



*Review of the
Electronic Fraud Detection System*

September 29, 2015

Reference Number: 2015-20-093

This report has cleared the Treasury Inspector General for Tax Administration disclosure review process and information determined to be restricted from public release has been redacted from this document.

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HIGHLIGHTS

REVIEW OF THE ELECTRONIC FRAUD DETECTION SYSTEM

Highlights

**Final Report issued on
September 29, 2015**

Highlights of Reference Number: 2015-20-093 to the Internal Revenue Service Chief Technology Officer.

IMPACT ON TAXPAYERS

Implemented in 1994, the Electronic Fraud Detection System (EFDS) remains the IRS's primary frontline system for detecting fraudulent returns. The EFDS is designed to maximize revenue protection and fraud detection at the time that tax returns are filed to reduce the issuance of questionable refunds. The EFDS supports the Department of the Treasury strategic goal to *Manage the Government's Finances Effectively*.

WHY TIGTA DID THE AUDIT

This review is part of our Fiscal Year 2015 Annual Audit Plan and addresses the major management challenge of Fraudulent Claims and Improper Payments. The overall audit objective was to determine whether the IRS has properly designed and tested enhancements to the EFDS prior to the 2015 Filing Season.

WHAT TIGTA FOUND

The IRS is developing the Return Review Program to replace the EFDS due to its fundamental limitations in technology and design. However, the IRS has not set a termination date nor established a retirement plan for the EFDS. If the IRS does not efficiently transition to the Return Review Program so that it can retire the EFDS, the estimated additional operation and maintenance costs of running the EFDS could cost taxpayers approximately \$18.2 million per year.

The EFDS project team has taken steps to mitigate the risks associated with technical obsolescence. For example, the workload management system web release addressed

concerns stemming from the client-server platform.

However, a risk management plan and requirements plan were not updated. Additionally, the IRS did not use the required repository for managing the testing of system requirements.

WHAT TIGTA RECOMMENDED

TIGTA recommended that the Chief Technology Officer: 1) develop a system retirement plan for the EFDS and retire the EFDS after validating the Return Review Program effectively identifies, at a minimum, all issues currently identified by the EFDS; 2) update the Risk Management Plan to reflect the current organizational structure, management process methodology, documentation requirements, and mitigation strategy; 3) update the Requirements Plan to reflect the current activities, methods, and techniques that are used to perform and support requirements development and requirements management; and 4) ensure that contractors have software licenses to use the required repository and verify that guidance is followed.

IRS management agreed with our recommendations. The IRS plans to finalize the EFDS retirement plan by January 2016 and to review and update documentation concerning the role of the Enterprise Program Management Office. The IRS plans to update the Requirements Plan to reflect the current organizational structure and to continue to follow the requirements traceability process as defined by the IRS's Information Technology Strategy and Planning function. The IRS also plans to ensure that contractors performing integration testing within the development cycle for the EFDS have the software licenses required to use the requirements repository.



TREASURY INSPECTOR GENERAL
FOR TAX ADMINISTRATION

DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

September 29, 2015

MEMORANDUM FOR CHIEF TECHNOLOGY OFFICER

FROM: Michael E. McKenney
Deputy Inspector General for Audit

SUBJECT: Final Audit Report – Review of the Electronic Fraud Detection System
(Audit # 201520021)

This report presents the results of our review to determine whether the Internal Revenue Service had properly designed and tested enhancements to the Electronic Fraud Detection System prior to the 2015 Filing Season. This audit is included in the Treasury Inspector General for Tax Administration's Fiscal Year 2015 Annual Audit Plan and addresses the major management challenge of Fraudulent Claims and Improper Payments.

Management's complete response to the draft report is included as Appendix VII.

Copies of this report are also being sent to the Internal Revenue Service managers affected by the report recommendations. If you have any questions, please contact me or Danny R. Verneuille, Acting Assistant Inspector General for Audit (Security and Information Technology Services).



Table of Contents

Background	Page 1
Results of Review	Page 4
System Retirement Plans Have Not Been Developed.....	Page 4
<u>Recommendation 1:</u>	Page 5
The Project Team Has Taken Steps to Mitigate Risks Associated With Technical Obsolescence	Page 5
The Risk Management Plan and Requirements Plan Should Be Updated	Page 6
<u>Recommendations 2 and 3:</u>	Page 8
A Required Repository for Managing Requirements Was Not Consistently Used	Page 8
<u>Recommendation 4:</u>	Page 9
Appendices	
Appendix I – Detailed Objective, Scope, and Methodology	Page 10
Appendix II – Major Contributors to This Report	Page 12
Appendix III – Report Distribution List	Page 13
Appendix IV – Outcome Measure	Page 14
Appendix V – Enterprise Life Cycle Framework	Page 15
Appendix VI – Glossary of Terms.....	Page 16
Appendix VII – Management’s Response to the Draft Report.....	Page 17



