



Audit Report



OIG-20-023

BILL AND COIN MANUFACTURING

BEP Improved Governance and Oversight over Note Development and Production But Challenges Remain

December 31, 2019

Office of
Inspector General

Department of the Treasury

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Contents

Audit Report	1
Results in Brief.....	3
Background	6
Audit Results	8
NexGen \$100 Note Production Validations Were Conducted but a New Production Issue Impacted the Quality of DCF Notes.....	8
Recommendations	12
BEP Improved Governance and Oversight over Note Development and Production but Challenges Remain	13
Recommendations	20
BEP Completed Cost-Benefit Analysis but Reclamation Results were Significantly Less Than Estimated	22
Recommendation	26

Appendices

Appendix 1: Objectives, Scope, and Methodology	28
Appendix 2: Management Response	30
Appendix 3: Major Contributors to This Report.....	33
Appendix 4: Report Distribution.....	34

Abbreviations

ACD	Advanced Counterfeit Deterrence Steering Committee
BDP	Banknote Development Process
BEP	Bureau of Engraving and Printing
Board	Board of Governors of the Federal Reserve System
CAV	corrective action verification
CTO	Currency Technology Office
DCF	Washington, DC Facility

Contents

FAC-P/PM	Federal Acquisition Certification for Program and Project Managers
GAO	Government Accountability Office
ICC	Interagency Currency Committee
ICD	Interagency Currency Design Group
JAMES	Joint Audit Management Enterprise System
MOU	memorandum of understanding
NexGen	Next Generation
NCD	New Currency Design
Note	Federal Reserve note
OIG	Office of Inspector General
PAC	Program Approval Committee
PWC	PricewaterhouseCoopers LLP
TAC	Technology Approval Committee
TDP	Technological Development Process
Treasury	Department of the Treasury
Secret Service	United States Secret Service
WCF	Western Currency Facility

*The Department of the Treasury
Office of Inspector General*

December 31, 2019

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Director
Bureau of Engraving and Printing

This report presents the results of our review of the corrective actions taken by the Department of the Treasury's (Treasury) Bureau of Engraving and Printing (BEP) in response to our January 2012 report on BEP's project management related to the production of the Next Generation (NexGen) \$100 notes.¹ The objective of this corrective action verification (CAV) was to determine whether management has taken corrective action that was responsive to our recommendations.

In our January 2012 report, we recommended that the Director of BEP:

- complete production validation tests and resolve technical problems in conjunction with the Board of Governors of the Federal Reserve System (Board) on an agreed-to limited initial production quantity of NexGen \$100 notes, and that technical problems are resolved before resuming full production;
- implement a comprehensive and integrated project management function, in conjunction with the Board, United States Secret Service (Secret Service), and other relevant stakeholders for the NexGen \$100 note program and all future note designs;

¹ *BILL MANUFACTURING: Improved Planning and Production Oversight Over NexGen \$100 Note Is Critical* (OIG-12-038; issued January 24, 2012).

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- coordinate with its interagency partners to update and finalize the 1998 memorandum of understanding (MOU)² with the Board and the 2009 Interagency Currency Design Group (ICD)³ draft charter; and
 - complete a comprehensive cost-benefit analysis including all costs, benefits and risks of the available options related to the disposition of the approximate 1.4 billion finished NexGen \$100 notes that were not accepted by the Board and ensure that the option selected is agreed to by all parties (e.g., the Board, Secret Service).

According to the Joint Audit Management Enterprise System (JAMES), Treasury's audit recommendation tracking system, management implemented and closed all planned corrective actions in 2013.

To accomplish our objective, we interviewed BEP, the Board, and Secret Service officials involved with the production validation and disposition of the NexGen \$100 notes, as well as project management over new note development. We also reviewed documentation related to BEP's corrective actions. We conducted fieldwork from March 2017 through October 2017 at BEP's Washington, DC Facility (DCF), and at the Board and Secret Service's offices in Washington, DC with subsequent follow up through October 2019. Appendix 1 contains a more detailed description of our objective, scope, and methodology.

² The MOU between BEP and the Board defines their responsibilities, activities, procedures, and obligations for establishing the annual print order and billing rates for U.S. Currency also known as Federal Reserve notes (notes); the production, issuance, and shipment of notes to Federal Reserve Banks, and currency destruction; research and development related to the functionality, security, design, and production of notes; and public information and education to be provided about notes.

³ The ICD includes members from BEP, the Board, and the Secret Service and was established to provide guidance on design and other subjects related to new currency.

