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Bureau of Export Administration

BXS Needs to Strengthen Its ECASS Modernization Efforts To Ensure Long-Term Success of the Project

Final Inspection Report No. IPE-14270/February 2002

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Office of Inspections and Program Evaluations

UNITED STATES DEPARTMENT OF COMM
The Inspector General
Washington, D.C. 20230

February 12, 2002

MEMORANDUM FOR: Kenneth I. Juster
Under Secretary for Export Administration

FROM: Johnnie E. Frazier

SUBJECT: Final Inspection Report: *BXA Needs to Strengthen its ECASS Modernization Efforts to Ensure Long-Term Success of the Project* (IPE-14270)

As a follow up to our December 21, 2001, draft report, attached is a final copy of the third report required by the National Defense Authorization Act for Fiscal Year 2000. As you know, this legislation mandates that by March 30 of each year through 2007, we issue a report to the Congress, in conjunction with the Offices of Inspectors General (OIG) at the Departments of Defense, Energy, State, and the Treasury, on the policies and procedures of the U.S. government with respect to the export of technologies and technical information to countries and entities of concern. This third report focuses on BXA's efforts to modernize its dual-use export licensing system, including whether BXA has considered the feasibility of developing a single federal dual-use export licensing system or other alternatives. The report includes comments from your January 22, 2002, written response to our draft report. A copy of your response is included as an appendix to this report. This report will also be issued as part of an interagency OIG report on federal automated export licensing systems.

We are pleased that you are generally in agreement with many of the recommendations we made to help improve the dual-use export licensing automated systems. However, we want to emphasize that this project will need dedicated resources over the next several years in order for it to be successfully completed by fiscal year 2006. In addition, as the agency charged with administering the dual-use export control process, we believe that it is especially important for BXA to better coordinate its ECASS redesign efforts with the interagency export licensing community. After carefully considering your response to our draft report, we have made some adjustments in our final report. We request that you provide us with an action plan addressing the recommendations in our report within 60 calendar days.

We thank you and your staff for the assistance and courtesies extended to us during our evaluation. If you have any questions about our report or the requested action plan, please contact me at (202) 482-4661, or Jill Gross, Assistant Inspector General for Inspections and Program Evaluations, at (202) 482-2754.

Attachment

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EXECUTIVE SUMMARY

The House and Senate Armed Services Committees, through the National Defense Authorization Act for Fiscal Year 2000, directed the Inspectors General of the Departments of Commerce, Defense, Energy, and State, in consultation with the Director of Central Intelligence and the Director of the Federal Bureau of Investigation, to assess the adequacy of export controls and counterintelligence measures to prevent the acquisition of militarily sensitive U.S. technology and technical information by countries and entities of concern.[1] The legislation mandates that the Inspectors General report to the Congress by March 30 of each year until 2007.

For 2002, the OIGs agreed to conduct an interagency review of the various automated export licensing systems maintained by the federal licensing agencies—to determine how the systems interact and whether it is feasible to develop a single federal automated export licensing network or other alternatives. Each OIG also looked at its own agency's efforts to modernize its export licensing system. As such, our overall objective was to assess BXA's efforts to modernize its Export Control Automated Support System (ECASS). In particular, we sought to determine whether:

- BXA adequately considered business process changes and appropriate resources for the life cycle of the project.
- BXA had an infrastructure in place to monitor project costs, schedule, and deliverables.
- BXA's system design schedule was realistic, achievable, and on time.
- BXA implemented previous OIG recommendations pertaining to the modernization of the export licensing system and other internal control issues (see Appendix A).

Based on our evaluation, we are pleased to note that BXA has made progress in its redesign effort. However, we want to emphasize that for the project to be successful, it will need dedicated resources and continuous oversight by BXA management and the Department. Our specific observations follow:

BXA Has Made Progress on ECASS 2000+ Project

We identified several areas where BXA has made progress on its ECASS 2000+ project. First, BXA's appointment of a project manager in March 2000 has brought direction and stability to a redesign effort that had lacked adequate leadership from early 1998 to March 2000. Second,

[1]Public Law 106-65, October 5, 1999.

BXA and the U.S. Department of Defense's USXPORTS[2] office are developing a "front-end" licensing subsystem, known as SNAP/ESD,[3] that will allow exporters to submit on-line, for the first time, all types of license applications as well as the corresponding supporting documentation. Third, BXA selected software in August 2001 for its new Export Enforcement Investigative Tracking System, scheduled to be implemented in June 2002. Fourth, during its fiscal year 2003 budget planning cycle, BXA established a Capital Planning Team to coordinate its strategic planning, annual budgeting, and information technology functions (see page 9).

BXA Needs Better Planning to Ensure Long-Term Success of the Project

As BXA completes and implements its new ECASS 2000+ system over the next several years, thorough planning will be key to the project's long-term success. However, we found BXA could improve its planning of the ECASS 2000+ project in several areas. First, although BXA's 1998 business process reengineering study was clearly valuable in terms of defining and redesigning BXA's key business processes, we found that it was (1) too narrow in scope and (2) not adequately addressed by BXA management. Second, we found that BXA is redesigning its current ECASS system based on a cost-benefit analysis that is outdated both in terms of costs and proposed requirement changes. In addition, BXA recently increased its baseline for ECASS 2000+ from $6 million in 1998 to $7.5 million in 2001 without preparing adequate cost estimates. As a result, BXA does not know (1) what funding levels are needed or (2) whether the $7.5 million will be sufficient to complete ECASS 2000+ by fiscal year 2006. Third, we determined that not all of the ECASS 2000+ requirements have been adequately specified. Specifically, we found (1) minimal user involvement in preparing requirements for the licensing subsystem and (2) the information technology security requirements had not been specified (see page 13).

BXA Needs to Strengthen its Modernization Effort by Implementing Established IT Management Best Practices

While the ECASS 2000+ project officially began in March 2000, BXA still has not completed key system management processes and documentation needed to better manage the redesign effort. As of September 30, 2001, the ECASS 2000+ project lacked adequate management tools, including (1) a configuration management process, (2) a risk management process, (3) a software acquisition training program for its project team members, (4) a project management plan, and (5) target architecture. These are requisite management tools for systems development, as identified by the Office of Management and Budget's Chief Information Officers Council, the

[2]USXPORTS is an interagency program office established by the Department of Defense to modernize the interagency export licensing systems.

[3]SNAP/ESD is the Simplified Network Application Processing (SNAP) system and the Electronic Support Documentation (ESD) system.

General Accounting Office, and the Department of Commerce's Office of Chief Information Officer. The ECASS 2000+ project manager acknowledges that these management tools need to be instituted but informed us that the lack of resources dedicated to this project have made it difficult to manage and oversee the redesign effort and perform the needed functions in a timely manner (see page 25).

Interagency Cooperation on Planning, Design, and Development Has Been Mixed

While our 1999 export licensing report[4] recognized the need for an ECASS replacement, it also raised concerns about the multiple and distinct automation efforts underway at that time by the various export licensing agencies. At that time, we recommended that BXA coordinate its system development efforts with the other export licensing agencies, to maximize efficiencies and savings as well as acquire a more integrated licensing system. Since then, BXA has participated in and coordinated with some interagency modernization efforts. However, it has not involved the other licensing agencies in its own redesign effort beyond SNAP/ESD. In addition, we are concerned that BXA may not adequately consider other system alternatives for its license processing needs beyond enhancing the interfaces with the existing licensing systems (see page 29).

On page 34, we offer recommendations to the Under Secretary for Export Administration to address the concerns raised in this report.

In BXA's January 22, 2002, written response to our draft report, the Under Secretary for Export Administration generally agreed with most of our recommendations. BXA's response outlined additional actions taken since the conclusion of our review that demonstrate its commitment to ensure the long-term success of its redesign effort. However, we want to emphasize that this project will need dedicated resources over the next several years in order for the project to be successfully completed by fiscal year 2006. In addition, we want to reiterate the need for BXA to better coordinate its ECASS redesign efforts with the interagency export licensing community.

To address BXA's comments, we have made changes to the report, where necessary. BXA's response has been included as Appendix C to this report.

[4] *Improvements Are Needed to Meet the Export Licensing Requirements of the 21st Century*, U.S. Department of Commerce Office of Inspector General, IPE-11488, June 1999.

INTRODUCTION

The Inspectors General of the Departments of Commerce, Defense, Energy, State and the Treasury, in consultation with the Director of Central Intelligence and the Director of the Federal Bureau of Investigation, are required by the National Defense Authorization Act for Fiscal Year 2000 to conduct an eight-year assessment of the adequacy of current export controls and counterintelligence measures to prevent the acquisition of sensitive U.S. technology and technical information by countries and entities of concern.

The above legislation mandates that the Inspectors General report to the Congress no later than March 30 of each year, until 2007, on the status of efforts to maintain and improve export controls. To comply with the act's 2000 requirement, each OIG reviewed certain aspects of its agency's export controls and counterintelligence measures and reported on its findings. The result was two interagency reports highlighting crosscutting issues.[5] Our report focused on three activities that the Commerce Department, principally through the Bureau of Export Administration, carries out or participates in to help prevent the illicit transfer of sensitive technology. Those activities include (1) deemed export controls,[6] (2) the Visa Application Review Program, and (3) the Committee on Foreign Investment in the United States.[7]

To meet the act's 2001 requirement, the OIGs conducted an interagency review of the Commerce Control List and the U.S. Munitions List.[8] This review looked at BXA's policies and procedures for the design, maintenance, and application of the Commerce Control List.[9] For 2002, the OIGs agreed to conduct an interagency review of the various automated export licensing systems maintained by the federal licensing agencies to determine how the systems interact and whether it

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[5] *Interagency Review of the Export Licensing Process for Foreign National Visitors*, conducted by the Offices of Inspector General at the U.S. Departments of Commerce, Defense, Energy, and State, D-2000-109, March 2000, and *Interagency Inspector General Assessment of Measures to Protect Against the Illicit Transfer of Sensitive Technology*, conducted by the Offices of Inspector General at the U.S. Departments of Commerce, Defense, Energy, State, and the Treasury, and the Central Intelligence Agency, 00-OIR-06, March 2000.

[6] According to the Export Administration Regulations, any release to a foreign national of technology or software subject to the regulations is deemed to be an export to the home country of the foreign national.

[7] *Improvements Are Needed to Programs Designed to Protect Against the Transfer of Sensitive Technologies to Countries of Concern*, U.S. Department of Commerce Office of Inspector General, IPE-12454-1, March 2000.

[8] *Interagency Review of the Commerce Control List and the U.S. Munitions List*, conducted by the Offices of Inspector General at the U.S. Departments of Commerce, Defense, Energy, and State, Report No. D-2001-092, March 2001.

[9] *Management of the Commerce Control List and Related Processes Should Be Improved*, U.S. Department of Commerce Office of Inspector General, IPE-13744, March 2001.

is feasible to develop a single federal automated export licensing network or other alternatives. We conducted a program evaluation that focused on BXA's efforts to modernize its aging Export Control Automated Support System (ECASS).

Program evaluations are special reviews that the OIG undertakes to give agency managers timely information about operations, including current and foreseeable problems. By highlighting problems, the OIG hopes to help managers move quickly to address them and to avoid similar problems in the future. The evaluations are also conducted to encourage effective, efficient, and economical operations and to detect and prevent fraud, waste, and abuse. Program evaluations may also highlight effective programs or operations, particularly if they may be useful or adaptable for agency managers or program operations elsewhere.

We conducted our evaluation from April 18 through September 30, 2001. This evaluation was conducted in accordance with the *Quality Standards for Inspections* issued by the President's Council on Integrity and Efficiency, and was performed under the authority of the Inspector General Act of 1978, as amended, and Department Organization Order 10-13, dated May 22, 1980, as amended. At the conclusion of the evaluation, we discussed our findings and conclusions with the Under Secretary for Export Administration and other key BXA and Commerce officials.

OBJECTIVES, SCOPE, AND METHODOLOGY

The overall objective of our program evaluation was to assess BXA's efforts to modernize its export licensing system for dual-use commodities (goods and technologies determined to have both civilian and military use). The scope of our evaluation included resolving whether BXA had considered the feasibility of developing a single federal dual-use export licensing system or other alternatives. In particular, we sought to determine whether BXA:

- adequately planned for the redesign effort, including whether it properly considered business process changes and appropriate resources for the life of the project;
- had an infrastructure in place to monitor project costs, schedule, and deliverables;
- developed a system design schedule that was realistic, achievable, and being met; and
- implemented previous OIG recommendations pertaining to the replacement of the export licensing system and other automation issues.