Review of the Electronic Fraud Detection System

Abbreviations

ACA	Affordable Care Act
EFDS	Electronic Fraud Detection System
IRS	Internal Revenue Service
ReqPro	Rational Requisite Pro
RRP	Return Review Program
RTVM	Requirements Traceability Verification Matrix



Background

Implemented in 1994, the Electronic Fraud Detection System (EFDS) remains the Internal Revenue Service's (IRS) primary frontline system for detecting fraudulent returns. The EFDS is designed to maximize revenue protection and fraud detection at the time that tax returns are filed to reduce the issuance of questionable refunds. Figure 1 compares the EFDS results for Filing Season 2014 through April 2014 to Filing Season 2015 results through April 2015 with refunds of \$10 million or more removed for a more accurate comparison, *i.e.*, potential large refunds in one year may skew the comparative results. In addition, the Filing Season 2015 results may be lower than the Filing Season 2014 results at this point because a large number of returns were diverted to the identity theft treatment stream, which has a much longer processing time.

**Figure 1: EFDS Filing Seasons 2014 and 2015
Comparison of Results Through April**

EFDS	Filing Season 2015	Filing Season 2014
Data Mining Models	\$980,057,281	\$2,066,841,817
Non-Data Mining Mechanisms	\$622,294,970	\$602,595,697
Frivolous Filer	\$31,362,919	\$4,804,122,774
Total	\$1,633,715,170	\$7,473,560,288

Source: IRS EFDS Data Mining Report as of April 2015.

The IRS is developing the Return Review Program (RRP)¹ to replace the EFDS. In March 2012, the IRS performed an RRP Alternatives Analysis that identified several risks associated with the EFDS. In the RRP Alternatives Analysis, the IRS restated concerns that were discussed in a Taxpayer Advocate Service report.²

While the Client Server³ EFDS is in production today, limitations and obsolescence are expected to render this system too risky to maintain, upgrade, or operate beyond 2015. Fundamental limitations in technology and design also render it incapable of supporting any significant change in the business model. EFDS is no longer capable of keeping pace with the levels of fraud and increasing business demands.

¹ Treasury Inspector General for Tax Administration, Ref. No.2015-20-060, *The Return Review Program Enhances the Identification of Fraud; However, System Security Needs Improvement* (July 2015).

² Taxpayer Advocate Service, *Fiscal Year 2014 Objectives: Report to Congress* (June 30, 2013).

³ See Appendix VI for a glossary of terms.



Review of the Electronic Fraud Detection System

The RRP Alternatives Analysis states that the current EFDS application has to be installed on every end-user desktop across the country. As a result, software updates must be installed on every computer, which increases the cost to maintain the application, reduces the agility for implementing changes, and increases the risk of technical obsolescence as technology evolves for end-user computers. The IRS has received continuous feedback from its stakeholders that the current EFDS client-server technology is reaching technical obsolescence, and contractor support to maintain the outdated technologies is becoming increasingly difficult to obtain.

The EFDS is modified annually to accommodate legislative changes as well as other required database and application modifications. Making these changes effectively and efficiently requires expert knowledge of the database software products used by the EFDS project and its customers. Supporting this effort includes designing solutions, troubleshooting, and implementing best practices as well as documenting these efforts and their impact. This annual system modification effort is more time consuming, costly, and hands-on than a web-based solution, such as the RRP.

The RRP Alternatives Analysis also stated that the EFDS design is based on 1994 client-server-based technology and methodologies with a Criminal Investigation business model focused on Earned Income Tax Credit revenue recovery and fraud scheme identification. The EFDS is no longer capable of keeping pace with the levels of fraud and increasing business demands. The RRP Alternatives Analysis indicated that there was a dramatic increase in revenue protected from 2008 to 2011 due to increased efforts by the IRS to address growing fraud through the existing limited technologies.

The RRP Alternatives Analysis also stated the maintenance risk of keeping the EFDS operationally available and functional is growing, and choke points in the application have been reached. According to the RRP Alternatives Analysis, trouble tickets have risen by 40 percent over the same time period. The rise in trouble tickets caused an increase in the capital investment to maintain the system. The risk of a significant system outage that degrades the IRS's fraud detection effectiveness is high.