Results in Brief

We found that BEP had completed production validations of the NexGen \$100 note at DCF and its Western Currency Facility (WCF)⁴ and resumed full production of the NexGen \$100 note in May 2013, but was unable to provide complete documentation on the validations.⁵ Additionally, we found that a new production issue, which affected the quality of notes, forced BEP to stop production of the NexGen \$100 note at DCF in September 2013. Notes that had been shipped from DCF to the Board for public issuance were returned to BEP. Additionally, the Board would no longer accept delivery of NexGen \$100 notes produced by DCF until DCF demonstrated that improvements in its manufacturing and quality operations and controls were implemented and a successful production validation was completed. In addition, the improvements were to be verified by an independent third party assessment.⁶

Producing NexGen \$100 notes at DCF will allow BEP to ensure continuity of operations, as well as eliminate millions of dollars in transportation expense incurred by the Board to move the notes from WCF to the Board's Eastern Operations Center. BEP officials believe BEP has the capability to resolve the production issue and produce the NexGen \$100 note at DCF. However, BEP has not completed the necessary validations partly because BEP was awaiting the completion of a third party assessment from the Board to validate production of the NexGen \$100 note at DCF. The Board provided BEP an August 2019 assessment report and informed BEP in an accompanying September 2019 letter that after validation

⁴ BEP has two production facilities, the DCF, previously referred to as the Eastern Currency Facility in our 2012 report discussed above, located in Washington, DC, and the WCF, located in Fort Worth, Texas.

⁵ Validation is the testing of notes against criteria to determine whether the currency will meet required specifications in full scale production. WCF completed four line validations in 2012 and DCF completed one line validation in 2013.

⁶ A third party assessment is an independent evaluation of a business entity or professional practice conducted by experienced professionals to provide an unbiased evaluation on items that can include the entities' operations, controls, culture, and compliance with policies.

BEP could produce these notes at DCF.⁷ Accordingly, the Board concluded that BEP should continue with its plans to resume production of the NexGen \$100 note at the DCF, in coordination with the Board. With that said, BEP's goal is to complete the validations in fiscal year 2020.

In addition, according to the MOU in effect at the time of our audit between BEP and the Board, BEP should have contingency plans for each facility that allow for the production of all current-design denominations within the established quality standards in the event of the failure of the other facility. We found that this MOU, which formalizes responsibilities and authorities between BEP and the Board, was finalized in December 2011; however, the required 5 year update still needs to be completed. The ICD charter was finalized and approved in March 2012.

BEP also implemented a Currency Quality Assurance Program and increased its capabilities in project management which improved governance processes and oversight over note development and note production quality.⁸ Additionally, BEP significantly increased its capabilities in project management and quality assurance. Stakeholders felt processes BEP implemented over new note development, production quality, and project management were improvements and should mitigate issues experienced with the NexGen \$100 note development and production. Despite this, challenges remain as BEP has not redesigned a new note using its Banknote Development Process (BDP).⁹ In addition, BEP has not documented all procedures that are to be followed under the new processes and BEP personnel must continue to ensure the processes put in place under the Currency Quality Assurance Program will continue to be adhered to after contractor support ends at the end of 2019.

⁷ The third party assessment report, dated August 23, 2019, was performed for the Board by contractors hired by PricewaterhouseCoopers LLP (PWC). The assessment focused on four areas at DCF, including manufacturing operational improvements, management controls and oversight, establishment of an independent quality function, and establishment of an internal audit program.

⁸ The Currency Quality Assurance Program was implemented to move BEP's quality assurance from a reactive to a proactive approach through focusing on the complete production lifecycle of a note.

⁹ BDP is a process developed under the Currency Quality Assurance Program that is used to plan and execute new note development programs at BEP. See table 1 below for additional details.

We also found that BEP completed a cost-benefit analysis, supported by the Board and Secret Service, for the disposition of the 1.4 billion NexGen \$100 notes produced in 2010, but could not provide detailed documentation to support this analysis or an update to its cost estimate to reflect actuals. Additionally, the number of notes reclaimed was significantly lower than BEP's initial estimated recovery rate due to several factors.¹⁰

Accordingly, we are making six recommendations to improve BEP's note production operations and processes. We recommend that the Director of BEP (1) ensure that the NexGen \$100 note can be produced at both BEP facilities by completing the necessary production validations in fiscal year 2020; (2) ensure that future production validations at both facilities are documented consistently and completely; (3) review and update, as needed, BEP's guidance over its project management processes to include best practice procedures, such as developing an integrated master schedule, which are to be followed; (4) finalize the required 5 year update of the MOU with the Board to formalize responsibilities and authorities related to notes including activities, procedures, and obligations related to the annual production, destruction, and research and development of notes; (5) develop a plan to ensure the BEP's BDP and the other processes developed under the Currency Quality Assurance Program are properly transitioned and adhered to by BEP personnel after contractor support ends; and (6) ensure future cost estimates are appropriately documented and updated accordingly throughout the investment so that all costs, savings, and other lessons learned can be incorporated into future cost estimates.

