



# *National Archives and Records Administration*

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Date : April 16, 2009

Reply to

Attn of : Office of Inspector General (OIG)

Subject : Advisory Report No. 09-11, OIG Monitoring of the Electronic Records Archives Program Status

To: Adrienne Thomas, Acting Archivist of the United States (N)

This advisory report, informing you of the status of the "Base"<sup>1</sup> Electronic Records Archives (ERA) Program, is the second report resulting from our continuing effort to evaluate and report on government and contractor efforts associated with developing the Electronic Records Archives. This initiative focuses on assessing whether (a) the ERA Program is meeting cost and schedule requirements, and (b) NARA and contractor management officials are taking timely action to correct any actual or potential problems with program performance. Future status reports will be provided to you as warranted.

ERA Program development has been proceeding on two separate tracks: the ERA Base System and the Executive Office of the President (EOP) System, which will provide ingest, search, and retrieval capabilities for the records of the George W. Bush Administration. These records were scheduled to be transferred to the National Archives and Records Administration (NARA) on January 20, 2009. Since the issuance of our first status report in December 2008, emphasis has been on developing the EOP System. In fact, there has been limited development of the Base ERA System since the Initial Operating Capability (IOC)<sup>2</sup> which occurred, June 26, 2008. (See Attachment 1 for additional ERA Program information.)

In our first program status report, we concluded that, in our opinion, because of funding and other issues, it was likely that the ERA System would not achieve Full Operating Capability (FOC)<sup>3</sup> as originally envisioned, i.e., the ERA will not have all the desired functionality when the development contract with the Lockheed Martin Corporation (LMC) ends in March 2012. We

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<sup>1</sup> The "Base" ERA will provide basic electronic records management capability for NARA legacy data and records and for current transactions of other federal agencies.

<sup>2</sup> *Initial operating capability* (IOC) is the state achieved when a capability is available in its minimum usefully deployable form. The date at which IOC is achieved often defines the in-service date (ISD) for an associated system. Declaration of an initial operating capability implies that the capability will be developed in the future, for example by modifications or adjustments to improve the system's performance, deployment of greater numbers of systems (perhaps of different types), or testing and training that permit wider application of the capability. Once the capability is fully developed, full operating capability may be declared.

<sup>3</sup> *Full Operating Capability* (FOC), initially derived from the Department of Defense, is traditionally defined as when a deliverable is available that is capable of fully accomplishing the mission or criteria for which it was developed. For example, a runway under construction would reach FOC when the aircraft for which it was designed are able to land and receive required ground support.

continue to be concerned that additional funding will be needed to complete the program, and that no one knows when, or if, the ERA may be fully operational.

As stated previously, recent program activity has focused on development of the EOP System. However, for the remainder of fiscal year (FY) 2009, the program office plans to reinstate development of the Base System requirements, including items originally planned for IOC but deferred. In addition, work on the Base System will also involve initial analysis and design for follow-on development of the system, including preservation and public access capabilities. Also, we noted that (a) the Rocket Center Operations site is now fully staffed and operational, and (b) NARA is currently importing legacy data, and 106 user accounts have been loaded into the Base System.

The ERA Contracting Officer issued a letter to the Lockheed Martin Corporation on December 15, 2008 informing the contractor that not all required system capabilities were available at the time the ERA was publicized as having achieved IOC. According to that letter, NARA officials had performed a "gap analysis," called the "Option 1 Overrun Gap Analysis," comparing the system as defined in Lockheed Martin's Critical Design Review documents with the system actually provided to the government by the contractor at IOC. The Gap Analysis contained a list of 19 items significant to the successful functioning of the ERA System. For example, the analysis identified the following problems with system capabilities: (a) ERA System capabilities are limited in terms of monitoring and managing the system; (b) no capability exists to list, edit, add, delete, enable, or disable business rules; (c) no deletion capability is supported, be it archival asset or business object; (d) a required commercial-off-the-shelf (COTS) report generation tool was not provided by the contractor; (e) system capabilities pertaining to roles, groups, authentication, and access control is disjointed and hard to maintain; and (f) no ability exists to recover from system failures. (See Attachment 2 for a list of the Base System capabilities that were not provided by the contractor.)

According to that "draft"<sup>4</sup> Gap Analysis, "The set of capabilities delivered at IOC was a subset of the requirements set of what had been originally been contractually allocated for IOC, as defined and refined over time at the System Requirements Review (SRR), Preliminary Design Review (PDR), and culminating at the Critical Design Review (CDR), as well as the Technical Interchange Meeting (TIM) of January 2007. The ERA Program Management Office (PMO) judged that reducing the scope of the IOC was necessary in order to enable LMC to deliver in reasonable time a system that NARA could make meaningful use of, even though it would not provide all necessary functionality. The implementation of certain capabilities is now reallocated to the later stages of development."