To coordinate the review of interagency issues and determine the work to be performed by each OIG team, the five OIGs formed an interagency working group and held monthly meetings

during the review. Similar to the approach adopted for last year's reporting requirement, the five OIGs decided that each would issue a report on the findings of its agency review. In addition, all five would contribute to and approve a consolidated report on any crosscutting issues, including an assessment of the U.S. Export Systems (USXPORTS) Interagency Program Management Office, a Defense program established in May 2000 to modernize the interagency export licensing systems.

Our review methodology included interviews with various BXA officials, including senior managers, licensing and enforcement officials, and BXA contractors. We also spoke with officials from the Departments of Defense, Energy, Justice, State, and the Treasury, as well as the Office of Management and Budget (OMB) and the General Accounting Office (GAO). In addition, we met with staff from the Department's Office of Chief Information Officer (CIO), Office of Budget, Office of the Secretary, and Information Technology (IT) Enterprise Architecture Affinity Group.[10] We also reviewed ECASS 2000+ and USXPORTS documents available prior to September 30, 2001. Furthermore, we reviewed departmental, GAO, OMB, and congressional guidance on implementing and managing system development efforts.

Finally, we followed up on ECASS internal control recommendations made in our 1999 report[11] on the export licensing process (see Appendix A).

BACKGROUND

The United States controls the export of dual-use commodities for national security, foreign policy, and nonproliferation reasons under the authority of several different laws. The primary legislative authority for controlling the export of dual-use commodities is the Export Administration Act of 1979, as amended.[12] Under the act, BXA administers the Export Administration Regulations by developing export control policies, issuing export licenses, and enforcing the laws and regulations for dual-use exports.

[10]The IT Enterprise Architecture Affinity Group was established to oversee all systems architecture plans by Commerce agencies.

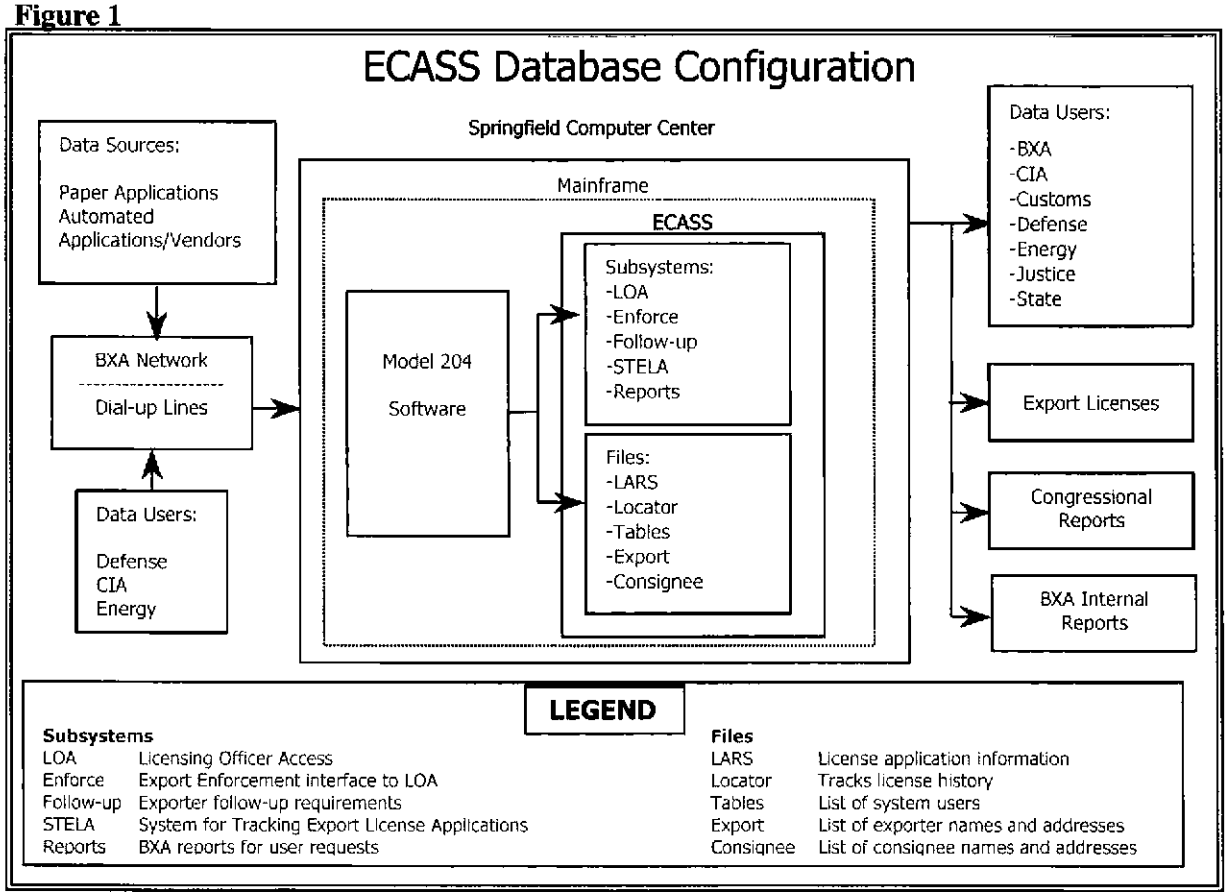
[11]*Improvements Are Needed to Meet the Export Licensing Requirements of the 21st Century*, U.S. Department of Commerce Office of Inspector General, IPE-11488, June 1999.

[12]Although the act last expired on August 20, 2001, the President has extended existing export regulations under Executive Order 13222, dated August 17, 2001, invoking emergency authority contained in the International Emergency Economics Powers Act.

BXA's Automated Export Licensing System

BXA developed ECASS in 1984 to expedite the license approval process and better serve the U.S. exporter. ECASS is a large database designed to process, store, and transmit dual-use export licensing information. It is housed on a mainframe at the Commerce computer center in Springfield, Virginia. ECASS is an unclassified system supporting more than 600 users, including BXA headquarters and field offices; the CIA; and the Departments of Defense, Energy, Justice, State, and the Treasury. (See Figure 1.) During its lifetime, ECASS has been upgraded to permit manual, electronic, and optical character recognition data entry of license applications and commodity classification requests.

Figure 1



Source: Office of the Chief Information Officer, Bureau of Export Administration.

Automated Interfaces between ECASS and the Interagency Export Licensing Community

On December 5, 1995, the President issued Executive Order 12981, in response to the need for more transparency in the dual-use export license process. Specifically, it authorizes the Departments of Defense, Energy, and State to review any license application submitted to the Department of Commerce under the Export Administration Act. In addition, the Executive Order authorizes the Department of Justice to review any export license applications pertaining to encryption items.

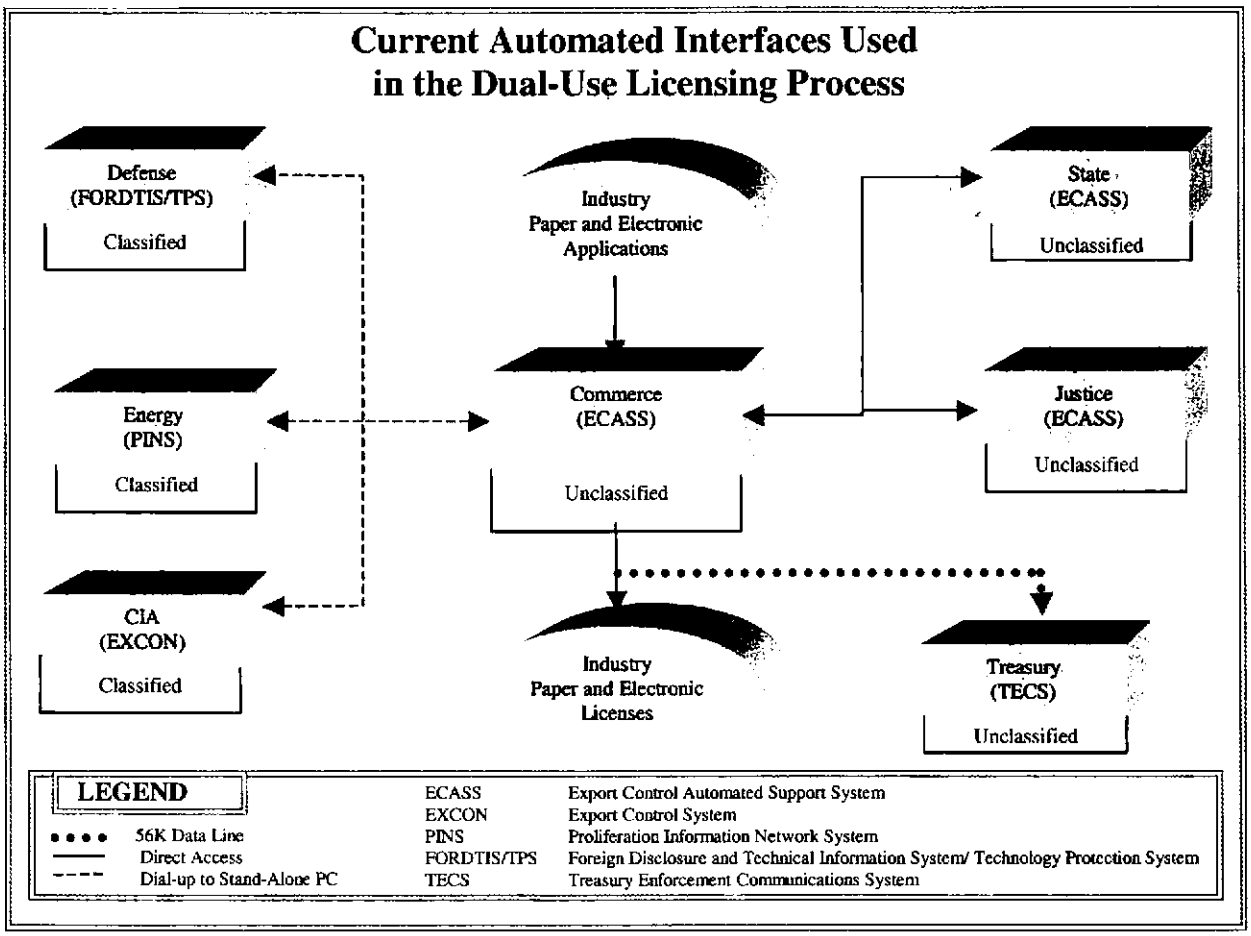
Both State and Justice have direct access to the ECASS system and use it to process license applications referred to them. However, because Defense and Energy have classified systems, ECASS's export license information is sent to these agencies via dial-up lines to stand-alone personal computers. The information is then put on a disk and uploaded to their respective classified systems, thereby ensuring the integrity of their systems.

BXA also sends certain license applications to the CIA's Weapons Intelligence, Nonproliferation, Arms Control group for an end user review. Like Defense and Energy, this system is also classified and export license data is sent via a dial-up line to a CIA stand-alone computer.

Finally, BXA electronically transmits validated licensing information (for cases approved, denied, or returned without action) over a dedicated 56K data line to the Department of the Treasury's U.S. Customs Service on a daily basis. The data is then entered into the Customs Service's Treasury Enforcement Communications Systems (TECS) database.[13] Figure 2 identifies the agencies involved in the export licensing process and the interfaces used to transmit data back and forth.

[13]TECS was created to provide multi-agency access to a common database of enforcement data supplied by various law enforcement agencies.

Figure 2



Source: Commerce Office of Inspector General.

ECASS Limitations

During its lifetime, ECASS has been upgraded to permit manual, electronic, and optical character recognition data entry of export and re-export license applications, commodity classifications, special comprehensive and deemed export licenses, and agriculture license exception notices. However, our June 1999 export licensing report identified many reasons why ECASS is not an effective system for the current era of license processing. Those limitations still exist. For example:

- **ECASS has limited query capability**. As such, it is difficult for licensing officers to obtain historical information on a commodity, consignee, or end user necessary to make the most informed licensing decision.

- **ECASS has limited text capability**. Specifically, it does not allow licensing officers to incorporate detailed text into the license record.

- **ECASS has no modern interfaces**. Licensing officers must exit the database every time they want to use any applications such as word processing.

- **ECASS lacks on-line access to exporter technical specifications**. Licensing officers at both BXA and referral agencies cannot review exporter technical specifications on-line through ECASS. Therefore, BXA must make copies and distribute the technical specifications as hard copy to the applicable referral agencies, a time-consuming task.

- **ECASS has limited access to outside databases**. ECASS does not allow its users to obtain information from outside databases, such as Dun and Bradstreet, and directly input the information into a license application file. Licensing officers and supervisors must obtain information outside of ECASS and then "cut and paste" information into the system.