On April 21, 2014, Senator Grassley sent a letter to the IRS due to concerns over its plans for fraud detection in 2015. In his letter, Senator Grassley quoted a Taxpayer Advocate Service report⁴ that stated the EFDS was too risky to maintain, upgrade, or operate beyond 2015. The letter also states that the Taxpayer Advocate Service reported that the RRP system, which is intended to replace the EFDS as the system used for electronic fraud detection, will not be available until January 1, 2016. This means the IRS will rely on the EFDS for fraud detection at least one year after the system was determined to be too risky to operate.

Additionally, Senator Grassley raised concerns about the IRS's ability to oversee the Patient Protection and Affordable Care Act of 2010 and the Health Care and Education Reconciliation

⁴ Taxpayer Advocate Service, *Fiscal Year 2014 Objectives: Report to Congress* (June 30, 2013).



Review of the Electronic Fraud Detection System

Act of 2010⁵ (hereafter collectively referred to as the Affordable Care Act (ACA)) premium tax credits. The IRS is allowing taxpayers to claim the premium tax credit as a refundable credit at the end of the year. Refundable credits are among the most popular targets for fraud. Individuals who enroll through the Health Insurance Marketplace Exchanges will be required to file tax returns at the end of the year.

Finally, as stated in the IRS's Fiscal Year 2015 Congressional Budget Submission, the EFDS is vulnerable to structural failure and potentially the inability to detect up to \$1.5 billion in fraudulent refunds each year that it is not replaced.

The Enterprise Life Cycle is a framework⁶ used by IRS projects to ensure consistency and compliance with Government and industry best practices. The Enterprise Life Cycle framework is the workflow that projects follow to move an information technology solution from concept to production while making sure that they are in compliance with IRS guidelines and are compatible with the overall goals of the IRS.

Each project can choose between several development paths, which include the Waterfall, Iterative, and Planned Maintenance Paths. Projects that are already in production, such as the EFDS, generally use the Planned Maintenance Path. When following the Planned Maintenance Path, a Business System Report is created after each release or Planned Maintenance Period.⁷ The Business System Report provides projects with a single report tailored to meet the project's specific needs. This includes requirements content, which is used as a baseline for requirement statements and associated traceability. When using the Planned Maintenance Path, projects are typically started in the last milestone, which is Milestone 4b. The EFDS project was required to create a Business System Report for Milestone 4b.

This review was performed in the Information Technology organization and in both the EFDS and the RRP Program Management Offices located at the New Carrollton Federal Office Building in New Carrollton, Maryland, during the period November 2014 through June 2015. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. Detailed information on our audit objective, scope, and methodology is presented in Appendix I. Major contributors to the report are listed in Appendix II.

⁵ Pub. L. No. 111-148, 124 Stat. 119 (2010) (codified as amended in scattered sections of the U.S. Code), as amended by the Health Care and Education Reconciliation Act of 2010, Pub. L. No. 111-152, 124 Stat. 1029.

⁶ See Appendix V for the Enterprise Life Cycle framework.

⁷ In the Enterprise Life Cycle, milestones occur at the end of a life cycle phase and provide natural breakpoints at which new information regarding costs, benefits, and risks may be evaluated.



Results of Review

System Retirement Plans Have Not Been Developed

Internal Revenue Manual 2.16.1, *Enterprise Life Cycle – Enterprise Life-Cycle Guidance*, states that the termination or retirement of a system represents the end of the system’s life cycle. When identified as surplus or obsolete, the system needs to be scheduled for termination or retirement. A systematic termination of a project or system needs to be established to ensure the preservation of vital information for future access or reactivation. Therefore, the organization needs to follow the proper processes in disposing the system to ensure that its disposal is in accordance with the appropriate regulations and requirements.

The IRS has not set a termination date nor established a retirement plan for the EFDS. The IRS Strategic Plan for 2014 through 2017 only makes a general reference that the RRP will replace the EFDS. There is no indication of an exit strategy or exit criteria as to when or how the IRS will shut down the EFDS. According to the IRS Enterprise Transition Plan, dated April 2014, systems identified as surplus or obsolete are to be retired within one to five years of being identified.

According to the IRS Fiscal Year 2015 Congressional Budget Submission and the RRP Alternatives Analysis, the EFDS has fundamental limitations in technology and design and is incapable of keeping pace with the levels of fraud and increasing business demands and incapable of supporting any significant change in the business model.

Furthermore, as the IRS fraud detection program expands, requirements for an entity-based data model, as well as improved case processing and inventory management, have also grown. These requirements are incompatible with the EFDS’s current architecture.