The Gap Analysis also stated that, "The result of 1) LM's inability to meet the original established scope of the IOC, and 2) NARA's finding it in the best interest of the Agency to slip the deadline of the ERA IOC as little as possible past June 2008, was that the NARA PMO repeatedly reduced its expectation of the requirements fulfilled by the IOC deadline." Further, "The diminished set of requirements selected for the IOC delivery in no way reduced LM's contractual responsibility to fulfill the scope of work it undertook, and for which it has already received funding."

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<sup>4</sup>The NARA employee responsible for its preparation did not have time to finalize it.

Lockheed Martin was requested to provide a response, with appropriate cost and price breakdown and performance/delivery dates, on or before February 13, 2009. However, according to a senior NARA program official, Lockheed failed to comply with this request. Instead, NARA and contractor program officials verbally agreed to address these requirements during negotiations for Increment 3, after an Integrated Master Plan is prepared. The OIG requested that NARA officials provide any and all documentation concerning the verbal agreement relieving Lockheed of the responsibility of providing a proposal for performing effort related to items identified in the Gap Analysis. To date, they have not provided the requested documentation.

NARA officials expect to begin contract negotiations with Lockheed around mid-May. The senior NARA official told us that these are critical issues, and the way the system was designed many of these issues must be addressed in order for the system to evolve with the needed functionality. Because work on Increment 3 was initially scheduled to begin during March 2008, we believe that the ERA FOC will most likely be further delayed beyond the scheduled March 2012 date, resulting in increased costs to complete the program.

We also noted that the contractor has been reporting favorable contract cost and schedule performance, even though critical ERA requirements have been shifted to later increments, i.e., the contractor's Cost Performance Reports (CPRs) do not reflect the true status of the program. According to the contractor's February 18, 2009 Cost Performance Report (CPR)<sup>5</sup> for the ERA development contract, as of January 23, 2009, the (a) contract effort was progressing satisfactorily in accordance with the schedule (Note: There was a favorable cumulative schedule variance of \$138,000), and (b) contract cost performance was also satisfactory (Note: The actual cost of work performed by LMC was \$1,905,000 less than the amount budgeted for that work). At completion of contract effort in March 2012, the contractor estimates that total contract costs will be \$2,327,000 less than the amount budgeted for the contract. In our opinion, the shifting of requirements to future increments makes it increasingly apparent that the current contract with LMC will have to be extended or a new follow-on contract awarded, to complete the program.

If you have any questions concerning the information presented in this Advisory Report, or there are other areas of the ERA Program that you would like for us to review, please do not hesitate to contact me.

Paul Brachfeld  
Inspector General

cc: NH (M. Morphy)

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<sup>5</sup> The *Cost Performance Report (CPR)* consists of five formats containing data for measuring contractors' cost and schedule performance. CPR data is used by system managers to: (1) integrate cost and schedule performance data with technical performance measures, (2) identify the magnitude and impact of actual and potential problem areas causing significant cost and schedule variances, and (3) provide valid, timely program status information to higher management. The CPR is a management report that is supposed to provide timely, reliable summary-level data with which to assess current and projected contract performance. The CPR's primary value to the Government is its ability to reflect current contract status and reasonably project future program performance.

## BACKGROUND INFORMATION

Since 2001, NARA has been working to develop an Electronic Records Archives, the purpose of which is to preserve and provide access to massive volumes of all types and formats of electronic records, including Presidential records. The ERA, a major information system, is being designed to store and manage NARA's electronic records and to manage the lifecycle of paper records and other holdings. It will manage the entire lifecycle of temporary and permanent electronic records from ingestion through preservation and dissemination to customers. The system must perform its functions free from dependence on any specific hardware or software.

In August 2004, NARA awarded two firm-fixed-price (FFP) contracts, totaling approximately \$20 million, to the Harris Corporation and to the Lockheed Martin Corporation for the ERA system design phase. On September 30, 2005, NARA officials awarded a cost-plus-award-fee (CPAF) contract to the Lockheed Martin Corporation to develop the ERA in increments, the first of which was scheduled to be completed in September 2007.

NARA officials issued a Cure Notice to Lockheed Martin on July 27, 2007. In response, Lockheed admitted that mistakes were made in managing the requirements baseline and the design of the system. Specifically, the requirements baseline was not managed, and as requirements were decomposed and clarified, the baseline was not updated. The contractor also admitted that the mid-level system design was not fully fleshed out and that integration issues were tied to that problem. At this point, Lockheed brought on-board a new program and technical management team to restructure the ERA Program and steer it back on track. The ERA IOC was achieved on June 26, 2008, but with a reduced scope and capability.

When fully deployed, the ERA System must provide decision support for the lifecycle management of records of all types. This includes supporting processes for such activities as appraisal, scheduling, and description that apply to both electronic records and records in other media. Further, the system must provide automated processing of electronic records including:

- Physical transfers of sets of electronic records, via telecommunications and on physical media, from their originators to NARA;
- Verification that transferred sets of electronic records conform to disposition agreements;
- Validation of the technical specifications for any set of electronic records;
- Long-term storage of electronic records;
- Transformations of electronic records to maintain accessibility and authenticity;
- Characterization of electronic records for archival description;
- Search, retrieval presentation, and output of records;

- Redaction of restricted content; and
- Disposal of records authorized for destruction.