Prior OIG Recommendations to Improve Interfaces Among the Various Licensing Systems

We issued two prior OIG reports recommending improvements to ECASS and its interfaces with the referral agencies' licensing systems. First, in our 1993 special interagency OIG report on the export licensing process,[14] we determined that officials at the Departments of Defense, Energy, and State needed to develop procedures to reconcile each agency's database information contained in ECASS. We also recommended that BXA establish an interagency working group, including Defense, Energy, and State, to determine the need for, the feasibility of, and the benefits to be derived from the expanded use of ECASS for dual-use export licensing information. At that time, all four agencies agreed that all database records should be consistent and that a working group should be established.

However, our 1999 report on the export licensing process found that while the export licensing process was working reasonably well, the agency automation systems lagged behind. Furthermore, we found that the export licensing agencies were not coordinating their systems

[14] *The Federal Government's Export Licensing Processes for Munitions and Dual-Use Commodities*, conducted by the Offices of Inspector General at the U.S. Departments of Commerce, Defense, Energy, and State, September 1993.

development efforts with each other. At that time, we recommended that BXA coordinate its system development efforts with the other licensing agencies and again encourage those agencies to establish an interagency steering committee to review the automation portion of the export licensing process, from coordinating common system architecture requirements to determining how interagency resources could be used to fund and implement a new system.

Since that time, BXA has made some progress in its redesign of ECASS (see Chapter I, page 9, for details on BXA's efforts). Furthermore, in an effort to correct the deficiencies associated with the current export licensing systems, Defense established the USXPORTS Interagency Program Management Office in May 2000. USXPORTS's mission is to:

> "...modernize the export control process through easy and timely access to pertinent export data electronically among participating agencies. This includes enhancing network systems and the protection of data across agencies."[15]

Defense allocated $30 million over a three-year period for USXPORTS to accomplish its mission. An assessment of the USXPORTS office will be incorporated into a consolidated interagency OIG report regarding the various automated export licensing systems. This report will be issued in March 2002.

[15] *USXPORTS System Modernization, Statement of Work*, Office of the Undersecretary of Defense for Policy, OUSD (P), October 16, 2000, page 1.

FINDINGS AND CONCLUSIONS

I. BXA Has Made Progress on ECASS 2000+ Project

BXA has long needed to replace the current ECASS system to properly administer export control laws and regulations. Many of the problems associated with BXA's prior attempts to redesign ECASS were due to a combination of technical, planning, managerial, and budgetary hurdles. However, since March 2000, BXA has been better able to focus its redesign efforts because it hired a project manager and coordinated its IT planning and budgetary cycles. As a result, two components of ECASS 2000+ should be ready for implementation in early to mid 2002.

A. Appointing an ECASS 2000+ project manager brought direction to the redesign effort

BXA's appointment of a project manager brought direction and stability to the redesign effort. BXA first initiated efforts to redesign its current ECASS system in 1996 when it hired a contractor to prepare four major planning documents[16] for the project. However, by 1998, BXA still did not have a dedicated project manager or team for the effort. As a result, in our June 1999 report on the export licensing process, we recommended that BXA establish a project management team, including a full-time project manager, to oversee development and implementation of BXA's new system as soon as possible. Thereafter, in March 2000 BXA hired an ECASS 2000+ project manager to oversee an effort that had been mostly dormant from early 1998 to early 2000.

Under the leadership of its ECASS 2000+ project manager, BXA has taken steps to ensure the short-term and long-term success of the ECASS 2000+ project. These steps include:

- following federal, industry and the Department's IT Enterprise Architecture Affinity Group's guidance and processes for system design and development,
- preparing initial system documentation, such as a Vision Document and Software Requirements Specification,
- hiring a contractor to oversee the integration of ECASS 2000+ components,

[16]These documents included a business case analysis, business process reengineering study, information architecture, and a cost-benefit analysis.

- overseeing the development of two key subsystems of ECASS 2000+--the Simplified Network Application Processing (SNAP)/Electronic Support Documentation system (ESD) and the Export Enforcement Investigative Tracking system (see parts B and C respectfully of this section for more detail on these systems), and

- preparing project documentation, including a software development plan and data migration plan.

Although we are pleased with the recent progress of the redesign effort, we want to emphasize the need for BXA to aggressively pursue its ECASS 2000+ implementation over the next four years. For ECASS 2000+ to be successful, it will need continued oversight by the ECASS 2000+ project manager as well as BXA's and the department's management team (see Section III, page 25).

B. Exporters will soon be able to submit all license applications and supporting documentation on-line

Although exporters can currently submit certain export license applications and other reporting forms to BXA via the Internet, corresponding support documentation for a license application has to be submitted separately as hard copy. These documents are then duplicated by BXA and delivered via courier to the referral agencies, a procedure that adds time and expense to the license review process. To address these and other problems, BXA and the USXPORTS office[17] are developing a "front-end" licensing subsystem, known as SNAP/ESD, that will allow exporters to submit all types of license applications as well as the corresponding support documentation on-line.[18] USXPORTS estimates that it will spend about $1.0 million to complete the SNAP/ESD system.

According to documents provided by BXA, SNAP, which was first introduced to exporters in February 1999, provides more than 3,500 registered users, representing over 1,700 companies, the ability to submit certain export and re-export license applications, commodity classification requests, and high performance computer notices to BXA on-line. In fiscal year 2000, BXA received 61 percent of its license applications via the Internet. As a part of the redesign effort, the capabilities of SNAP will be expanded to include other on-line transactions, such as the submission of deemed export license applications and special comprehensive license applications.

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[17]USXPORTS is responsible for designing and deploying SNAP/ESD, however, BXA's ECASS 2000+ project manager is the SNAP/ESD project manager for the USXPORTS office. Once completed, USXPORTS will turn the system over to BXA to house and maintain SNAP/ESD at its computer site.

[18]Support documentation includes diagrams, schematics, or other information to describe the product to be exported as well as additional information concerning the end user or end use of the product.

SNAP will be complemented by the development of ESD, an interactive data repository for supporting documentation. ESD will give exporters the ability to electronically submit their supporting documentation alongside their application. Currently, if an exporter submits its license application on-line and mails its supporting documentation to BXA, it may take several days for the two documents to match up with each other. Simultaneous submission of the license and supporting documentation should assist licensing officers in expediting the overall processing of license applications. Furthermore, by maintaining all of these documents in an interactive data repository, exporters will no longer need to submit supporting documents more than once for multiple license applications involving the same product.

ESD will also benefit the federal licensing agencies in their review of export license applications. Specifically, the new subsystem should facilitate license review and reduce processing times by eliminating paper processing both internally at BXA and at the licensing referral agencies. ESD will also reduce the time and money spent by BXA support staff on scanning support documents (after a case is closed), and copying and sending documents to other agencies via courier. In addition, referral agencies will have real-time access rights to the document library.[19]

Once exporters can electronically submit all types of applications and supporting documentation, BXA anticipates on-line submissions will increase. To date, two prototypes of the system have been prepared. The first was completed in August 2001 and included only the ESD system; the second was completed in September 2001 and included a redesigned SNAP and the ESD system. BXA and USXPORTS held several design peer reviews of the prototypes between June and December 2001.[20]

SNAP/ESD was also demonstrated in October 2001 to exporters at BXA's UPDATE 2001 conference in Washington, D.C. At that time, only the commodity classification feature was available for demonstration. BXA's ECASS 2000+ project manager expects all of the system features to be available when SNAP/ESD is scheduled for implementation in March 2002.

C. BXA has selected software for its new investigative tracking system

A second ECASS 2000+ subsystem currently being developed is the Export Enforcement Investigative Tracking system. Since March 2001, BXA's system integration contractor has been analyzing user needs within BXA's enforcement community and evaluating commercial off-the-shelf (COTS) case management software. The ECASS 2000+ project manager informed us that

[19]According to BXA, specific access by the referral agencies will be limited to the documentation relating to those cases that have been referred to them by BXA.

[20]The peer reviews involved assessments of work products by future system users during the development of those work products to identify defects requiring correction.

the investigative tracking system was selected as the first redesigned subsystem based on available funding, the minimal functionality in the current investigative tracking system, and the possibility that a COTS solution would be available.

The search for a COTS solution ended in August 2001 when a case management software vendor was selected. According to BXA's Vision Document,[21] some of the features of the new subsystem will better enable export enforcement personnel to:

- create and open investigative cases based on leads;
- manage, upgrade, refer, close, or request collateral assistance on investigative cases;
- manage and track administrative and criminal case actions;
- conduct advanced investigative case and suspect queries; and
- capture and view supporting case documentation.

BXA estimates the costs for the selected package, including software, hardware, and training, to be around $600,000. The new investigative tracking system is scheduled to be implemented in June 2002.

D. BXA has begun linking strategic planning, budgeting, and IT planning

OMB and the Department require agencies to link their budgets with IT planning. However, although BXA has prepared annual strategic plans in the past, it lacked a functioning process for formulating its strategic procurement and IT goals. Recognizing how these functions needed to be integrated, BXA established a Capital Planning Team in April 2001, made up of staff from its Offices of Planning and Evaluation, the Comptroller, and the CIO. As a result of the team's formation, BXA was able to coordinate its planning and budgeting processes, including efforts to redesign ECASS, for its fiscal year 2003 budget preparation. We believe that BXA's Capital Planning Team should continue its efforts.

[21] *ECASS 2000+ Vision Document*, Bureau of Export Administration, U.S. Department of Commerce, December 15, 2000.

II. BXA Needs Better Planning to Ensure Long-Term Success of the Project

One of the most critical elements of a systems development effort is planning. Despite the fact that progress has been made on the ECASS 2000+ project, not enough time or resources have been devoted to basic planning for the project. As a result, (1) BXA's initial business process reengineering efforts are incomplete, (2) its cost estimates for ECASS 2000+ are outdated, and (3) some of the ECASS 2000+ requirements, such as those for licensing and security, have not been adequately specified and documented. We are making recommendations to address the problems we identified.

A. BXA's initial business process reengineering efforts were incomplete

The need for agencies to reassess their business processes before investing in the technology that supports them was recognized in the Clinger-Cohen Act of 1996. Specifically, Section 5123(5) of the act requires agencies to:

> "[a]nalyze the missions of the executive agency, and based on the analysis, revise the executive agency's mission-related processes and administrative processes as appropriate before making significant investments in IT that is to be used in support of the performance of those missions."[22]

OMB reinforced this mandate by requiring that investments in major information systems proposed for funding in the President's budget should, among other things, support work processes that have been redesigned to reduce costs and improve effectiveness.[23] As such, in 1997 the Department required BXA to conduct a business process reengineering (BPR) study prior to approving BXA's request for funds to modernize its current export licensing system.

At that time, BXA hired a consulting firm to assist it in reengineering its critical business processes. The consultant's final report,[24] issued in June 1998, summarized the processes to be reengineered and provided an implementation plan. Overall, BXA's first attempt to conduct a reengineering study was constructive. More than 50 BXA subject matter experts participated in defining and redesigning BXA's core business processes. Consequently, the study resulted in several meaningful recommendations to improve the export licensing and export enforcement processes.[25]

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[22] 40 U.S.C. § 1423.

[23] OMB Memorandum, "Funding Information Systems Investments," October 25, 1996.

[24] *Department of Commerce, Bureau of Export Administration, Final Report: Process Reengineering and Implementation Plan*, Booz-Allen & Hamilton, June 22, 1998.

[25] The BPR study also addressed reengineering of BXA's processes that result in export and internal operating policies and procedures.

The recommendations directed at improving BXA's export licensing process included the following:

- Create an electronic environment for every license application and supporting documentation.[26]

- Establish an up-front screening team to verify the Export Control Classification Number and help assign the action to the most appropriate licensing team.

- Implement a team approach for processing complex actions to improve the quality and coordination of the effort.

- Differentiate licensing actions into "A" and "B" categories, based on the complexity and need for technical depth, to most efficiently use BXA's technical expertise.

Although the study was clearly valuable in terms of defining and redesigning BXA's key business processes, we found that it was (1) narrow in scope and (2) not adequately addressed by BXA management. Specifically, only BXA-controlled processes were considered for redesign despite the fact that the Export Administration Act requires that BXA administer the interagency dual-use export licensing process. When we questioned BXA as to why it chose to study only BXA-controlled processes for redesign, we were told that the previous BXA management team thought it would be too costly to perform an interagency review. However, BXA was unable to provide us with any cost estimates to support that decision.