The IRS started development of the RRP to replace the EFDS. However, development of the RRP entered a strategic pause in January 2014 to allow the IRS time to evaluate the performance and design of the parallel processing database and to revisit strategic business fraud detection goals. To exit the strategic pause, the IRS developed a restart plan that was approved by the Executive Steering Committee in January 2015.

The RRP relaunch begins with the establishment of the Technical Foundation, which is a critical path for developing the RRP capabilities required by businesses in order for the EFDS to be retired. According to the RRP Restart Plan, the RRP is to be completed in phases that span multiple filing seasons, and the EFDS will not be retired until Phase 3.



Review of the Electronic Fraud Detection System

Since October 2013, the EFDS and the RRP fraud detection modules have run in parallel to validate the RRP pilot results. The pilot results are presented in our review of the RRP.⁸ While the pilot results are very encouraging, based on the RRP Restart Plan, the IRS will run the EFDS and the RRP system in parallel for several years, resulting in increased operation and maintenance costs. Figure 2 illustrates the estimated cost of operating the EFDS and the RRP in parallel.

Figure 2: Estimated EFDS and RRP Operation and Maintenance Costs

System	Fiscal Year			Total
	2013	2014	2015	
EFDS – Operation and Maintenance	\$19,982,000	\$19,635,000	\$18,218,399	\$57,835,399
RRP – Operation and Maintenance	\$0	\$0	\$11,277,713	\$11,277,713
Total	\$19,982,000	\$19,635,000	\$29,496,112	\$69,113,112

Source: IRS Fiscal Year 2015 Budget Request Congressional Budget Submission and Fiscal Year 2016 President’s Budget dated February 2, 2015; Enterprise Program Management Office Revenue Integrity and Compliance Division.

If the IRS does not efficiently transition to the RRP so that it can retire the EFDS, the estimated additional operation and maintenance costs of running the EFDS could cost taxpayers approximately \$18.2 million per year.

Recommendation

Recommendation 1: The Chief Technology Officer should develop a system retirement plan for the EFDS and retire the EFDS after validating the RRP effectively identifies, at a minimum, all issues currently identified by the EFDS.

Management’s Response: The IRS agreed with this recommendation and plans to finalize the EFDS retirement plan by January 2016.

The Project Team Has Taken Steps to Mitigate Risks Associated With Technical Obsolescence

During Calendar Years 2014 and 2015, the EFDS project team worked on three releases: the Maintenance Build 2014 release, Filing Season 2015 release, and the Workload Management

⁸ Treasury Inspector General for Tax Administration, Ref. No. 2015-20-060, *The Return Review Program Enhances the Identification of Fraud; However, System Security Needs Improvement* (July 2015).



Review of the Electronic Fraud Detection System

System Web release. These releases addressed concerns with the ACA, identity theft, and end-user technology.

- The scope of the Maintenance Build 2014 release included system updates to stay in alignment with the Chief Technology Officer's mandated infrastructure, verify system performance based on end-to-end capacity and performance testing, and resolve identified defects.
- The scope of the Filing Season 2015 release included EFDS database modifications in support of annual legislative changes, system changes to support the ACA, and annual updates and enhancements to the data-mining models.
- The Workload Management System Web release addressed concerns stemming from the obsolete client-server platform. Moving to the web-based solution will greatly reduce the administration of the application because administrators will no longer need to push updated software to each workstation individually.

Between Fiscal Years 2012 and 2015, the IRS identified seven project risks associated with EFDS development. We found that the IRS is actively monitoring the project risks by holding Executive Steering Committee meetings and project risk meetings. The IRS is also actively using the Item Tracking Reporting and Control System, which is used to track and report on issues, risks, and action items.

The Risk Management Plan and Requirements Plan Should Be Updated

According to the Government Accountability Office's *Standards for Internal Control in the Federal Government*,⁹ management should develop and maintain documentation of its internal control system. Effective documentation assists in management's design of internal controls by establishing and communicating the "who, what, when, where, and why" of internal execution to personnel. Documentation also provides a means to retain organizational knowledge and mitigate the risk of having that knowledge limited to a few personnel as well as providing a means to communicate that knowledge as needed to external parties, such as external auditors. Management documents internal controls to meet operational needs. Documentation of controls, including changes to controls, is evidence that controls are identified, capable of being communicated to those responsible for their performance, and capable of being monitored and evaluated by the entity.

The Information Technology Applications Development organization is responsible for building, testing, delivering, and maintaining integrated information applications systems to support

⁹ Government Accountability Office, GAO-14-704G, *Standards for Internal Control in the Federal Government* (Sept. 2014).