Developmental effort is proceeding on two separate tracks: the ERA Base System and the Executive Office of the President (EOP) System. The Base ERA will provide basic electronic records management capability for NARA legacy data and records and for current transactions of other federal agencies. The EOP System will provide ingest, search, and retrieval capabilities for the records of the George W. Bush Administration. These records were scheduled to be transferred to NARA on January 20, 2009. The EOP System, estimated to cost \$38.9 million, reportedly achieved Initial Operational Capability (IOC) on December 5, 2008. Other work on the ERA EOP during fiscal year (FY) 2009 will focus on developing and deploying capabilities for ingesting and searching records types not included at IOC.

NARA's ERA Program Management Office (NHE) is managing the program, and the Transportation and Security Solutions Division of the Lockheed Martin Corporation is developing the ERA. Other program participants include: ALON, Inc., a program office support contractor; Northrup Grumman Corporation, Independent Verification and Validation (IV&V)<sup>6</sup> contractor; Defense Contract Management Agency (DCMA); and Defense Contract Audit Agency (DCAA). Hitachi Data Systems is also involved with the EOP<sup>7</sup> System.

Originally, the contractor was required to achieve IOC for the ERA System in September 2007, with completion of the second phase to follow in November 2007. However, in December 2006, a government analysis indicated a high probability of a delay in the completion of the ERA development, and in May 2007, Lockheed Martin officials confirmed a schedule delay and a cost overrun. As a result, NARA officials and Lockheed Martin Corporation officials negotiated an over-target baseline<sup>8</sup> for the Base ERA system development, eliminating all prior program cost and schedule variances. At this point, because of the schedule delays, (a) certain required capabilities were delayed until later increments, and (b) a portion of the ERA, called the EOP System, was split-off from the Base ERA to continue as a separate, parallel development effort.

NARA officials estimate that, through FY 2009, \$307.45 million will be obligated for ERA Program requirements. The total life cycle cost for the program through 2012 is estimated to be \$551.4 million. Program costs include the development contract with the Lockheed Martin Corporation, program management, research and development, and program office support.

### **Objectives, Scope, and Methodology**

Our objective was to monitor government and contractor efforts associated with developing the Electronic Records Archives. We assessed whether (a) the ERA Program is meeting cost and schedule

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<sup>6</sup> *Independent Verification and Validation* is the process of checking that a product, service, or system meets specifications and that it fulfils its intended purpose.

<sup>7</sup> Because of delays in the rollout of the ERA, a separate system for presidential records, known as the *Executive Office of the President* (EOP) system, was developed. The EOP system uses a different architecture from that of the ERA base. It is being built on a commercial product that is to provide the basic requirements for processing presidential electronic records, such as rapid ingestion of records and the ability to search content.

<sup>8</sup> An *over-target baseline* is the baseline which results from formal reprogramming resulting from a cost and/or schedule overrun.

requirements, and (b) NARA and contractor management officials are taking timely action to correct any actual or potential problems with program performance. To accomplish our monitoring effort, we reviewed: (a) Cost Performance Reports, (b) Contract Funds Status Reports, (c) Monthly Status Reports, and (d) other applicable program documentation. Additionally, we attended ERA Program Status Briefings and the Combined Monthly Status Reviews.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

**BASE SYSTEM CAPABILITIES NOT PROVIDED BY THE CONTRACTOR**

The Base ERA System, at IOC, provided the following capabilities: (a) the ability to create, modify, and delete legacy and new records schedules, legal transfer instruments, and transfer requests; (b) the ability to browse the asset catalog; and (c) the ability to transfer and ingest electronic records into the ERA. Significant capabilities the Base ERA System was supposed to have at IOC, but did not included:

- An evolvable, flexible, service-based framework driven by rules, and that could be reconfigured easily by users.
- Capability to delete assets from the system in an automated or, at least, system supported manner.
- Capability to support configurable, flexible forms for business objects and workflow support.
- A commercial-off-the-shelf (COTS) report generation tool.
- Flexible and easy configurable user access rights and roles, and an overall authentication and security model.
- Capability to attach associated documentation to Record Schedules.
- Capability to support test data within the system.
- Capability to monitor disposition agreements as well as automatically produce Transfer Requests.
- Capability to create and store structured Appraisal Reports.
- Capability to provide event correlation, and supply event logs.
- A comprehensive and demonstrated ability to recover from system failures, utilizing restorations from backup data, if necessary.
- Automatic rollback to previous versions of code or content.
- Automated and scripted testing for regression testing when deployment activities or system changes were performed.
- A portal consisting of portlets that could be added, removed, and arranged.
- Capability to update the signature file used for data type identification.
- Capability to pre-populate Federal Register Abstracts automatically from a Records Schedule.
- Capability to provide estimates for automated verifications.