In a written response, BEP management concurred with our six recommendations and identified the actions, planned or taken, to address our recommendations which included: planning to begin validation of the \$100 note in January 2020; ensuring validations are documented consistently and completely; updating its guidance over project management processes; updating its MOU to formalize BEP and the Board's responsibilities and authorities related to Notes; establishing a committee to provide formal review and oversight of the Currency Quality Assurance Program as well as

¹⁰ Reclaim refers to the process of inspecting notes produced with suspected quality issues to identify the good notes.

instituting multiple quality initiatives to ensure the BDP and the other processes developed under the Currency Quality Assurance Program are properly transitioned; and ensuring cost estimates are appropriately updated and documented throughout an investment. Management's response, in its entirety, is included as appendix 2.

Management's response and its corrective actions, taken and planned, meet the intent of our recommendations. Management will need to record the estimated date for completing its planned corrective actions as well as the actual date of completed corrective actions in JAMES, Treasury's audit recommendation tracking system.

Background

Oversight and Development of Notes

The Advanced Counterfeit Deterrence Steering Committee (ACD) is the Federal Government interagency group responsible for the design, development, production, and issuance of U.S. currency, also known as Federal Reserve notes, which includes coordinating the U.S. currency counterfeit deterrence activities of its member agencies.¹¹ Additionally, the ACD provides the Secretary of the Treasury¹² currency redesign recommendations containing security features to safeguard against counterfeiters.¹³

The ACD's policy has been to redesign the note denominations collectively, as part of a family series, in which each note denomination has very similar architecture, but may have different security features incorporated in its design based on the counterfeiting threat posed to each denomination. Each note denomination redesign, development, and issuance schedule is undertaken individually and completed over the course of several years.

¹¹ ACD members include senior executives from Treasury, BEP, the Board, Secret Service, and the Board's Currency Technology Office (CTO).

¹² The Secretary of the Treasury has the exclusive statutory authority to approve new U.S. currency designs.

¹³ Security features are counterfeit-detering features used to authenticate U.S. currency. Security features can be both noticeable on the note, without special equipment, as well as covert.

Since the establishment of the ACD in 1982, notes have been redesigned twice. The first redesign, the New Currency Design (NCD) family series, was the first significant redesign of U.S. currency in over 60 years.¹⁴ Issuance of the first in the family of NCD notes began in 1996 with the \$100 note and completed in 2000 with the issuance of the \$5 and \$10 notes.¹⁵

In an ongoing effort to stay ahead of the technological advances available to counterfeiters, a second redesign of notes was undertaken with the NexGen family series. The NexGen family of notes incorporated enhanced security features that included both background colors and images. Issuance of the NexGen notes began in 2003 with the \$20 note and was initially planned to be completed in 2008; however, problems encountered with the NexGen \$100 note development and production, delayed the issuance of the note until 2013.¹⁶

Production Issues with NexGen \$100 Note

Production of the NexGen \$100 note began at both of BEP's facilities in January 2010. Shortly thereafter, sporadic creasing in the notes was detected and continued to increase in frequency to an unmanageable level.¹⁷ Full production of the NexGen \$100 note was suspended in September 2010 until the source of the problems could be identified and controlled, by which time BEP had produced approximately 1.4 billion NexGen \$100 notes of undetermined quality that were not acceptable to the Board.¹⁸

¹⁴ A family series of notes includes the \$5, \$10, \$20, \$50, and \$100 notes. The \$1 and \$2 notes have not been redesigned since ACD's establishment as both notes have not historically been a frequent target of counterfeiters. Additionally, the redesign of the \$1 note has been prohibited in the annual Financial Services and General Government Appropriations Act. The most recent is Public Law 116-9 which was signed by the President on February 15, 2019.

¹⁵ Timeline of the initial issuance of the NCD family by year and denomination was as follow: 1996-\$100 note; 1997-\$50 note; 1998-\$20 note; and 2000-\$10 and \$5 notes.

¹⁶ Timeline of the initial issuance of the NexGen family by year and denomination was as follow: 2003-\$20 note; 2004-\$50 note; 2006-\$10 note; 2008-\$5 note; and 2013-\$100 note.

¹⁷ Creasing is a defect which undermines the quality of a note. Occasional creasing is considered normal during production. Creasing is categorized by the Board as severe, moderate, or light. Severe creases are easily visible to the naked eye, evidenced by folding in the currency paper that shows a break in printing when stretched. Moderate creases are less obvious but still visible to the naked eye. Light creases typically require magnification to detect.

¹⁸ Both BEP facilities produced the \$100 NexGen note. DCF produced about 540 million and WCF produced about 860 million of the 1.4 billion \$100 NexGen notes in 2010.