In addition, BXA did not adequately address the findings and recommendations of the study when it was issued in 1998. As a result, during our current review, BXA was unable to provide us with any justifications as to why some of the study's recommendations were accepted or rejected. Furthermore, we found little evidence to indicate that BXA put into practice many of the recommendations it claimed to accept. Because BXA did not address the broader interagency export licensing process in its original BPR study or adequately address the recommendations from the study, the future ECASS 2000+ system could potentially automate outmoded, inefficient business processes (e.g., the export licensing process), and not consider meaningful process improvements.

However, in the summer of 2001, BXA established an internal licensing task force to review the interaction between the licensing agencies and to generate ideas about how to improve the interagency export licensing process. The task force provided a report to the Export

[26]As discussed previously in Section I, BXA is currently working with USXPORTS to implement this recommendation through the SNAP/ESD initiative.

Administration's management team in August 2001 identifying six areas where improvements might be made. We believe the establishment of this task force was a positive step in rethinking how the interagency export licensing process could operate.

Furthermore, the USXPORTS office, which BXA participates in, has recently completed a BPR analysis[27] of the interagency dual-use export control process. The recommended BPR improvements are based on requirements identified by six interagency focus groups, comprised of representatives from Commerce, Defense, Energy, and State. The four major BPR improvements identified by USXPORTS follow.

- Broaden the electronic business exchange between industry and the U.S. government by (1) registering individual companies and individuals, (2) creating a single point of entry, and (3) submitting application data and technical specifications electronically.

- Provide robust data retrieval by maintaining a single "parties of interest" list in the system for all interested parties to tap into and provide tools for cumulative effect analysis.

- Enhance the license review and analysis process by establishing an interagency review team early in the license review process and improving interagency communication technology.

- Migrate to an unclassified data environment by creating an unclassified export licensing environment.

In October 2001, the USXPORTS office briefed its Steering Committee, comprised of the Deputy Assistant Secretary for Export Administration and various senior Defense officials, on the proposed BPR recommendations. According to USXPORTS, the committee has approved the reengineering recommendations, with slight modifications, and the next step is to determine how to implement those recommendations.

Clearly, the dual-use export control process is an interagency process, and we support BXA's involvement on the USXPORTS redesign effort to date. However, changes to current business processes need to be made as soon as possible, before the ECASS 2000+ system requirements are further specified. We recommend that BXA's new management team reevaluate the 1998 BPR recommendations, as well as recommendations from its internal task force, to determine if any of the proposed process changes are still appropriate. In addition, BXA should continue to work closely with the other licensing agencies to evaluate the interagency recommendations from

[27] *USXPORTS Business Process Reengineering (Draft), Version 2.1,* USXPORTS Program Office, August 28, 2001.

the USXPORTS reengineering effort, which BXA participated in. Finally, it is imperative that BXA make a decision about the recommendations from the two BPRs and the licensing task force report, as soon as possible, so that the ECASS 2000+ project team can develop any new major requirements for the licensing subsystem before it completes the Target Architecture (see Section III, page 25, for details on BXA's Target Architecture).

In response to our draft report, BXA agreed with our recommendation to reevaluate and determine whether any of the proposed changes outlined in BXA's 1998 BPR, the USXPORTS BPR, or BXA's August 2001 internal licensing task force report should be factored into the ECASS 2000+ design and requirements. Specifically, BXA reported that its new ECASS 2000+ user group, which began meeting on a bi-weekly basis in mid-December 2001, will address this recommendation as a part of its duties.

B. BXA needs to update its cost estimates

There is much guidance on the need for accurate and complete cost data throughout the life of a project. For example, OMB requires updated cost-benefit analyses[28] for all IT investment decisions. In addition, a recent report from the Chairman of the Senate Governmental Affairs Committee recommended that executive departments and agencies ensure that any cost-benefit data used in investment decision making be accurate and complete.[29] Furthermore, GAO guidelines emphasize that reliable cost estimates are essential for making effective IT investment decisions. Specifically, GAO states that the cost-benefit, schedule, and risk information included in an agency's analysis to justify the project, should be updated as project implementation continues and as dollar amounts increase.[30]

Towards that end, BXA prepared a cost-benefit analysis in September 1998.[31] We believe this analysis was a much needed first step for BXA and provided a catalyst for gaining support for its ECASS 2000+ redesign effort. However, BXA has not updated that analysis since that time. As a result, BXA's redesign is based on a cost-benefit analysis that is outdated both in terms of costs and proposed requirement changes. Table 1 identifies additional features that make BXA's 1998 cost-benefit analysis outdated for the current redesign effort.

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[28]OMB Circular A-130, November 30, 2000. Although the OMB circular uses the term "benefit-cost" analysis, this report uses the more commonly used term "cost-benefit" analysis.

[29]*Investigative Report of Senator Fred Thompson on Federal Compliance with the Clinger-Cohen Act*, October 20, 2000.

[30]*Improved Management Practices Needed to Control Integration Cost and Schedule*, General Accounting Office, AIMD-99-25, December 1998.

[31]*BXA Cost Analysis Study*, Bureau of Export Administration, September 9, 1998.

Table 1 Current Factors Affecting 1998 Cost-Benefit Analysis Assumptions

1998 Assumptions	2001 Current Factors
➢ System operational by the end of fiscal year 2002.	➢ System operational by the end of fiscal year 2006.
➢ System based on a centralized architecture.	➢ System based on a decentralized (web-based) architecture.
➢ System located at Commerce headquarters.	➢ System based at some federal or public facility.
➢ System comprising many commercial off-the-shelf products.	➢ System comprising software development and commercial off-the-shelf products.
➢ System based on 1998 business process reengineering recommended changes.	➢ BPR recommendations made in 1998 have not been completely addressed.
➢ Old system to have minimal support and upgrades while new system is being developed.	➢ Changes to the old system needed as a result of delaying the system redesign into fiscal year 2006.

Source: BXA's Cost Analysis Study, September 1998, and OIG Analysis.

BXA officials stated that limited resources (i.e., funding and staff) and time have precluded BXA from updating its cost-benefit analysis. While BXA has recently increased its cost baseline for ECASS 2000+ from $6 million in 1998 to $7.5 million in 2001, the increase was not based on a detailed cost analysis of all planned system components. In addition, this increase did not include security costs (e.g., Public Key Infrastructure) for the new system (see page 21 for details on IT security needs). As a result, BXA does not know what additional funding will be needed for system enhancements and security in the out years. To successfully complete ECASS 2000+ in a timely manner, we recommend that BXA determine what resources are needed in the short-term (FYs 2002 and 2003) and long-term (FYs 2004 through 2006) and how to secure adequate funding for ECASS 2000+. Consideration should be given to reallocation of resources if funding is not adequate, or to an extension of the project timetable.

In response to our draft report, BXA indicated that it was obtaining an independent cost estimate based on the proposed multi-year software development plan provided by its integration contractor. Subsequently, BXA informed us that USXPORTS will provide integration contractor expertise to accomplish its independent cost estimate sometime during the second quarter of fiscal year 2002. In addition, BXA's response stated that as part of its ongoing dialogue with USXPORTS, BXA will try to share resources to provide maximum value to the interagency licensing community. Given that the fiscal year 2004 budget cycle is about to begin, we strongly urge BXA to determine its full costs for its redesign effort as soon as possible.

C. Some ECASS 2000+ requirements need to be validated and specified

Early requirements preparation will be key to the success of ECASS 2000+ over the next four fiscal years. To determine the status of requirements preparation, we reviewed all relevant documentation and interviewed specific users as to their participation in requirements analysis. While we determined that BXA had adequate user involvement in the design of its SNAP/ESD and Investigative Tracking subsystems, we found minimal user involvement in requirements preparation for the licensing subsystem. In addition, we found that the IT security requirements had not been specified.

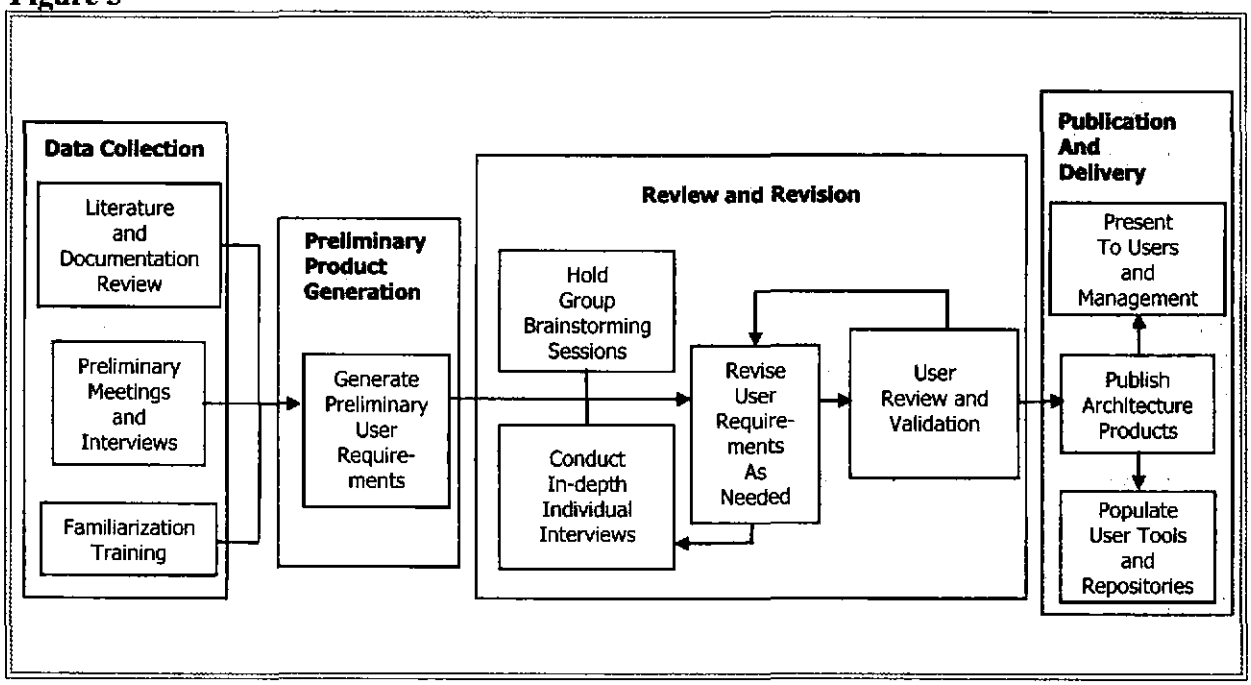
1. User validation is needed for licensing subsystem

The success of software projects, such as ECASS 2000+, depends on adequately specifying system requirements to meet operational needs.[32] Software errors are frequently attributable to problems with or misunderstandings about user requirements, and these errors generally are the most expensive to fix. Consequently, every reasonable effort should be made to precisely define system requirements, and as early in the project as is feasible.[33] Despite this obvious caveat, we found little evidence of user involvement in documenting the proposed ECASS 2000+ licensing requirements. Figure 3 illustrates how users should be involved in requirements preparation.

[32]User requirements define the proposed components of a system.

[33]See, for example, *Data Capture System 2000 Requirements and Testing Issues Caused Dress Rehearsal Problems*, U.S. Department of Commerce Office of Inspector General, OSE-10846, January 1999.

Figure 3



Source: *A Practical Guide to Federal Enterprise Architecture*, Chief Information Officers Council, February 2001.

To determine the actual extent of user participation in documenting BXA's requirements, we interviewed all BXA personnel identified by the ECASS 2000+ project team as "users" involved in the requirements process. The BXA users informed us that although they had talked about various issues during the user group sessions, they did not systematically outline the future licensing requirements of ECASS 2000+. Instead, the users emphasized that they spent time documenting the current system functions and preparing a "wish list" of potential new system features. The users expressed concern that BXA's IT personnel had outlined most of the proposed licensing subsystem requirements without their input.

BXA's IT personnel agreed that they spent a lot of time documenting proposed licensing requirements without user input. However, they indicated that they asked for licensing officials to participate in identifying future licensing requirements but the individuals either were not interested or not available. As a result, team members decided to obtain initial licensing requirements from BXA's 1998 BPR study. Although we agree that the BPR study collected requirements from experienced licensing officials at that time, some requirements may be outdated and others may have changed since 1998.

In addition, we have concerns that BXA developed requirements without buy-in from current referral agency users, including State and Justice. Both agencies have ECASS terminals that they

use to process license applications referred to them. However, BXA did not include them in any of its user groups. During our discussions with representatives from both agencies, they informed us that they would like to participate in BXA's future user group discussions on licensing requirements.