Review of the Electronic Fraud Detection System

modernized systems and the production environment. Applications Development is organized into six different domains, one of which is the Compliance Domain. The Compliance Domain supports examination and collection activities, and criminal investigations. The Program Management Office aligned under the Applications Development Compliance Domain was reorganized in September 2013. The resources tasked with development activities remained in the Applications Development organization, and the resources tasked with project management support moved to the Enterprise Program Management Office.

Risk Management Plan

Internal Revenue Manual 2.16.1, *Enterprise Life Cycle – Enterprise Life-Cycle Guidance*, dated May 2014, states that the Risk Management Plan describes the process, techniques, and tools that will be used to track, manage, and control project risk. A Risk Management Plan includes:

- Organization Structure – Describes the project team’s internal organizational risk management structure and interfaces to the organization entities external to the project plan.
- Management Processes – Contains information on how risks and issues are managed and briefly describes the process of how to implement these procedures for the project.
- Methodology – Describes how the management process will be implemented.
- Documentation Requirements – Describes the approach the organization will use to store risks and issues.
- Mitigation Strategy – Provides details on how the organization mitigation strategies are to be performed to minimize or avoid the risk or issue.

EFDS project personnel did not update the Risk Management Plan to reflect its current organizational structure, management processes methodology, documentation requirements, and mitigation strategy. Therefore, the project team is using a Risk Management Plan dated February 2, 2013, specifically designed for the Compliance Domain. Updating the Risk Management Plan to include the current organizational structure, management process methodology, documentation requirements, and mitigation strategy will ensure personnel awareness of the correct process for elevating risks, thereby reducing the chance that risks go unidentified, which could adversely affect the EFDS.

Requirements Plan

Internal Revenue Manual 2.110.2, *Requirements Engineering, Requirements Engineering Process*, dated February 2013, outlines requirements engineering activities and provides steps for completing major components of the Requirements Engineering Process. This procedure specifies, in a complete, precise, and verifiable manner, the requirements, design, and behavioral characteristics of the Requirements Engineering Process. The related artifacts that are required



Review of the Electronic Fraud Detection System

include the Requirements Plan. The Requirements Plan documents the activities, methods, and techniques that will be used to perform and support requirements development and requirements management, which include management responsibilities, tools, artifacts, and traceability. EFDS project personnel did not update the Requirements Plan to reflect its current organizational structure, management processes, and documentation requirements. The project team is using a generic Requirements Plan from the Compliance Domain dated March 5, 2014.

EFDS project personnel did not update the Risk Management Plan and the Requirements Plan because, during the transition from the Applications Development Compliance Domain to the Enterprise Program Management Office, they did not believe the plans needed to be updated. To ensure continuity during times of transition, such as changes in personnel, it is important to have established procedures in place such as those that are contained in the Risk Management and Requirements Plans.

Recommendations

Recommendation 2: The Chief Technology Officer should direct the Enterprise Program Management Office to update the Risk Management Plan to reflect the current organizational structure, management process methodology, documentation requirements, and mitigation strategy.

Management's Response: The IRS agreed with this recommendation and plans to review and update documentation concerning the role of the Enterprise Program Management Office.

Recommendation 3: The Chief Technology Officer should direct the Enterprise Program Management Office to update the Requirements Plan to reflect the current activities, methods, and techniques that are used to perform and support requirements development and requirements management, which include management responsibilities, tools, artifacts, and traceability.

Management's Response: The IRS agreed with this recommendation and plans to update the Requirements Plan to reflect the current organizational structure. The IRS plans to continue to follow its requirements traceability process as defined by the IRS's Information Technology Strategy and Planning function.

A Required Repository for Managing Requirements Was Not Consistently Used

IBM Rational Requisite Pro (ReqPro) is a requirements management tool for project teams that want to manage their requirements, improve traceability, strengthen collaboration, and increase quality. ReqPro allows projects to define and share their requirements with database-enabled capabilities such as requirement traceability and impact analysis. The Requirements Program



Review of the Electronic Fraud Detection System

Engineering Office ReqPro project templates support the IRS's requirements engineering methodology.

The IRS issued a guidance memorandum¹⁰ directing that all projects with a Fiscal Year 2013 and beyond release must use the Requirements and Demand Management organization's requirements repository (ReqPro Template or Excel Template) instead of the Requirements Traceability Verification Matrix (RTVM). For projects that were not using one of the Requirements and Demand Management organization's repositories, the RTVM was made available. To a much lesser extent, the RTVM provides the ability to trace requirements to test and associated design documentation. The RTVM was only considered as a possible interim step for projects not using one of the Requirements and Demand Management organization's repositories. In these cases, the RTVM served as the immediate end-term goal for requirements traceability. The guidance also states that the projects must maintain a requirements repository to document their requirements and maintain bidirectional traceability.