In September 2011, BEP and the Board reached agreement on a NexGen \$100 note production validation plan and began production validation. The plan's objective was to ensure that earlier problems experienced before production was suspended, were resolved and BEP was capable of sustaining long term production of the \$100 NexGen note while keeping creasing to a minimal level.

Audit Results

Finding 1 NexGen \$100 Note Production Validations Were Conducted but a New Production Issue Impacted the Quality of DCF Notes

As discussed further below, BEP completed validations at both of its facilities and resumed full production of the NexGen \$100 note in May 2013, but could not provide complete documentation. In September 2013, a new production issue, which affected the quality of notes, forced DCF to stop production of the NexGen \$100 note. The Board would no longer accept delivery of NexGen \$100 notes produced by DCF until DCF demonstrated that improvements in its manufacturing and quality operations and controls were implemented and a successful production validation was completed. In addition, these improvements were to be verified by a third party assessment.

BEP believes it has the capability to resolve the 2013 production issue and produce the NexGen \$100 note at DCF. The capability to produce the NexGen \$100 note at both facilities would ensure BEP has a contingency plan in the event of a failure at the WCF. Also, it would reduce millions of dollars in transportation expense for the Board. However, BEP has not completed the necessary validations partly because BEP was awaiting the completion of a third party assessment from the Board to validate production of the NexGen \$100 note at DCF. The Board provided BEP an August 2019 assessment report and informed BEP in an accompanying September 2019 letter that after validation BEP could produce

these notes at DCF.¹⁹ Accordingly, the Board, based upon its review of the third party assessment report, informed BEP that plans to resume production of the NexGen \$100 note should continue at the DCF, in coordination with the Board. With that said, BEP's goal is to complete validation of the \$100 NexGen note and begin production at DCF in fiscal year 2020.

BEP Responsive to Product Validation Recommendation

In our 2012 report, we recommended that BEP complete a limited quantity production validation before resuming full production of the NexGen \$100 note. The validation was to be made in conjunction with the Board and ensure that the earlier issues, which resulted in the printing of 1.4 billion potentially unusable notes, had been resolved. Additionally, we reported, that BEP and the Board had developed a production validation plan and began initial validation of the NexGen \$100 note in September 2011.

BEP's production validation plan approach was to validate a single production line and then continue onto full production on that line before initiating the validation of a new production line. This was in order to implement lessons learned from each validation. BEP had initially planned to validate a total of four NexGen \$100 note production lines, which was later increased to six lines with four lines at WCF and two lines at DCF.

In our current audit, we found that BEP completed validations at both its facilities and had resumed full production of the NexGen \$100 note. BEP successfully validated four production lines at WCF from 2011 through 2012. However, after validating and resuming production of the first production line at DCF in May 2013, BEP encountered a new production issue at DCF which impacted the quality of the NexGen \$100 note.²⁰

¹⁹ In December 2018, BEP requested the Board initiate the third party assessment which commenced in May 2019.

²⁰ NexGen \$100 notes, which were produced before initial production was suspended in 2010, are distinguished by "SERIES 2009" on the note's face. Notes produced after resuming production are distinguished by "SERIES 2009A" on the note's face.

DCF Ceases NexGen \$100 Note Production

After resuming production of the NexGen \$100 note at DCF in May 2013, DCF stopped production in September 2013 after finding a new issue that impacted the quality of the notes. Notes that had been shipped from DCF to the Board for public issuance were returned to BEP. Additionally, the Board ceased accepting future DCF deliveries of NexGen \$100 notes until DCF demonstrated improvements in its manufacturing and quality operations and controls and a successful production validation was completed. A third party assessment was also to be conducted to assess and verify the improvements.

According to BEP officials, the new issue, called “mashing,” was the overinking of the NexGen \$100 notes. Mashing normally occurs at printing startups and can be significantly reduced through the use of ink solvents and other printing protocols.²¹ However, BEP officials stated that local environmental emission standards restricted DCF from using the same ink solvent that WCF was successfully using in its production process of the NexGen \$100 note. BEP’s written analysis attributed this as the primary reason why the quality of NexGen \$100 notes printed at DCF was impacted, while WCF’s note quality was not. BEP officials stated that an ink solvent has been identified which will meet local environmental regulations and adequately resolve the mashing issue at DCF.²²

As discussed above, an August 2019 report was issued with the results of the third party assessment. The report included notable improvements made at DCF and stated while there were areas that still need to be addressed to ensure long-term quality, there are no procedural or organizational obstacles preventing DCF from producing NexGen \$100 notes. In a September 2019 letter, the Board informed BEP that after validation BEP could produce these notes at DCF. Based on its review of the third party assessment, the Board concluded that BEP should continue with its plans to resume production of the NexGen \$100 note at DCF, in coordination with the Board. According to BEP, the revalidation of

²¹ Printing protocols refer to software configuration upgrades made to printing equipment.