Because of minimal user participation in defining the requirements for the licensing subsystem (1) all requirements may not have been identified and (2) identified requirements may be inaccurate or incomplete. Therefore, the system may not meet user needs when it is implemented. BXA's ECASS 2000+ project team agreed that user involvement is critical for defining user requirements and that more user involvement is needed for preparing the licensing requirements. For example, the ECASS 2000+ Risk Tracking document, dated April 2001, identified having "no business user group" as a high risk for the project that could result in a lack of acceptance by the users of the new system.

While it would be inefficient to initiate a large-scale requirements specification process at this stage in the project, we believe that the ECASS 2000+ licensing requirements need to be properly validated by a representative sample of licensing users. The ECASS 2000+ project manager agrees. Therefore, we recommend that BXA ensure that appropriate users, including those from the referral agencies, validate its system requirements for the licensing subsystem.

BXA's response to our draft report agreed with our recommendation to ensure that appropriate users, including those from the referral agencies, validate the system requirements for the license subsystem. Specifically, BXA stated that its integration contractor will validate all requirements through detailed use case reviews by the user groups in the multi-year development project. However, BXA stated that it was inaccurate for us to report that the licensing requirements were developed without user input. Specifically, BXA's response indicated that it was too early in the process for full user involvement given that the detailed elaboration and construction of the licensing subsystem is not scheduled until fiscal year 2003.

On the other hand, BXA's response stated that many of the high level requirements for the licensing subsystem were taken from the 1998 BPR and additional requirements were gathered from selected interviews. BXA also contends that the review of its December 2000 Software Requirements Specification document by key business users confirmed the high level requirements as defined. In addition, BXA indicated that the level of detail was expanded by several redesign workshops where users both documented the current processes and the "to-be" processes. Subsequently, the ECASS 2000+ team members drafted the initial use cases (how the system and users are to interact) and then turned them over to the integration contractor.

While we never stated that the licensing requirements were developed without any user input, we maintain that there was minimal user involvement in this process. Furthermore, while we agree that the requirements exercise performed by BXA users in 1998 was a valid starting point, BXA changed its system design after its 1998 review and ultimately some of its requirements, making a revalidation of requirements necessary. Based on interviews with BXA personnel identified by the ECASS 2000+ project team as "users" involved in the requirements process and our review of limited documentation available on this matter, we determined there was minimal user participation in defining the requirements for the licensing subsystem. Finally, we want to point out that in September 2001, the Department's IT Architecture Affinity Group informed BXA that it should have been further along in completing its system requirements and requested that BXA complete its target architecture (which includes user input and validation) no later than the second quarter of fiscal year 2002. Therefore, it was not unrealistic to expect BXA to have been further along in documenting and validating its licensing requirements at the time of our review.

2. IT security requirements need to be specified and documented

Although BXA has prepared detailed functional requirements for different parts of ECASS 2000+, it has not specified the necessary security requirements to ensure the integrity of mission critical information. Security requirements are essential to any redesign effort because they define the security measures, and they are a precursor to developing target architecture. Departmental guidelines require each agency to define and identify, as early in the design phase as possible, security requirements for ensuring the confidentiality, integrity, and availability of critical IT resources.[34] Specifically, these guidelines identify 10 security areas that need to be addressed during system design (see Table 2).

[34]The Department's IT Affinity Group recommends that departmental agencies use the National Oceanic and Atmospheric Administration's IT guidelines for requirements analysis and architecture preparation.

Table 2 IT Security Areas To Be Addressed During System Design

➢ Access Controls
➢ Telecommunications and Network Security
➢ Contingency Practices and Disaster Recovery
➢ Security Management Practices
➢ Security Architecture and Model
➢ Computer Operations Security
➢ Law, Investigation, and Ethics
➢ Application and System Development Security
➢ Cryptography
➢ Physical Security

Source: The National Oceanic and Atmospheric Administration Information Technology Architecture, IT Security, Version 2.1, June 2001.

We raised this issue continuously during our review with BXA officials, including the ECASS 2000+ project manager, and departmental IT personnel. The Department's IT Affinity Group, established to oversee systems architecture by departmental agencies, also raised concerns with BXA that the security requirements had not been specified. During the course of our review, BXA prepared some initial security requirements and estimated that they would be completed by December 2001 (although it should be noted that the original date of completion was September 20, 2001). The ECASS 2000+ project team members informed us that although preparing security requirements is a priority task, it is also a large undertaking. They believe that the team lacks adequate resources to complete this task in a timely manner. Specifically, only one part-time team member has been given the responsibility for IT security and preparing the target systems architecture.

Given that ECASS 2000+ will be a web-based system connected to the Internet, adequate security is needed to protect the increased transfer of business proprietary information. Specifically, ECASS 2000+ will implement new Internet services and provide electronic access for users of BXA information and services. To address this need for upgraded security, a key component of ECASS 2000+ will involve Public Key Infrastructure (PKI) technology. PKI is a technology designed to protect Internet electronic transactions through the use of digital certificates and encryption keys. Digital certificates are used to verify and authenticate the validity of each party involved in an Internet transaction, and encryption keys are used to secure the data.

Without specifying its proposed security requirements, including but not limited to PKI, BXA cannot adequately design its new system or determine how much additional funding for security

might be needed in the outlay years. Therefore, we recommend that BXA document its security requirements as soon as possible and determine how to fund them, including whether it should reallocate existing resources or make them a high funding priority.

In response to our draft report, BXA agreed with our recommendation to document its security requirements and determine how to fund them as soon as possible. Towards that end, BXA indicated that it will implement a robust IT security action plan in fiscal year 2002 by redirecting existing resources. In addition, OMB has approved a $1 million increase for BXA's IT security program (including the implementation of PKI) in fiscal year 2003. Furthermore, BXA's ECASS 2000+ program manager recently informed us that BXA intends to direct 10 percent of the ECASS 2000+ fiscal year 2003 budget to security-related activities.

However, BXA's response disputed our finding that it had not prepared security requirements for ECASS 2000+. Specifically, BXA stated that the ECASS 2000+ IT security requirements were specified at the time of our review, albeit at a high-level. However, BXA indicated that such requirements were not detailed in the December 2000 Software Requirements Specification because they represented an initial view based on the team's knowledge at that time. Furthermore, BXA's response argued that these requirements could not be finalized until (1) the Department solidified its network infrastructure, and (2) BXA's integration contractor proposed the ECASS 2000+ system software/hardware. We disagree that most of the detailed security requirements could not have been completed based on the two reasons cited by BXA.

First, BXA's ECASS 2000+ system and the Department's network infrastructure have separate and distinct security requirements. While it is important for ECASS 2000+ to properly interface (including access controls) with the Department's network, BXA is not restricted by the Department's network infrastructure. Furthermore, the Department's requirements for its network infrastructure are at a higher and more generic level than BXA's detailed requirements for its system. As such, all 10 areas listed in Table 2 of this report could have been addressed without knowing the final departmental network infrastructure. For example, given that the Department's network infrastructure is just one component of access controls BXA needed to address, BXA could have started outlining and documenting the other access control components for its new system.

Second, BXA should have prepared its detailed security requirements prior to its integration contractor proposing the ECASS 2000+ system software/hardware. The contractor could have reviewed and incorporated those requirements into the proposed ECASS 2000+ system hardware and software. During the course of our review, ECASS 2000+ project team members and the

systems integration contractor agreed that security requirements could have provided valuable input for the design of the proposed system hardware and software.

III. BXA Needs to Strengthen its Modernization Effort by Implementing Established IT Management Best Practices

In June 2001, the Secretary of Commerce emphasized that management of all departmental IT projects needs to be strengthened.[35] Toward that end, departmental agencies are required to upgrade their management structures to ensure that established management processes and documentation are in place early in systems development efforts. As of September 30, 2001, the ECASS 2000+ project still lacked an adequate (1) configuration management process, (2) risk management process, (3) software acquisition training program for its project team members, (4) project management plan, and (5) target architecture. These are all key system management tools needed to better manage the redesign effort.

The project management tools identified above have long been recommended by OMB's CIO Council,[36] GAO,[37] and departmental IT guidelines.[38] The ECASS 2000+ project manager acknowledged that these management tools should be instituted, but stated that the lack of resources dedicated to this project have made it difficult to manage and oversee the redesign effort, in addition to implementing the management tools in a timely manner. The ECASS 2000+ project team currently is comprised of a full-time project manager (who also participates as a full partner with the USXPORTS office up to one day a week) and three part-time federal employees (who are also assigned to other IT duties within BXA not directly affiliated with the redesign effort). Because the current project team members had multiple duties, the project manager had to (1) enlist its ECASS maintenance contractor to help design the new system (while still continuing to maintain the current system) and (2) rely heavily on its system integration contractor for the design, implementation, and oversight of the redesign project.

BXA's senior management needs to address the resource constraints and ensure that the ECASS 2000+ project is not put at risk because it lacks adequate management processes and system documentation. Table 3 lists each of these management tools and the specific effects of not having a particular tool in place.

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[35] *Strengthening Commerce Information Technology Management,* Memorandum to Secretarial Officers and Heads of Operating Units, June 13, 2001.

[36] *A Practical Guide to Federal Enterprise Architecture,* Chief Information Officers Council, February 2001.

[37] For example, see report, *Executive Guide: Improving Mission Performance Through Strategic Information Management and Technology, Learning from Leading Organizations,* GAO-94-115, May 1994.

[38] *Department of Commerce Information Technology Planning and Investment Review Maturity Model,* July 2001.

Table 3 Management Tools Needed for ECASS 2000+ Project

Management Tool	Impact of Not Having Management Tools in Place
Configuration Management A process used to (1) control and track access and changes to system components, (2) coordinate work among developers, and (3) provide the means for building system baselines for testing and release.	Without a configuration management process in place, BXA cannot track access and control changes to its requirements and system components. According to BXA's April 2001 Risk Tracking Document, BXA had no in-house configuration management experience, placing the project at risk of having insufficient in-house control over software development and inadequate accountability. BXA informed us that it attempted to implement configuration management software, but as of September 30, 2001, this software had not been installed nor had an individual been assigned to oversee configuration management. BXA's system integration contractor had prepared a draft configuration management plan as of late September 2001, but the ECASS 2000+ project manager had not approved the plan by the conclusion of our fieldwork.
Risk Management A process for ensuring that current and potential problems, threats, and vulnerabilities of a systems development effort are identified and addressed in a timely manner.	Without a risk management process in place, BXA does not know what potential risks exist that might affect the project and how to address those risks in a timely manner. BXA's contractor did submit a risk management plan on September 27, 2001, but the plan lacked the details needed to identify the vulnerabilities.
Software Acquisition Training A process to ensure that current project staff members have received adequate training to properly oversee all software acquisition and development efforts.	With the exception of the ECASS 2000+ project manager, the project team lacks the training required to oversee software development of ECASS 2000+. Although the project team members have had some initial software acquisition training, the team has been too busy to complete follow-up training through BXA's systems integration contractor.
Project Management Plan A document that tracks the progress, accomplishments, and other areas requiring attention for each system development effort.	Without a Project Management Plan, the ECASS 2000+ project team does not know when each phase of the project is due to be completed or even whether there have been project delays. BXA's April 2001 Risk Tracking Document also highlights this risk. While BXA's systems integration contractor prepared a draft Project Management Plan on September 25, 2001, it lacked several sections, including a proposed milestone schedule (a basic element of any project plan).
Target Architecture A group of documents, including (1) Technical Reference Model, (2) Standards Profile, (3) Gap Analysis, and (4) Data Migration Plan, which define new and future processes through data, applications, and technology changes.	Without a target architecture, the ECASS 2000+ project team cannot adequately ensure that all components of the new system adhere to the same proposed standards and technology. Several of the required documents have not been completed, such as the technical reference model and standards profile. Although BXA is currently attempting to define the architectural standards and technology for ECASS 2000+, two of its subsystems (SNAP/ESD and the Investigative Tracking system) will be implemented in early 2002 and might require technology changes once the final architecture standards have been selected. In addition, without the target architecture, BXA cannot determine where ECASS 2000+, including the two subsystems currently being implemented, should be located if it does not remain at the Department's Springfield Computer Center.

Source: Commerce Office of Inspector General.

Conclusions

BXA has requested, but not received, additional positions from the Congress for the redesign effort. As a result, senior BXA managers need to consider alternative ways to provide adequate personnel and funding resources to ensure that established management tools are in place for ECASS 2000+ and to keep the project on schedule.[39] This may include reallocation of existing resources within BXA, as necessary. Given the shortcomings and inadequacies of the current export licensing system, it is imperative that BXA senior managers oversee the modernization project and dedicate appropriate resources to it in order to ensure that its revised fiscal year 2006 deadline is met.