The IRS engaged a contractor to perform the required system development testing. The contractor used the RTVMs in spreadsheet form to manage the testing. The spreadsheets were then placed on the EFDS SharePoint site for the EFDS project team's use. This made the reconciliation process inefficient. During the audit, we needed to request additional information and clarification from the EFDS project team. The EFDS project did not follow the IRS guidance memorandum when it used the RTVMs instead of ReqPro to manage requirements. EFDS personnel stated that the RTVMs were used because they were unable to obtain enough software licenses for the contractor to manage requirements in ReqPro.

It is important to have consistent, accurate, and complete traceability of all requirements and their associated change requests. Additionally, using ReqPro to manage requirements throughout project development will prevent delays in receiving approval and create more efficiency.

Recommendation

Recommendation 4: The Chief Technology Officer should ensure that contractors performing testing have software licenses to use the required repository and verify that guidance is consistently followed.

Management's Response: The IRS agreed with this recommendation and plans to ensure that contractors performing integration testing within the development cycle for the EFDS have the software licenses required to use the requirements repository.

¹⁰ *Guidance to Use the Requirements and Demand Management Requirements Repository for Projects with a Fiscal Year 2013 Release in Lieu of the Requirements Traceability Verification Matrix* (November 2011).



Appendix I

Detailed Objective, Scope, and Methodology

Our overall objective was to determine whether the IRS had properly designed and tested enhancements to the EFDS prior to the 2015 Filing Season. To accomplish our objective, we:

- I. Determined whether risks are properly identified, monitored, and mitigated in accordance with applicable guidance.
 - A. Reviewed the EFDS project information technology risk management plans and milestone schedules.
 1. Obtained and reviewed documented evidence, such as project and program meeting minutes, Executive Steering Committee meeting minutes, action items, and presentation decks, to determine whether EFDS project risks are discussed, coordinated, and elevated according to established procedures.
 2. Obtained and reviewed the plans for risk management and mitigation processes for the EFDS.
 - B. Obtained the current EFDS risk reports from the Item Tracking Reporting and Control System and compared the current reports to the previous EFDS risk reports as of the end of November 2014.
 1. Determined if the IRS updated existing risks and identified any additional high-level risks.
 2. Determined if the IRS performed a comprehensive review of all EFDS project risks and monitored and tracked all risks through mitigation.
 - C. Determined if the IRS accurately portrayed the EFDS in the RRP Alternatives Analysis and the documentation that Senator Grassley used for his line of questioning in his letter to the IRS Commissioner.
- II. Determined whether the IRS adequately managed the requirements and change management risks and system testing activities for the EFDS, including changes as a result of the RRP and the ACA.
 - A. Reviewed the initial and updated EFDS Requirements Plans.
 - B. Obtained the RTVM for the EFDS.
 - C. Obtained the total population of EFDS requirements to identify system changes, including changes to the system platform technology, changes to improve system performance, and ACA integration.



Review of the Electronic Fraud Detection System

- D. Used the RTVM from Step II.B. to ensure that the tested requirements were traceable to test results.
- III. Evaluated EFDS retirement plans.
- A. Obtained and reviewed IRS strategic planning documentation for the EFDS and the RRP to determine future plans and goals for the systems.
 - B. Obtained and reviewed performance statistics and estimates for the EFDS and the RRP regarding tax returns processed and potential fraud identified to determine if the RRP provided a significant improvement over the EFDS.
 - C. Identified costs associated with maintaining the EFDS.

Internal controls methodology

Internal controls relate to management's plans, methods, and procedures used to meet their mission, goals, and objectives. Internal controls include the processes and procedures for planning, organizing, directing, and controlling program operations. They include the systems for measuring, reporting, and monitoring program performance. We determined that the following internal controls were relevant to our audit objective: the policies and procedures for changes related to systems development, risk management, and requirements management as well as the cost of operating two systems in parallel. We evaluated these controls by interviewing Information Technology organization management; identifying, testing, and tracing the risk and requirements management changes; and identifying the estimated costs of maintaining both systems from the Treasury SharePoint Investment Knowledge Exchange data.



