporting our findings and conclusions. In our opinion, the impairment to our independence in appearance did not affect the findings and conclusions developed during this audit.

GAGAS requires that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based upon our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based upon our audit objectives, and that the impairment to our independence in appearance did not affect this evidence or any findings and conclusions.

Appendix B
Management Comments to the Draft Letter Report

1300 Pennsylvania Avenue NW
Washington, DC 20229

U.S. Customs and Border Protection

June 11, 2012

Charles K. Edwards
Acting Inspector General
U.S. Department of Homeland Security
245 Murray Drive, SW, Building 410
Washington, DC 20528

Re: Office of the Inspector General (OIG) Draft Report, "CBP Acquisition of Aviation Management Tracking System" (12-153-AUD-USCG, CBP)

Dear Mr. Edwards:

Thank you for the opportunity to review and comment on this draft audit report, which we note was prepared as a spin-off from an audit announced in January 2012. This still ongoing audit is looking at whether the U.S. Department of Homeland Security (DHS) and its components have developed efficiencies for the acquisition, conversion, and maintenance of U.S. Customs and Border Protection (CBP) and U.S. Coast Guard (USCG) H-60 helicopters.

CBP is pleased that the report acknowledges many of the challenges associated with its current aircraft maintenance and inventory system, the Computerized Aircraft Reporting and Material Control (CARMAC) system, perhaps most importantly—during this time of severely constrained budgets—that the system is old and "excessively expensive to maintain." CBP also appreciates the OIG's references to an existing joint strategy document, prepared in 2010, intended to help guide CBP and USCG to achieve compatible or unified aviation-related information management systems and increased efficiencies.

Unfortunately, OIG's findings and recommendations related to CARMAC do not appear to have fully considered the conclusions reached by the subject matter experts who prepared this strategy and overall CBP budget realities. More specifically, the experts found that any consolidation of legacy data systems would require considerable planning, oversight, resources, and the development of an implementation plan. Developing such a plan would require the establishment of a dedicated project office staffed with information technology (IT) and other experts from USCG, CBP, and potentially other components with support system(s) that could also possibly be interfaced with any system to be jointly used by CBP and USCG.

The 2010 strategy also recognized the lack of available resources (e.g., personnel) to accomplish this effort. In addition, it identified the need to (1) generate a rough order of magnitude cost estimate for potential increased near term costs, and (2) a realistic return on investment. Finally, the strategy documented that the process of unifying information

management systems would have limited benefits unless CBP and USCG standardized operations, mission support, and accounting processes prior to the effort. Only after common processes are implemented could CBP and USCG implement mutually beneficial common IT processes and infrastructure.

The OIG is correct in reporting that the strategy identified CBP's CARMAC and USCG's Aviation Logistics Management Information System (ALMIS) systems as having the most commonality and potentially requiring the least resources to integrate. As such, these logistics and maintenance systems were originally proposed to be included in the first phase of aviation information management system unifications. However, the USCG is currently migrating from ALMIS to the Coast Guard Logistics Information Management System (CG-LIMS). While CBP supports Department-wide efforts to achieve efficiencies and remains supportive of the potential for future integration of IT systems with USCG, the specific recommendation appears counterproductive at this time.

In addition, the potential integration of any systems will still require CBP to first establish a project office with USCG and complete other extensive prerequisite steps, none of which can be successfully accomplished in short order. CBP coordinates extensively with USCG regarding aviation-related issues and firmly supports increased interoperability and efficiencies. However, CBP does not currently have the resources needed to effectively pursue implementation of the strategy given competing mission priorities and demands.

The draft report contained two recommendations to the Acting Commissioner of CBP, both of which CBP non-concurs with. Specifically:

Recommendation 1: Terminate any new acquisitions by the Office of Air and Marine of aviation logistics and maintenance information management IT systems.

Response: Non-concur. CBP's Office of Air and Marine (OAM) is the world's largest aviation and maritime law enforcement organization with more than 1,200 Federal Agents, operating from 80 air and marine locations, with more than 270 aircraft of 26 different types, and 300 marine vessels. The mission of OAM is to protect the American people and Nation's critical infrastructure through the coordinated use of integrated air and marine forces to detect, interdict and prevent acts of terrorism and the unlawful movement of people, illegal drugs and other contraband toward or across the borders of the United States. CBP performs this mission 24 hours per day, seven days a week, 365 days a year, which includes providing support to U.S. Immigration and Customs Enforcement (ICE), USCG, Joint Interagency Task Force South, and other federal, state, and local law enforcement agencies.

As the OIG acknowledges, OAM faces numerous challenges using CARMAC to track and analyze "vital" aviation logistics and maintenance data related to aircraft maintenance, operational status, and other functions.

OAM simply cannot wait indefinitely on the aviation information systems unification effort when sufficient resources are neither now available nor likely to be available anytime soon for its implementation. OAM must replace the outdated CARMAC system to improve mission efficiency and effectiveness. To do otherwise would be irresponsible.

Recommendation 2: Direct the Office of Air and Marine to coordinate with the U.S. Coast Guard to transition its aircraft reporting and material control processes and procedures to the U.S. Coast Guard's Aviation Logistics Management Information System.

Response: Non-concur. CBP disagrees with the OIG's apparent and incorrect conclusion that consolidating IT systems always leads to efficiencies that outweigh the costs. It would be irresponsible for CBP to agree to implement this recommendation without first having a substantive assessment of commercial and/or other government-owned alternatives, which the OIG's report does not provide.

The OIG is correct in stating that USCG owns ALMIS and it has been accredited under National Institute of Standards and Technology IT system security standards, and is operational on the DHS IT infrastructure. However, USCG has notified CBP that it is migrating away from ALMIS to an upgraded system.

Additionally, the report does not sufficiently recognize the need to perform extensive planning and analysis prior to determining the feasibility and actual costs of consolidating CARMAC and USCG systems, and that the resources needed to do this are not available. For example, a comparison and Business Case Analysis (BCA) of CBP and USCG system requirements has not been accomplished to determine just how compatible the systems are. In addition, CBP general ledger and human resources systems are not compatible with counterpart USCG systems, which would adversely affect the joint use of a common logistics IT system.

As the OIG highlighted in its report, the subject matter experts who prepared the 2010 aviation information systems unification strategy noted the "integration of legacy systems is generally more difficult and expensive than a migrating to a new generation data system." They also recognized that the eventual implementation of an agreed-upon approach could require modifications to the end-state host system(s), hardware and/or software changes to support the migration or the migration by both agencies to an entirely new system.

CBP also disagrees with OIG's assertion that using a USCG system in place of a unique OAM solution would allow OAM to "save more than $7 million." . To the contrary, instead of any savings being achieved, OAM expects a net cost increase for CBP, especially during start-up. In addition, transitioning CARMAC to a USCG system will likely result in increased costs to USCG, but absent a detailed BCA costs are purely notional

If you have any questions, please have a member of your staff contact Joe Westmoreland, Deputy Director for Audit Liaison, Office of Internal Affairs, at (202) 325-7556.

Sincerely,

James F. Tomsheck
Assistant Commissioner
Office of Internal Affairs

Appendix C
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