In addition, BXA senior managers, including BXA's CIO, should periodically meet to discuss ECASS 2000+ development efforts, including any delays or major problems with the project. One vehicle BXA managers could use to provide project oversight is BXA's IT Steering Committee. In August 1997, this committee was established as a tool for BXA's senior managers to periodically review all IT projects. However, since June 2000 this committee has only met once—in October 2001 after our fieldwork was completed.

Furthermore, BXA needs to strengthen its redesign effort by (1) implementing its configuration management process, (2) implementing its risk management process, (3) completing all necessary software acquisition training, (4) revising and approving the project management plan, and (5) completing its target architecture. Finally, BXA needs to make a decision about where its new system should be located no later than the second quarter of fiscal year 2002.

In response to our draft report, BXA agreed with our various recommendations to strengthen its management of the ECASS redesign effort. Specifically, BXA informed us that its IT Steering Committee met twice in October 2001 to approve the multi-year ECASS 2000+ software development plan, and that the committee plans to hold quarterly meetings in the future to address both ECASS 2000+ and any other IT issues. BXA's response also stated that in an effort to keep BXA managers and potential users of the new system regularly updated on the system's development, its managers receive a one to two page biweekly update of all major ECASS 2000+ activities, and a new ECASS 2000+ website was established in February 2002 for all potential users.

[39]Initially, BXA's target date for implementing ECASS 2000+ was fiscal year 2003. That target date has now been extended to fiscal year 2006, and BXA still does not know whether the full system will be completed within that timeframe.

In addition, BXA's response stated that its integration contractor has instituted an active risk management process and begun to implement a configuration management process using the Rational toolset. BXA also indicated that it expects to provide all of the ECASS 2000+ team members on-line access to these processes in February 2002. Moreover, subsequent to our draft report, the ECASS 2000+ project team members have reportedly completed the necessary software acquisition training. Specifically, in November 2001 the team conducted a self-assessment of the software acquisition processes currently in place and the steps necessary to implement ongoing process improvements. Furthermore, BXA's response stated that the ECASS 2000+ program manager will revise and approve the program management plan during the second quarter of fiscal year 2002.

Finally, BXA's response indicated that completion of the target architecture will be a priority task during the second quarter of fiscal year 2002. As a part of that effort, BXA is currently conducting a data center study and hopes to have a final candidate list in February 2002. At that time, BXA anticipates visiting the proposed sites and making recommendations to BXA management as to where its new system will be located. BXA hopes to have a final decision on this matter during the third quarter of fiscal year 2002.

Although BXA agreed with our recommendations to implement established IT management best practices to strengthen its modernization efforts, it took exception to our characterization that due to resource constraints, the ECASS 2000+ project manager had to enlist the help of its ECASS maintenance contractors and heavily rely on its integration contractor for the design, implementation, and oversight of the redesign project. While BXA may have intended to use its ECASS maintenance contractor for various tasks associated with the redesign effort, we were informed differently during our review by both ECASS 2000+ project team members and ECASS maintenance personnel. Given the age of ECASS, it is our understanding that BXA's maintenance contractors are kept fairly busy "maintaining" the current system and ensuring that it remains operational. As such, our report was simply highlighting the need for dedicated full-time personnel to work on the redesign effort. Furthermore, while we agree that BXA's ECASS integration contractor has played and will continue to play a key role in the development of ECASS 2000+, a project manager needs adequate in-house staff to oversee all of the sub-tasks associated with a system development project.

IV. Interagency Cooperation on Planning, Design, and Development Has Been Mixed

Our 1999 report on the export licensing process cautioned BXA that without improved coordination between the licensing agencies, the simultaneous development of multiple and distinct export licensing automation systems would continue. Thus, we recommended that BXA coordinate its system development efforts with the other export licensing agencies. As a part of that coordination effort, we recommended that BXA encourage these agencies to establish an interagency steering committee to review the automation portion of the export licensing process, from coordinating common system architecture requirements to determining how interagency resources could be used to fund and implement a new system. Since then, BXA has participated in and coordinated with some of USXPORTS automation efforts currently underway; however, BXA has not involved the other licensing agencies in its own redesign effort beyond SNAP/ESD.

According to OMB Circular A-130, federal agencies should ensure that improvements to existing information systems and the development of planned information systems do not unnecessarily duplicate existing information systems. However, BXA managers have not, to date, seen fit to include the other licensing agencies in its efforts to modernize ECASS.

Joint BXA and USXPORTS initiatives

In an attempt to work more closely with Defense, BXA's ECASS 2000+ project manager also serves as the Commerce project manager for Defense's USXPORTS. As such, the project manager participates as a full partner with the USXPORTS office and dedicates up to one full day a week to USXPORTS activities. We believe this arrangement is an important first step for both agencies to better coordinate their automation efforts. In addition, as mentioned previously, there are two important USXPORTS initiatives currently underway in which BXA is a key participant.

First, BXA and USXPORTS are jointly working on SNAP/ESD, which will enable exporters to concurrently submit all export license applications and supporting documentation electronically. The USXPORTS office is funding the project, and BXA's ECASS 2000+ project manager is responsible for overseeing the development of the project for USXPORTS. Once completed, USXPORTS will turn the system over to BXA to house and maintain SNAP/ESD. We believe the partnership shown on this project has demonstrated the benefits of agencies working cooperatively together.

Second, both BXA and the USXPORTS office are working to improve the automated interface between BXA's and Defense's export licensing systems by establishing a dedicated T-1 communication line (unclassified but sensitive) between the two agencies. A T-1 line is a dedicated high-speed connection that will enable faster and more secure transmission of data between the two agencies. According to USXPORTS, security testing for the T-1 line began in January 2002 and will continue until March 2002 when the line is to become fully operational to support SNAP/ESD. Finally, we would like to reemphasize that BXA personnel participated in USXPORTS's BPR efforts for the dual-use licensing process. Clearly, the dual-use export control process is an interagency process, and we commend BXA's involvement in the USXPORTS reengineering efforts to date.

Developing licensing requirements in isolation

As we mentioned earlier in Chapter II, Section C, BXA is developing requirements for ECASS 2000+ without input or validation from the current referral agency users (e.g., State and Justice) or potential referral agency users (e.g., Defense). Both State and Justice licensing officers use ECASS to process license applications referred to them. As such, they should be included in the development of licensing requirements for the new system. In addition, given that Defense is currently evaluating whether to migrate its export licensing data to an unclassified environment,[40] it is even more imperative that Commerce and Defense work together to develop common licensing requirements. In fact, according to BXA's April 2001 ECASS 2000+ Risk Tracking document, the lack of sharing and validation of user requirements among the interagency community might result in BXA developing a system that will not efficiently and effectively process export license applications.

Other system alternatives need to be explored

Because BXA is developing its licensing system independently, it may not be adequately evaluating other system alternatives for its license processing needs beyond enhancing the interfaces with the existing licensing systems. For instance, two other alternatives that the USXPORTS office has identified to improve the export licensing process include a hybrid "system-of-systems" and a single federal dual-use licensing system.

[40] According to Defense, its export license data is primarily unclassified, however, Defense was uncertain whether this unclassified data remained unclassified in the aggregate. As a result, Defense recently completed an Operational Security study that concluded that the compilation of Defense's unclassified export license data does not need to be classified based on the aggregation of the data and should be treated as sensitive but unclassified data.

- **Hybrid System-of-Systems**: A system to house all data submitted by industry in a single database, but each export license agency would build its own licensing subsystem unique to its agency's needs and functions.

- **Single Federal Dual-Use Licensing System**: A single integrated system to replace all federal export licensing automated systems supporting the dual-use export license review process.

The hybrid system-of-systems alternative seems to offer a more integrated export licensing process environment than currently exists. In fact, at least one of the features of this alternative is currently being developed. Specifically, while the hybrid system of systems option includes a central repository for all data records pertaining to an export license, the SNAP/ESD subsystem that BXA and USXPORTS are already developing will in effect be a central repository for all electronic supporting documentation. We believe this effort could easily be expanded to incorporate the rest of the license record, including (1) license application data, (2) referral history, and (3) final disposition of case.

However, BXA has expressed concern that the creation of a central repository for all license data records would eliminate its ability to review license applications upfront for completeness before the applications are referred. We believe that BXA's concern can be addressed, if necessary. As the electronic support documentation system is currently planned, the interagency licensing agencies will only have specific read-only access to the documentation relating to those cases that have been referred to them by BXA. Therefore, it should be technically feasible to put similar controls on license applications so that BXA can initially review the applications before giving the referral agencies access to those cases in the system that they have asked to review.

At a minimum, we believe that BXA and the other export licensing agencies can effectively use one data repository to provide user access to licensing subsystems and support tools while allowing agencies to maintain control of their respective databases. Besides the efficiency gains associated with this alternative, a central repository of all license data will also provide a tool for cumulative effect analysis which can be used in processing future relevant licensing cases.

In addition, while we believe there would be definite savings and efficiency gains, such as merging computer facilities, standardizing hardware and software, and reducing systems support staff, in having a single federal dual-use licensing system, we realize that three of the six export licensing agencies—Defense, Energy, and the CIA—currently operate in a classified environment. Thus, this alternative may be harder to achieve at this time. However, if Defense migrates its export licensing data to an unclassified environment in the near future, this alternative would potentially be feasible for Commerce, Defense, Justice, and State, at a minimum, and should be adequately evaluated by BXA and the other export licensing agencies.

As such, BXA should explore whether Defense could use the ECASS 2000+ licensing subsystem for its export licensing needs.

Conclusions

According to BXA, 86 percent of license applications are referred to other agencies for review. As a result, understanding how each agency contributes to the licensing process is essential for planning the redesign of ECASS. Although BXA has taken some steps to participate and coordinate with Defense to improve the current automated systems that support the export license process, BXA does not have a clear definition of how it will continue to work with Defense or the other licensing agencies. Therefore, we recommend that BXA work with the other export licensing agencies to develop a written agreement between BXA and the license referral agencies, including the Departments of Defense, Energy, Justice, State, and the Treasury, and the CIA. The agreement should outline both the responsibilities of each party involved and how best to coordinate BXA's ECASS 2000+ redesign effort with the other agencies' automation initiatives.

BXA's response to our draft report indicated that it partially agreed with our recommendations to improve interagency cooperation and coordination on its ECASS redesign effort. Specifically, BXA's response stated that it has provided Defense with copies of all of its ECASS 2000+ developmental products (e.g., Vision Document, Software Requirements Specification document, and the initial library of developed use cases) in an effort to avoid duplication, and that BXA continues to explore with Defense the option of using ECASS 2000+ for Defense's export licensing needs. However, when further questioned on this matter, BXA informed us that it has not asked Defense to use BXA's new ECASS 2000+ for Defense's licensing needs nor does BXA believe it is appropriate to do so. We disagree. Given that Commerce has the legislative mandate to administer the interagency dual-use export licensing process and the fact that a recent security review concluded that Defense could migrate its export licensing data to an unclassified environment, it is an opportune time for Commerce to aggressively explore with Defense the feasibility of it using ECASS 2000+ for its export licensing needs.

Furthermore, BXA's response stated that it is already working with Defense's USXPORTS office to develop a central repository for all electronic supporting documentation (SNAP/ESD), and that the development of more appropriate interfaces to enhance the data flows within agencies and data sharing will be determined by a number of factors, both technical and non-technical. While we commend BXA for working with Defense to develop SNAP/ESD, we do not believe that this effort goes far enough. Specifically, only one referral agency (State)

currently has the ability to centrally view all application data, agency comments and the final disposition on cases that are referred to it.[41] However, by creating a central repository for all unclassified export licensing data (including, at a minimum, license application data, referral history, and the final disposition of a case), all referral agencies could have access to this data.

Finally, while BXA's response stated that it has a Memorandum of Agreement in place with Defense committing Commerce resources to improving the interagency licensing processes through the coordination of automation initiatives, BXA later informed us that it does not have such an agreement in place with Defense. While we understand that there is a letter from the former Under Secretary for Export Administration to the Principal Deputy Under Secretary of Defense (Acquisition Technology and Logistics), dated June 30, 2000, indicating BXA's willingness to participate and coordinate with Defense's efforts to improve the current automated systems that support the export license process, the letter does not outline specifically how BXA will continue to work with Defense or the other licensing agencies once the SNAP/ESD project is complete.