²² The new ink solvent was identified in December 2013. Approval to use the new ink solvent by local environmental regulators occurred in November 2015.

the \$100 NexGen note was also dependent upon first validating the \$10 NexGen note at DCF.²³ With that said, BEP's goal is to complete validation of the \$100 NexGen note and begin production at DCF in fiscal year 2020.

Board officials we spoke with explained that not having the capability to produce NexGen \$100 notes at DCF is problematic. As reflected in the MOU with the Board, BEP should be able to produce every denomination at both facilities to ensure continuity of operations. Specifically, the MOU states that BEP will have contingency plans for each facility that allow for the production of all current-design denominations within the established quality standards in the event of the failure of the other facility. Additionally, the inability to produce the NexGen \$100 note at DCF has added millions of dollars to the transportation costs as NexGen \$100 notes must be transported from WCF to the Board's Eastern Operation Center.

Production Validation Not Documented Consistently

The Government Accountability Office's (GAO) *Standards for Internal Controls in the Federal Government* calls for managers to clearly document internal controls and all transactions and other significant events in a manner that allows for ready examination. Documentation and records should be properly managed and maintained.²⁴

The Federal Records Act requires each federal agency to make and preserve records necessary to document the agency's policies, decisions, procedures, and essential transactions.²⁵ All Treasury bureaus are to establish adequate and proper documentation of their functions, policy decisions, procedures, and essential transactions in a manner that promotes accountability and establishes a historical record.²⁶

²³ BEP completed validation of the \$10 NexGen note at DCF in August 2018 and plans to begin validation of the \$50 NexGen note in September 2020.

²⁴ GAO, *Standards for Internal Control in the Federal Government* (GAO-14-704G; issued Sep. 2014).

²⁵ 44 U.S.C. 3101, *Records management by agency heads; general duties*.

²⁶ Treasury Directive 80-05, *Department of the Treasury Records Management* (June 26, 2002) was superseded by a revised version dated January 2018; however, the sections and requirements referred to in the document are still in effect due to the Federal Records Act (44 U.S.C. 3101 et. Seq.).

We found BEP had adequately documented the validation of the \$100 NexGen note in approximately half of the production lines. Documentation provided clearly demonstrated that WCF had validated lines 2, 3, and 4 by meeting the agreed upon criteria of the production validation plan, and the outcome of the validations had been approved by BEP, the Board and Secret Service. However, BEP did not provide similar and complete documentation of WCF's first line validation or for the DCF validation including the cause for inconsistent documentation.

Recommendations

We recommend the Director of BEP:

1. Ensure that the NexGen \$100 note can be produced at both BEP facilities by completing the necessary production validations in fiscal year 2020.

Management Comments

Management agrees with the recommendation and plans to begin the validation of the NexGen \$100 note in January 2020. BEP has developed a thorough and robust plan to complete feasibility testing, verification of each production process at DCF, and production validation of the NexGen \$100 note at DCF. BEP management further stated that this schedule is contingent on many factors, including the new note design priorities and production requirements.

Office of Inspector General (OIG) Comment

Management's response and planned and taken corrective actions meet the intent of our recommendation.

2. Ensure that all production validations at both facilities are documented consistently and completely.

Management Comments

Management agrees with the recommendation and has implemented an improved Change Control Board Process which will ensure that production validations will be documented consistently and completely.

OIG Comment

Management's response and corrective actions taken meet the intent of our recommendation.

Finding 2

BEP Improved Governance and Oversight over Note Development and Production but Challenges Remain

BEP implemented a Currency Quality Assurance Program that improved governance processes and oversight over note development and note production quality. Also, BEP significantly increased its capabilities in project management and quality assurance, which its stakeholders view as improvements to mitigate issues experienced with the NexGen \$100 note. While BEP has implemented comprehensive processes over new note development, BEP has not redesigned a new note using its BDP. Additionally, contractor support provided to BEP personnel for the implementation of the Currency Quality Assurance Program may be ending in 2019 and BEP needs to ensure its personnel are properly transitioned and adhere to processes put in place.

BEP Strengthened Governance and Oversight over Note Development and Production

In our 2012 report, we found BEP's project management of the NexGen \$100 note development to be lacking. BEP did not have a comprehensive and integrated process for overseeing the entire scope of the NexGen \$100 note program. Program documents did not clearly identify processes, milestones, the critical path, and schedule dependencies related to all phases of NexGen \$100 note

activities.²⁷ Additionally, we found that as the result of increase sophistication in new note design, the collaboration amongst stakeholders was critical and that members' roles and responsibilities needed to be clearly defined. We recommended that BEP implement a comprehensive and integrated project management function with the Board and Secret Service for the NexGen \$100 note program and all future note designs.