Review of the Electronic Fraud Detection System

Appendix II

Major Contributors to This Report

Alan R. Duncan, Assistant Inspector General for Audit (Security and Information Technology Services)
Danny Verneuille, Director
Myron Gulley, Audit Manager
Ryan Perry, Senior Auditor
Chinita Coates, Auditor
Kasey Koontz, Auditor
Nicholas Reyes, Information Technology Specialist



Review of the Electronic Fraud Detection System

Appendix III

Report Distribution List

Commissioner C
Office of the Commissioner – Attn: Chief of Staff C
Deputy Commissioner for Operations Support OS
Commissioner, Wage and Investment Division SE:W
Deputy Chief Information Officer for Operations OS:CTO
Associate Chief Information Officer, Applications Development OS:CTO:AD
Associate Chief Information Officer, Enterprise Operations OS:CTO:EO
Associate Chief Information Officer, Enterprise Program Management Office OS:CTO:EPMO
Associate Chief Information Officer, Enterprise Services OS:CTO:ES
Director, Customer Account Services, Wage and Investment Division SE:W:CAS
Chief Counsel CC
National Taxpayer Advocate TA
Director, Office of Program Evaluation and Risk Analysis RAS:O
Director, Office of Audit Coordination OS:PPAC:AC
Office of Internal Control OS:CFO:CPIC:IC
Audit Liaison: Director, Risk Management Division OS:CTO:SP:RM



Appendix IV

Outcome Measure

This appendix presents detailed information on the measurable impact that our recommended corrective action will have on tax administration. This benefit will be incorporated into our Semiannual Report to Congress.

Type and Value of Outcome Measure:

- Funds Put to Better Use – Potential; \$18.2 million in estimated additional costs to operate and maintain the EFDS in parallel with the RRP (see page 4).

Methodology Used to Measure the Reported Benefit:

If the IRS does not efficiently transition to the RRP so that it can retire the EFDS, the estimated additional operation and maintenance costs of running the EFDS could cost taxpayers approximately \$18.2 million per year.



Appendix V

Enterprise Life Cycle Framework

Phase Name	Phase Description	Milestone	Major Results of Phase
Vision and Strategy Enterprise Architecture	High-level direction setting for the enterprise. (This is the only phase for enterprise planning projects.)	Milestone 0 (There is no formal exit.)	Authorization to begin a project.
Project Initiation	This is when the project defines the project scope, forms the project teams, and begins many of the Enterprise Life Cycle artifacts.	Milestone 1	Approval of project scope and team structure.
Domain Architecture	Gathering, development, and approval of solution concept, requirements, and architecture of the solution.	Milestone 2	Approval of the business requirements and architecture.
Preliminary Design	Development of the logical design.	Milestone 3	Approval of the logical design.
Detail Design	Development of the physical design.	Milestone 4a	Approval of the physical design.
System Development	Coding, integration, testing, and certification of the solution system.	Milestone 4b	Authorization to put the solution into production.
System Deployment	Expanding availability of the solution to all target environments and users.	Milestone 5	Authorization to transfer support to another organization.
Operation and Maintenance	Ongoing management of operations of the solution system.	N/A	Operational solution.

Source: Internal Revenue Manual 2.16.1, Enterprise Life Cycle – Enterprise Life Cycle Guidance, dated May 2014.



Review of the Electronic Fraud Detection System

Appendix VI

Glossary of Terms

Term	Definition
Artifacts	A work product created by a process or procedure step.
Client server	An architecture that divides processing between clients and servers that can run on the same computer or, more commonly, on different computers on the same network.
Impact Analysis	An assessment of the pros and cons of pursuing a course of action in light of its possible consequences, or the extent and nature of change it may cause.
SharePoint	An enterprise information portal, from Microsoft, that can be configured to run intranet, extranet and Internet sites.
SharePoint Investment Knowledge Exchange	The information technology capital planning tool being developed by the Department of the Treasury to support data collection from the bureaus and direct reporting to Office of Management and Budget. It also provides management reporting for the proper oversight of the Treasury Department's information technology portfolio and includes reports provided to the Treasury Chief Information Officer on a monthly basis.
Traceability	The creation and maintenance of a discernable association among two logical entities such as requirements, system elements, verifications, or tasks.



Review of the Electronic Fraud Detection System

Appendix VII

Management's Response to the Draft Report



CHIEF TECHNOLOGY OFFICER

DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
WASHINGTON, D. C. 20224

SEP 22 2015

MEMORANDUM FOR DEPUTY INSPECTOR GENERAL FOR AUDIT

FROM:

Terence V. Milholland
Chief Technology Officer

SUBJECT:

Draft Audit Report – Review of the Electronic Fraud Detection System (Audit # 201520021)

Thank you for the opportunity to review your draft audit report and to discuss early observations with the audit team. I appreciate the positive feedback received from the TIGTA audit team regarding the steps taken by the Electronic Fraud Detection System (EFDS) project team to mitigate risks associated with potential technical obsolescence.