BXA's response also notes that Defense's efforts (through its USXPORTS office) to fully engage all of the export licensing agencies to improve the interagency export licensing systems have not been fully successful. However, it is our understanding that one of the key factors that hindered USXPORTS ability to fully engage the export licensing agencies (most notably State's Office of Defense Trade Controls, which oversees the munitions export licensing process) was the fact that it had no authority to do so. However, BXA, which has the legislative mandate to administer the interagency dual-use export licensing process, does have the authority and responsibility to aggressively work with the referral agencies to improve the various automated dual-use export licensing systems. Therefore, we again reiterate our recommendation for BXA, in coordination with the referral agencies, to develop a written agreement ensuring that dual-use export licensing systems are developed, integrated, and modernized without duplication. Furthermore, the agreement should outline the responsibilities of each agency involved in the process to ensure maximum interagency cooperation and coordination in the licensing of controlled exports. At a minimum, BXA should develop a central repository for all unclassified data records pertaining to an export license. The repository should have appropriate access controls while also allowing the agencies to maintain control of their respective databases, as appropriate.

[41] BXA informed us that it previously developed subprograms for Defense and the CIA to view agency comments and final disposition of cases, but it is not sure if the subprograms are being used anymore.

RECOMMENDATIONS

We recommend that the Under Secretary for Export Administration take the following actions to better ensure the success of the ECASS 2000+ project:

1. Reevaluate and determine, as soon as possible, whether any of the proposed changes outlined in BXA's 1998 BPR, the USXPORTS BPR, as well as BXA's August 2001 internal licensing task force report, should be factored into the design and requirements for ECASS 2000+ (see page 15).

2. Determine what resources are needed in the short-term (FYs 2002 and 2003) and long-term (FYs 2004 through 2006), how to secure adequate funding levels, and whether it is necessary to extend the project timeframe (see page 17).

3. Ensure that appropriate users, including those from referral agencies, validate the systems requirements for the licensing subsystem (see page 20).

4. Document security requirements as soon as possible and determine how to fund them, including whether BXA should reallocate existing resources or make them a high funding priority (see page 23).

5. Convene a meeting periodically of BXA senior managers, including the CIO, to discuss ECASS 2000+ development efforts, and any anticipated delays or major problems with the project (see page 27).

6. Implement the ECASS 2000+ configuration management process during the second quarter of fiscal year 2002 (see page 27).

7. Implement the ECASS 2000+ risk management process during the second quarter of fiscal year 2002 (see page 27).

8. Ensure that the ECASS 2000+ project team completes the necessary software acquisition training during the second quarter of fiscal year 2002 (see page 27).

9. Revise and approve the project management plan during the second quarter of fiscal year 2002 (see page 27).

10. Complete the target architecture and select a location to house BXA's new export licensing automation system during the second quarter of fiscal year 2002 (see page 27).

11. Explore whether Defense could use the ECASS 2000+ licensing subsystem for its export licensing needs (see page 32).

12. Work with the dual-use export licensing agencies to develop a central data repository for all data records pertaining to an export license reviewed by these agencies. The repository should have appropriate access controls while also allowing the agencies to maintain control of their respective databases (see page 32).

13. Develop a written agreement between BXA and the license referral agencies, including the Departments of Defense, Energy, and State, and the Treasury, and the CIA outlining the responsibilities of each party involved in this effort and how best to coordinate the ECASS 2000+ redesign effort with each agency's automation initiatives (see page 32).

APPENDIX A

STATUS OF 1999 INTERNAL CONTROL RECOMMENDATIONS

In its 1999 report on export licensing,[42] we made a number of recommendations related to internal controls for the current ECASS system. In response to our recommendations, BXA indicated in some cases that it would build specific internal controls into its new licensing system, ECASS 2000+, to address a control problem that it could not correct in the current system. Those controls planned for ECASS 2000+ are also highlighted below, but we did not complete a review of the internal controls planned for the new system. Our 1999 internal control recommendations and the status of BXA's steps taken in regard to the recommendations follow.

Recommendations for the Bureau of Export Administration

28. Take the following actions necessary to implement or strengthen the internal controls for ECASS, including:

(a) Provide a duplicate read-only tape to the Under Secretary for Export Administration every 90 days, highlighting any changes that might be made by lower ranking BXA personnel.

Status: Closed. BXA sends backup tapes to the departmental computer center in Springfield, Virginia, on a regular basis. According to BXA and center personnel, the tapes are appropriately safeguarded and available for review, if needed, by the Under Secretary for Export Administration. We believe that BXA's actions meet the intent of our recommendation.

(b) Establish criteria for reopening closed cases in the system.

Status: Closed. BXA decided not to establish criteria for reopening cases because there are too many variables to be considered when reopening a case. However, BXA issued a memorandum reemphasizing that each office must submit a written justification to the Office of Exporter Services (OEXS) for opening a closed case. OEXS informed us it will send back any request that contains insufficient information describing why the case should be reopened. If information describing why a case should be reopened is sufficient, OEXS will determine whether the case

[42] *Improvements Are Needed to Meet the Export Licensing Requirements of the 21st Century*, U.S. Department of Commerce Office of Inspector General, IPE-11488, June 1999.

should be reopened based upon the export regulations and specific circumstances. As such, we believe that this action meets the intent of our recommendation.

(c) **Ensure that the electronic audit trail is more complete.**

Status: Open. According to BXA, it will institute an improved audit trail in the ECASS 2000+ system. Specifically, audit trails will be maintained in the new system for data modifications, ensuring data integrity by implementing version control for all BXA work items and business entities. However, until these changes are implemented, the recommendation will remain open.

(d) **Have the database administrator assign data element responsibilities to individuals throughout the organization.**

Status: Open. BXA acknowledged that this recommendation addresses responsibility and accountability for authorizing access to data elements and thereby ensuring the integrity of the data elements. As such, BXA indicated that it will enforce this internal control in ECASS 2000+ through a role-based permission scheme that ensures access to data by authorized individuals. Until these changes are implemented, the recommendation will remain open.

(e) **Establish an official database review board.**

Status: Open. BXA informed us that it plans to officially establish a Milestone Achievement Review Board in the second quarter of fiscal year 2002. In the interim, board members have been proposed and their duties have been enumerated. However, according to BXA, the board will only address issues related to the new ECASS 2000+ system, not the current ECASS system. Given that BXA must rely on its current ECASS system for another four years (until fiscal year 2006), we believe this board should also address issues relevant to the current system as well. Therefore, this recommendation will remain open.

(f) **Establish a standards development group to develop appropriate database standards, including data definition, data documentation, passwords, and writing and testing programs.**

Status: Open. Through the design of the ECASS 2000+ system, BXA intends to implement an ongoing configuration management process, including configuration identification, control, status accounting, and auditing. We believe that this action will meet the intent of our recommendation once it is fully implemented.

(g) **Designate a team to periodically review the internal controls and risks associated with BXA's system, about once a year or when conditions materially change.**

Status: Closed. As a part of BXA's new IT security program, BXA completed a risk assessment of the current ECASS system in December 2001. While BXA's actions meet the intent of our recommendation, we want to reiterate the need for BXA to conduct these assessments on an ongoing basis.

(h) **Require the database administrator to reorganize the database every year.**

Status: Closed. BXA personnel informed us that they have and will continue to evaluate the space requirement needs of the existing system. As a result, BXA personnel emphasized that there is no database reorganization that needs to be done at the current time. Within the next few months, BXA's database administrator will determine whether archiving data is necessary and, thus, whether reorganization of the database might be needed. BXA personnel stated that this process will continue as data in the database is archived. We believe that BXA's actions meet the intent of our recommendation.

(i) **Consider the feasibility of one data entry clerk's work being reviewed by another before it goes into the database, or contract this function out.**

Status: Closed. According to BXA, this recommendation would be too costly to implement. More important, BXA believes that a continued increase in on-line applications by users will make this recommendation moot. We cannot confirm that our recommendation would be too costly to implement, but we agree that a continued increase in on-line applications will make our recommendation moot. Since our 1999 review, on-line submission of applications has grown to more than 61 percent. In early 2002, BXA is scheduled to implement improvements to its existing SNAP system, which should increase more on-line applications. As a result, we believe that our recommendation is no longer necessary.

(j) **Reestablish the old "User Meetings" between the operations staff, licensing officers, and information technology staff to discuss issues and identify and resolve problems quickly.**

Status: Closed. BXA has held user meetings as part of the requirements elicitation for the ECASS 2000+ system. In addition, current ECASS users will be accommodated on an as needed basis as issues are identified. We believe that these actions meet the intent of our recommendation.

(k) **Take steps to reduce the number of duplicate codes in the database, including an extensive archiving effort to retire a large number of duplicate identification numbers.**

Status: Open. Although BXA archives records when necessary, the archiving function does not solve the problem of duplicate codes in the database. BXA personnel stated that the manual entry of codes causes duplications in the database. However, BXA informed us that this issue will be addressed in the design of ECASS 2000+. Until this issue is resolved, the recommendation remains open.

(l) **Update the current continuity of operations plan to include all appropriate manual and system contingency processes as soon as possible.**

Status: Open. According to BXA, it plans to issue a revised continuity of operations plan in February 2002. However, BXA personnel emphasized that funding to implement the plan, if needed, has not been available. As such, BXA needs to determine what funding is needed, including whether BXA needs to reallocate existing resources or seek additional funding, if the plan is to be implemented. Until these issues are resolved, the recommendation remains open.

(m) **Establish a risk management team to identify and assess the severity of risk in BXA's database environment, or have a contractor perform the risk analysis.**

Status: Closed. BXA has established a risk management team to identify, track, and mitigate process risks for both ECASS and ECASS 2000+. Furthermore, the ECASS 2000+ project team members completed training on the Software Engineering Institute's Continuous Risk Management program in November 2001. As a result, this recommendation is closed.

(n) Send a "network message" to emphasize that all database problems should be reported via the hotline.

Status: Closed. BXA has sent a network message to let users know that they can inform the database administrator of database problems. We believe that this action meets the intent of our recommendation.

(o) Prepare a BXA system security plan.

Status: Open. Although BXA has a draft security plan for its current system, it has not been reviewed or approved by BXA management. As a result, BXA lacks a working security plan for ECASS. In addition, we would like to point out that although BXA has not yet prepared its security requirements for ECASS 2000+, it recently hired a contractor to prepare a security plan for the new system in fiscal year 2002. Until BXA management approves the plan for the current system, the recommendation remains open.

(p) Perform periodic security reviews.

Status: Open. While BXA has performed partial security reviews of database access controls, it has not performed complete security reviews of its operations. BXA plans to begin performing complete security reviews in September 2002. BXA's action partially meets the intent of our recommendation.

(q) Officially assign the security duties of BXA's computer system to BXA's security officer.

Status: Closed. BXA has officially assigned its security responsibilities to an IT Security Officer. In addition, it recently designated an alternate security officer. BXA's actions meet the intent of our recommendation.

(r) Provide all ECASS users with current security training.

Status: Closed. BXA has implemented Security Standard Operating Procedures for ECASS users. Each new user is required to read this guide and sign a certificate vouching for that fact. We believe that BXA's action meets the intent of our recommendation.

(s) **Develop a communication link to immediately notify the Springfield Computer Center of terminated or transferring employees so that system access can be promptly revoked or modified, by the end of each working day.**

Status: Closed. BXA has instituted a standard form to be completed when employees leave BXA, which is immediately e-mailed or faxed to the account administrator at the Department's Computer Center in Springfield, Virginia. ECASS access is also a part of the sign-out process when employees leave BXA, ensuring that the ECASS access manager can cancel employee ECASS accounts before they leave BXA. The account administrator at the departmental center stated that BXA is providing the necessary information in a timely manner. We believe that BXA's actions meet the intent of our recommendation.

(t) **Restrict the number of BXA employees with file manager access.**

Status: Closed. BXA has designated—and we agree—three individuals to have file manager access. Specifically, the database administrator and two other technical staff members will perform database operations and backup tasks. We believe that BXA's action meets the intent of our recommendation.