In our current audit, we found that that BEP strengthened governance processes and improved oversight, as well as clarified roles and responsibilities over new note development and note production quality. Additionally, we found that BEP implemented comprehensive and documented processes over its new note development, note manufacturing, and project management. We were told these changes were the result of a multi-year Currency Quality Assurance Program which BEP had implemented in collaboration with stakeholders. We also found BEP had restructured and strengthened its project management and quality operations.

Currency Quality Assurance Program Implemented at BEP

In 2011, following an assessment of the quality issues arising from BEP's printing of approximately 1.4 billion NexGen \$100 notes of undetermined quality, BEP, in a joint effort with the Board, initiated a major Currency Quality Assurance Program.²⁸ The objective of the program was to first address the issues related to the NexGen \$100 note production and then implement processes to improve BEP's ability to consistently produce high-quality notes and reduce note production spoilage through collaboration with stakeholders and focusing on the production lifecycle of a note.

²⁷ Milestones are significant events in the project such as a completion of a task in a project. A critical path is the sequence of independent tasks that must be finished to complete a project which provides the project's schedule. Schedule dependencies involve the impact that one task can have on another task.

²⁸ The assessment was conducted by the Board's consultant - Exponent which was later acquired by PWC. The Board contracted PWC to assist BEP in the implementation of the Currency Quality Assurance Program. The initial contract was a 5-year, \$19 million contract that was later extended for another 4 years, to 2018 and which increased the contract to \$65 million. The contract was extended to December 2019.

We found that through the multi-year Currency Quality Assurance Program, several significant processes related to note development and improving note production quality have been developed and implemented at BEP since our earlier audit. Table 1 below shows the significant processes implemented.

Table 1: Significant Processes Implemented over Note Development and Quality

Process	Guidance Includes
BDP	Details a note development's project phases, its members' roles and responsibilities as well as the reviews and approvals that must be met before the note project can advance further in development or into production. Implemented in 2012.
Technology Development Process (TDP)	Details the phases a technology project, such as a security feature, must go through before transitioning into the BDP. Identifies members' roles, reviews and approvals that must be met before the project can advance to a higher phase. Implemented in 2013.
Corrective and Preventive Action System	The system followed for tracking and reporting on quality or potential issues related to the production of notes. Identifies the issue, responsible members, the cause, and resolution. Implemented in 2011. Produces a monthly report provided to stakeholders.
Change Control Board Procedure	Ensures proposed changes to currency manufacturing materials, equipment, processes, and methodologies are reviewed, approved, and documented in a timely and coordinated manner following a matrix that provides guidance on the level of verification and validation needed before implementing a proposed change. Implemented in 2016.

Source: OIG analysis of BEP documentation

We also found that additional governance and oversight that included stakeholders' participation were implemented over new note development and note production quality since our earlier audit. Table 2 below shows the significant governance and oversight implemented.

Table 2: Significant Governance and Oversight over Note Development and Production

Entity	Roles and Responsibilities	Members
Interagency Currency Committee (ICC)	Supports the ACD by providing resources and oversight of the committees that oversee new note development and new technological features for new notes. Meets monthly. Re-chartered from the ICD in 2016 to improve the decision-making process.	8 members from BEP, Board, Secret Service, and Currency Technology Office (CTO)
Executive Program Review Committee	Provides a forum for Board and BEP Executives to address strategic aspects of the Currency Quality Assurance Program and provide tactile direction for organizational teams. Meets monthly. Replaced the Executive Oversight Group in 2018.	8 members from BEP and the Board
Program Approval Committee (PAC)	Oversees note development projects that represent significant changes in new note designs including monthly status meetings. Provides guidance and decisions to BDP Core Teams on a new note development project. Meets monthly and provides monthly updates to the ICC. Implemented in 2012.	9 members from BEP, Board, Secret Service, and CTO
BDP Core Team	Cross-functional members that execute note development projects through the BDP phases to their established end dates. Attend note development project meetings, prepare for phase-end reviews, oversee Extended Teams, and communicate issues to the PAC on a monthly basis. Team members meet as needed. Implemented in 2012.	BEP, Board, Secret Service, and CTO
BDP Extended Team	Perform specific activities for the BDP Core Team. Attend team meetings as their specialty area is addressed and communicate unresolved issues to the BDP Core Team. Meets monthly with PAC and team members meet as needed. Implemented in 2012.	BEP, Board, Secret Service, and CTO
Design Review Team	Provide feedback to BDP Core Team on technical aspects of new note design. Feedback includes recommendations for improving upon designs or resolving technical requirement conflicts. Meets as needed. Implemented in 2012.	BEP, Board, Secret Service, and CTO
Technology Approval Committee (TAC)	Oversees and guides the execution of activities implemented by the ICC to develop new and innovative technological features for new notes during the TDP. TAC serves as gatekeeper throughout the TDP and meets monthly to give approvals for major project development activities. Meets monthly and provides monthly updates to the ICC. Implemented in 2016.	7 members from BEP, Board, Secret Service, and CTO
TDP Core Team	Integrated teams that execute specific projects for new and innovative technological features for new notes for the TAC. Meets as needed. Implemented in 2017.	BEP, Board, Secret Service, CTO, and Vendors
TDP Extended Team	Perform select activities for the TDP Core Team that includes early procurement and new technical features testing. Meets as needed. Implemented in 2017.	BEP, Board, Secret Service, and CTO