Though we have mitigated these risks, the IRS remains fully committed to retiring EFDS when we no longer need its' functionality. We have incorporated EFDS retirement within the Return Review Program Re-Start plan and are well underway with the completion of a detailed EFDS retirement plan. We believe the plan will be instrumental in helping to ensure that we expend funds in the most prudent manner.

As your audit team observed, responsibility for the EFDS program management activity has been realigned from our Applications Development organization to the Enterprise Program Management Office (EPMO). Both organizations follow enterprise approved processes and procedures for key program disciplines, including risk management and requirements management. The EFDS project plans are in alignment with the established risk and requirements controls, processes and methodologies; though they currently do not reflect the organizational realignment. As part of the established process for keeping our program and project plans current, we will review and update EFDS documentation to reflect the role of EPMO, as appropriate.

In addition to reviewing EFDS documentation, the TIGTA audit team spent a fair amount of time reviewing IRS processes regarding requirements traceability, in particular the team's use of Requirements Traceability Verification Matrices (RTVMs) in spreadsheet form to manage the testing. During the course of the audit, the EFDS project team clearly demonstrated use of the IRS-prescribed tools, adherence to the established IRS processes, and acceptable outcomes equal to that of the ReqPro tool. We will continue to ensure we are following the requirements traceability process as defined by IRS's IT Strategy and Planning function.



Review of the Electronic Fraud Detection System

2

We are committed to continuously improving our information technology systems and processes. We value your continued support, assistance and guidance your team provides. If you have any questions, please contact me or a member of your staff may contact Andrew Paquette at (202) 317-4168.

Attachment



Review of the Electronic Fraud Detection System

Draft Audit Report – Review of the Electronic Fraud Detection System (Audit #201520021)

Recommendation #1: The Chief Technology Officer should develop a system retirement plan for the EFDS and retire the EFDS after validating the RRP effectively identifies, at a minimum, all issues currently identified by the EFDS.

Corrective Action #1: The IRS agrees with this recommendation, and since development of the plan is well underway the corrective action is to finalize the EFDS Retirement Plan.

Implementation Date: January 15, 2016

Responsible Official: Associate Chief Information Officer, Enterprise Program Management Office

Corrective Action Monitoring Plan: We entered the accepted corrective actions into the Joint Audit Management Enterprise System (JAMES). These corrective actions are monitored on a monthly basis until completion.

Recommendation #2: The Chief Technology Officer should direct the Enterprise Program Management Office to update the Risk Management Plan to reflect the current organizational structure, management process methodology, documentation requirements, and mitigation strategy.

Corrective Action #2: The IRS partially agrees with this recommendation and as part of the established process for keeping our program and project plans current, we will review and update EFDS documentation to reflect the role of EPMO, as appropriate.

Implementation Date: December 15, 2015

Responsible Official: Associate Chief Information Officer, Enterprise Program Management Office

Corrective Action Monitoring Plan: We entered the accepted corrective actions into the Joint Audit Management Enterprise System (JAMES). These corrective actions are monitored on a monthly basis until completion.



Review of the Electronic Fraud Detection System

Draft Audit Report – Review of the Electronic Fraud Detection System (Audit #201520021)

Recommendation #3: The Chief Technology Officer should direct the Enterprise Program Management Office to update the Requirements Plan to reflect the current activities, methods, and techniques that are used to perform and support requirements development and requirements management, which include management responsibilities, tools, artifacts, and traceability.

Corrective Action #3: The IRS partially agrees with this recommendation. The EFDS project team adhered to established IRS processes, and achieved acceptable outcomes in requirements development and management. The Enterprise Program Management Office will update the Requirements Plan to reflect the current organizational structure as appropriate, and will continue to follow the requirements traceability process as defined by IRS's IT Strategy and Planning function.

Implementation Date: December 15, 2015

Responsible Official: Associate Chief Information Officer, Enterprise Program Management Office

Corrective Action Monitoring Plan: We entered the accepted corrective actions into the Joint Audit Management Enterprise System (JAMES). These corrective actions are monitored on a monthly basis until completion.

Recommendation #4: The Chief Technology Officer should ensure that contractors performing testing have software licenses to use the required repository and verify that guidance is consistently followed.

Corrective Action #4: The IRS agrees with this recommendation and will ensure contractors performing integration testing within the development cycle for EFDS will have the software licenses required to use the requirements repository.

Implementation Date: December 15, 2015

Responsible Official: Associate Chief Information Officer, Enterprise Program Management Office

Corrective Action Monitoring Plan: We entered the accepted corrective actions into the Joint Audit Management Enterprise System (JAMES). These corrective actions are monitored on a monthly basis until completion.