APPENDIX B

List of Acronyms

BPR	Business Process Reengineering
BXA	Bureau of Export Administration
CIA	Central Intelligence Agency
CIO	Chief Information Officer
CITRB	Commerce Information Technology Review Board
COTS	Commercial-Off-the-Shelf
ECASS	Export Control Automated Support System
EXCON	Export Control System
FORDTIS/TPS	Foreign Disclosure and Technical Information System/ Technology Protection System
GAO	U.S. General Accounting Office
IT	Information Technology
OC	Operating Committee
OEXS	Office of Exporter Services
OIG	Office of Inspector General
OMB	Office of Management and Budget
PINS	Proliferation Information Network System
PKI	Public Key Infrastructure
SNAP/ESD	Simplified Network Application Processing/Electronic Support Documentation System
TECS	Treasury Enforcement Communications System
USXPORTS	U.S. Export Systems
WINPAC	Weapons Intelligence, Nonproliferation, and Arms Control

APPENDIX C

Agency Response

UNITED STATES DEPARTMENT OF COMMERCE
The Under Secretary for Export Administration
Washington, D.C. 20230

January 22, 2002

MEMORANDUM FOR JOHNNIE FRAZIER
INSPECTOR GENERAL

FROM: Kenneth I. Juster

SUBJECT Response to Draft Inspection Report

The Bureau of Export Administration (BXA) appreciates the opportunity to comment on the Office of Inspector General's draft report entitled, "BXA Needs to Strengthen its ECASS Modernization Efforts to Ensure Long-Term Success of the Project (IPE-14270)." BXA agrees that we have made progress on the ECASS 2000– redesign effort. We have outlined additional actions taken since the conclusion of your study that demonstrate our commitment to ensure the long-term success of our redesign effort.

BXA's comments are included as two attachments to this memorandum: (1) comments on the report's recommendations, and (2) detailed comments on the report text. BXA also has included an Appendix containing additional documentation that was not available prior to the completion of the study.

If you have any further questions concerning BXA's comments, please contact Miriam Cohen, Director of Administration, on (202) 482-1900.

Attachments

BXA Comments on ECASS 2000+ Report Recommendations

Recommendation 1: Reevaluate and determine, as soon as possible, whether any of the proposed changes outlined in BXA's 1998 Business Process Reengineering (BPR), the USXPORTS BPR, as well as BXA's August 2001 internal licensing task force report, should be factored into the design and requirements for ECASS 2000+.

Agree. This recommendation will be addressed and documented by the ECASS 2000+ User Group that meets on a bi-weekly basis.

Recommendation 2: Determine what resources are needed in the short-term (FY s 2002 and 2003) and long-term (FY s 2004 and 2005), how to secure adequate funding levels, and whether it is necessary to extend the project time frame.

Agree. BXA is in the process of obtaining an independent cost estimate based on the proposed multi-year software development plan provided by our integration contractor. In addition, as part of our ongoing dialogue with USXPORTS, we continue to look for ways to share resources and encourage reuse to provide maximum value to the interagency licensing community.

Recommendation 3: Ensure that appropriate users, including those from referral agencies, validate the systems requirements for the license subsystem.

Agree. Several referral agencies will participate in the beta testing of the new SNAP system. In addition, BXA will invite these agencies to participate in user requirement validation sessions for the license subsystem. The USXPORTS interagency user's group can facilitate this ongoing dialogue and also provide additional requirements.

Recommendation 4: Document security requirements as soon as possible and determine how to fund them, including whether BXA should reallocate existing resources or make them a high funding priority.

BXA has already documented and prioritized security requirements resulting from IT security self assessments and GAO audit results. BXA has implemented a robust IT security action plan in FY 2002 by redirecting existing resources (see Appendix 1). The Office of Management and Budget (OMB) has approved a $1 million increase for BXA's IT security program in FY 2003.

Recommendation 5: Convene a meeting periodically of BXA senior managers, including the Chief Information Officer (CIO), to discuss ECASS 2000+ development efforts, and any anticipated delays or major problems with the project.

Agree. The BXA Information Technology Steering Committee (ITSC) is composed of the Bureau's senior executives, including the CIO. The Committee met twice in October 2001 to approve the multi-year ECASS 2000+ software development plan (See Appendix 2 for a copy of the software development plan). ITSC quarterly meetings are planned to address both ECASS 2000+ and any other information technology issues. In addition, BXA's senior managers receive a one to two page

biweekly update of all major ECASS 2000+ activities. A new ECASS 2000+ Web site will be available to all potential users in February 2002. All project artifacts, including registration/tracking of new requirements, will be available through this website.

Recommendation 6: Implement the ECASS 2000+ configuration management process during the second quarter of fiscal year 2002.

Agree. BXA's integration contractor has begun to implement this process using the Rational toolset and will provide web access to all ECASS 2000+ team members in February 2002.

Recommendation 7: Implement the ECASS 2000+ risk management process during the second quarter of fiscal year 2002.

Agree. BXA's integration contractor has an active risk management process in place, and will expand -through the Rational toolset -its availability to all ECASS 2000+ team members in February 2002. This will allow the team to have a central repository to manage all identified risks.

Recommendation 8: Ensure that the ECASS 2000+ project team completes the necessary software acquisition training during the second quarter of fiscal year 2002.

Agree. This training was completed in November 2001.

Recommendation 9: Revise and approve the program management plan during the second quarter of fiscal year 2002.

Agree. The ECASS Program Manager will revise and approve the program management plan during the second quarter of FY 2002.

Recommendation 10: Complete the target architecture and select a location to house BXA's new export licensing automation system during the second quarter of fiscal year 2002 (see page 25).

Agree. Completion of the target architecture is a priority task during the second quarter of this fiscal year. In addition, a Data Center Study is underway, with a final candidate list expected in February 2002. BXA personnel will then schedule site visits, conduct interviews, and make recommendations to management. A final decision can be expected during the third quarter of FY 2002.

Recommendation 11: Explore whether Defense could use the ECASS 2000+ licensing subsystem for its export licensing needs.

We have provided the Department of Defense (DOD) with copies of all development products, and we continue to explore the option of DOD using our system for its export licensing needs. However, that decision rests with DOD.

2

Recommendation 12: Work with the dual-use export licensing agencies to develop a central data repository for all data records pertaining to an export license reviewed by these agencies. The subsystem should have appropriate access controls while also allowing the agencies to maintain control of their respective databases.

This work is partially underway, with the Simplified Network Application Process/Electronic Supporting Documentation (SNAP/ESD) project, which is funded by USXPORTS in cooperation with BXA. The technical library will house all supporting documentation associated with an export license as well as requests for additional information from all referral agencies. All referral agencies already have access to ECASS, which will continue with the new ECASS.

The development of more appropriate interfaces to enhance the data flows within agencies and data sharing will be determined by a number of factors, both technical and non-technical.

Recommendation 13: Develop a written agreement between BXA and the license referral agencies, including the Departments of Defense, Energy, and State, the Treasury, and the CIA outlining the responsibilities of each party involved in this effort and how best to coordinate the ECASS 2000+ redesign effort with each agency's automation initiatives.

Partially Agree. BXA has a Memorandum of Agreement in place with DOD (USXPORTS) that commits Commerce resources to improve interagency licensing processes through coordination of automation initiatives. Although USXPORTS has attempted to engage all referral agencies, these efforts have not, as yet, been entirely successful. BXA would prefer to build on our working partnership with DOD, through USXPORTS, to achieve the coordination of automation initiatives, rather than execute written agreements separately.

BXA Detailed Comments on ECASS 2000+ Report Text

Page 5

Fourth paragraph: The sentence should state that BXA electronically transmits validated licensing information to Customs over a dedicated 56K data line.

Page 6

Expand last sentence of paragraph to read: During its lifetime, ECASS has been upgraded to permit manual, electronic, and optical character recognition data entry of license applications for export and re-export, commodity classifications, special comprehensive and deemed export licenses, and agriculture license exception notices.

Figure 2 implies that Customs directly uses ECASS subsystems. This is not correct. BXA electronically transmits validated licensing information to Customs over a dedicated 56K data line. Figure 2 also implies that the State Department uses a T -1 line to access ECASS. State accesses ECASS through BXA provided dial-up workstations.

Page 9

Findings and Conclusions, First Bullet: It is not clear what is meant by the first bullet which states that we are using the Department's design and development processes. ECASS 2000+ is using industry standard design and development processes, such as Software Acquisition - Capability Maturity Model (SA-CMM) for software acquisition and the Rational Unified Process for software engineering. We are aware of the Departments use of the CMM for architecture, and we are adhering to and assessing our progress in this area, as well as performing annual self-assessments and documenting system development processes per OMB and Clinger-Cohen Act requirements.

Page 11

First paragraph, add language as noted: Support documentation also may be faxed to BXA once the exporter has received their Application Control Number (ACN) via SNAP, and BXA has officially accepted their application. Currently, support documentation is scanned into the Multipurpose Archival Records Retrieval System (MARRs) after the application has been completed by the Licensing Officer. SNAP 2002 will eliminate the need to scan documentation at the back-end of the process.

Third paragraph: Additional design peer reviews were held in September and December 200 1, respectively. Beta testing will be held for four weeks beginning the week of J January 22, 2002, with production scheduled for March 2002.

Page 18

First paragraph: The licensing subsystem is part of a multi-year software development plan. The current timing for detailed elaboration and construction of this subsystem is not scheduled until FY 2003; therefore, it seems inaccurate to state that there has been minimal user involvement in

requirements preparation. The same processes cited as adequate for both SNAP/ESD and Investigative Tracking are the same for all subsystems as constructed.

ECASS 2000+ IT security requirements have been specified, albeit at a high-level. Such requirements were not included in detail in the Software Requirements Specification document last December as they represented an initial view based on the team's knowledge at that true. These requirements could not be finalized until: (1) the Department solidified its network infrastructure, and (2) our integration contractor proposed the ECASS 2000+ system software/hardware. In addition, as noted, BXA is completing its target architecture (not just ECASS 2000+) in accordance with Departmental guidance.

Also, security requirements for SNAP have been assessed by the National Security Agency, agreed to by DOD, and are woven into the ECASS 2000+ front-end project. SNAP, the Department's Public Key Infrastructure (PKI) pilot project, will provide secure electronic transactions between industry and BXA.

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First paragraph, last sentence: Although users are entitled to express their concern about the development of the licensing subsystem requirements, it is not accurate to state that such requirements were developed without their input.

Many high-level requirements were taken from work done in 1998 because key business users said those were still what they wanted. Additional requirements or further refinement of these requirements were gathered through selected interviews. The review of the Software Requirements Document (SRS), published in December 2000 by business users, confirmed the high-level requirements as defined. The level of detail was expanded by several redesign workshops where users both documented the current processes and the "to-be" processes.

Initial use cases (how the system and user are to interact) were drafted by existing ECASS team members based on these sessions, and then turned over to the integration contractor. The integration contractor will, (at the appropriate time) validate with user groups all requirements through detailed-use case reviews in the multi-year development project.

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Second paragraph: It was the intent from the beginning to use existing ECASS maintenance contractors to help document the high level requirements until an integration contractor was selected. The integration contractor's job is to design, implement, and provide oversight of the redesign project. The last sentence seems to imply that something different was initially planned.

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Software Acquisition Training: The first sentence should state that all team members have received software development training to enable them to oversee the project. The project manager has had previous experience in this area. The only remaining piece of training not completed at the time of the report was a self-assessment of the software acquisition processes currently in place, and the steps necessary to implement ongoing process improvement. As of January 17, 2002, the training and assessment have been completed.

STATUS OF 1999 INTERNAL CONTROL RECOMMENDATIONS

28 (e) Establish an official database review board.

Status: The Milestone Achievement Review Board will be established to address issues related to the ECASS 2000+ system, not the existing system. Board members have been proposed and their duties enumerated in the ECASS 2000+ Quality Assurance Plan. The Board will become active in the second quarter of FY 2002.

28 (g) Designate a team to periodically review the internal controls and risks associated with BXA's system, about once a year or when conditions materially change.

Status: BXA completed a risk assessment of the current ECASS system and has provided a copy of its security plan, risk assessment, and risk management plan to the OIG for independent review in December 2001. (Please see Appendix 3)

28 (l) Update the current continuity of operations plan (COOP) to include all appropriate manual and system contingency processes as soon as possible.

Status: BXA plans to issue its revised COOP in February 2002.

28 (m) Establish a risk management team to identify and assess the severity of risk in BXA *is* database environment, or have a contractor perform the risk analysis.

Status: Ongoing process risks have been, and continue to be, identified, tracked, and mitigated for both ECASS and ECASS 2000+. All training has also been completed.

28 (o) Prepare a BXA system security plan.

Status: As noted above, BXA has completed a security plan for ECASS, which will be reviewed and approved by BXA management as part of the system certification and accreditation package. BXA has a contractor preparing a security plan for ECASS 2000+ during fiscal year 2002.

28 (p) Perform periodic security reviews.

Status: Please refer to the IT Security Action Plan in Appendix 1 for a schedule of planned security reviews in fiscal year 2002.

28 (q) Officially assign the security duties of BXA 's computer system to BXA 's security officer.

Status: BXA has designated an alternate security officer, which was cited as the only uncompleted action for this item.