Major Deliverables & Metrics Meeting	Monthly project management meetings for senior BEP executives to approve the initiation of new projects and review status and major milestones of BEP projects. Implemented in 2012.	BEP
Quality Management System Review	Quarterly meetings among BEP executive leadership to identify quality improvement activities, issues and risks and meets when necessary with vendors to review BEP's production quality data.	BEP
Change Control Board	Reviews proposed changes to existing note manufacturing process and determines the extent of testing needed before implementing changes. Meets as needed and provides a monthly status report to the ICC. Implemented in 2015.	BEP

Source: OIG analysis of BEP documentation.

Additionally, we had recommended in our 2012 audit report that BEP update and finalize the 1998 MOU with the Board and the 2009 ICD draft charter. The MOU was finalized in December 2011; however, the MOU is supposed to be reviewed and updated every 5 years. As of August 2018, BEP reported that there was no action taken to update the MOU. According to BEP, the MOU is pending agreement and signature of the Board which has experienced staffing changes. The ICD charter was finalized and approved in March 2012. The group was later re-chartered in 2016 as ICC.

Improvements to BEP's Project Management and Quality Assurance

We found that BEP made a number of improvements to its project management, including the establishment of a project management office, the implementation of a formalized process that a project was to follow depending on its type, and the increase of BEP personnel in project management practices.

In 2012, BEP created the Portfolio and Project Management Office. The purpose of the office was to develop project management methods and practices, and strengthen BEP staff in project management discipline, competence, and professionalism.²⁹

We found BEP had developed and implemented formalized procedures for its project management. These procedures detail

²⁹ In 2015, BEP's Portfolio and Project Management Office was incorporated into the Office of Strategy and Project Management.

three distinctive types of project management processes that BEP project managers are to follow.³⁰

Our review found BEP's project management followed essential project management best practices. We also found the BDP included a defined project life cycle with milestones, requirements developed in collaboration with stakeholders, regular communication with management and stakeholders on the project's status, record of decisions as well as development of a work breakdown structure.³¹ Additionally, we found that BEP had developed an integrated master schedule, which contained dependencies and the critical path for its first note development project since the NexGen \$100 note. Although this practice is considered an essential best practice in project management, we did not find it to be a requirement. Furthermore, we found that BEP had increased the number of its personnel knowledgeable in project management practices, as well the number of quality assurance personnel.

The Federal Acquisition Certification for Program and Project Managers (FAC-P/PM) certification is required for program and project managers that are assigned to major acquisitions.³² According to BEP, in 2012, there were only a few personnel at BEP that had attained FAC-P/PM certification. We found, at the time of our audit, that FAC-P/PM certification of BEP staff has increased to over 50 BEP personnel.

Additionally, we found BEP has established a Quality Directorate, which has increased the number of personnel working in quality

³⁰ The three types of project management processes include BDP, TDP, and BEP Project Management Process for Type I projects which included those projects of \$2 million or more, or designated as a project critical to supporting BEP's strategic objectives.

³¹ Work Breakdown Structure is a tool for project managers to identify all essential project work and divide it into project tasks.

³² The Office of Federal Procurement Policy's memorandum, *The Federal Acquisition Certification for Program and Project Managers*, dated April 25, 2007, established FAC-P/PM. There are three levels of certification. As of June 2017, there were 51 BEP personnel with certifications that consisted of 19 senior level, 21 mid-level, and 11 entry level certifications.

assurance since 2013 from under 10 to approximately 80.³³ According to Board officials, one of the most significant changes has been BEP's focus on quality, in which BEP has fully matured.

Stakeholders Believe BEP has Improved Note Development and Production Processes, Governance, and Communication.

Stakeholders we interviewed stated that the processes that BEP implemented over new note development, production quality, and project management were improvements. According to Board officials, BEP now has the processes in place that, if adhered to, should mitigate issues, as well as risks that were experienced with the NexGen \$100 note development and production. Additionally, Board officials stated that BEP had both the environment and personnel with the skills that BEP needs for new note development. Both the Board and Secret Service officials believed that the improvements made to processes and governance had promoted stakeholder involvement and led to increased communication and transparency.

Despite Improvements Challenges Remain

Despite implementing new governance processes and improving oversight over new note development and note production, challenges remain. First, BEP has not completed development of a new note using its new BDP.³⁴ BEP has used the process for the development of an in-house note, which was developed for internal testing purposes. According to BEP officials, the in-house note project, which was developed using the new BDP, proved that the BDP structure can be adhered to. This included the ability to identify when and where resources were needed on the project using a core team consisting of internal and external stakeholders and adherence to the monthly governance meetings.

³³ The Quality Directorate was being re-organized in September 2019. The re-organization will result in four offices, which will consist of the Office of Quality Operations, Office of Quality Engineering and Manufacturing, the Quality Audit Division and the Lean Six Sigma Office. Responsibilities of BEP's Quality Directorate include performing inspections and analytical work on BEP's currency production processes and providing input during development of the new note products and security features. Additionally, this includes providing Quality Assurance Specialists to maintain consistency on all shifts and an independent internal audit function to provide oversight of the quality system.

³⁴ The last note project completed was the NexGen \$100 note in 2010.

The first note project planned to be completed using the BDP is the Catalyst \$10 note. At the time of our audit, the Catalyst \$10 note project had just entered the Concept phase which is the first of five phases of the BDP. As part of a successful completion, BEP will need to ensure that BEP personnel thoroughly adhere to the processes put in place and provide support, where needed, to BEP personnel to cover any lapse resulting from the PWC contract completion should the Board decide not to award a contract extension.³⁵

According to Board officials, there are processes now in place at BEP to mitigate issues similar to those experienced during the NexGen \$100 note should they arise. However, BEP has relied heavily upon the Board's contract with PWC to provide support in the implementation and adherence to the processes and this contract will be ending at the end of 2019. Board officials stated that the concern is whether the processes are sustainable after the PWC contract ends.

Recommendations

We recommend the Director of BEP:

1. Review and update, as needed, BEP's guidance over its project management processes to include best practice procedures, such as developing an integrated master schedule, which are to be followed.

Management Comments

Management concurs with the recommendation and has updated its Portfolio and Project Management Circular which provides details on the processes for managing projects depending on the nature and complexity. BEP also developed an integrated master schedule, which it utilizes to inform internal and external leadership, project managers, and key

³⁵ At the time of our audit, the Board had not made a determination to exercise the option to extend the contract beyond December 2018. The Board has since extended the contract to the end of 2019.

stakeholders of the status of the activities to produce the next family of Notes. BEP management also stated that the integrated master schedule identifies major decision points and milestones and monitors program risks.

OIG Comment

Management's response and corrective actions taken meet the intent of our recommendation.

2. Finalize the required 5 year update of the MOU with the Board to formalize BEP and the Board's responsibilities and authorities related to notes including activities, procedures, and obligations related to the annual production, destruction, and research and development of notes.

Management Comments

Management concurs with our recommendation and is working with the Board on a draft MOU to ensure it adequately addresses all relevant areas.

OIG Comment

Management's response and planned corrective action meet the intent of our recommendation. We request that management record a target date for completion of the MOU in JAMES, Treasury's audit recommendation tracking system.

3. Develop a plan to ensure the BDP and the other processes developed under the Currency Quality Assurance Program are properly transitioned and adhered to by BEP personnel after contractor support ends at the end of 2019.

Management Comments

Management concurs with our recommendation and has established the Executive Program Review Committee to provide a formal review and oversight of the Currency Quality Assurance Program, as well as other issues

concerning the overall Currency Program. Additionally, BEP instituted multiple quality initiatives to ensure the BDP and the other processes developed under the Currency Quality Assurance Program are properly transitioned.

OIG Comment

Management's response and corrective actions taken meet the intent of our recommendation.

Finding 3

BEP Completed Cost-Benefit Analysis but Reclamation Results Were Significantly Less Than Estimated

BEP completed cost-benefit analysis on the options for the disposition of the 1.4 billion NexGen \$100 notes of undetermined quality which were produced in 2010. The option selected for disposition was supported by the Board and Secret Service. BEP was unable to provide documentation to support its cost-benefit analysis. The number of notes reclaimed was significantly lower than estimated due to multiple factors. BEP's future cost estimates need to be documented and updated so that all costs, savings, as well as other lessons learned can be incorporated into future cost analyses.

Cost-Benefit Analysis on Note Disposition Completed with Stakeholders' Approval

In our 2012 report, we recommended that BEP complete a cost-benefit analysis for the disposition of the potentially unusable 1.4 billion NexGen \$100 notes prior to purchasing single-note inspection equipment and ensure that the option selected was agreed to by the Board and Secret Service officials. We recommended that the cost-benefit analysis include among other things the costs associated with false rejects and labor.³⁶

In our current audit, we found that BEP completed a cost-benefit analysis of the options related to the disposition of the 1.4 billion

³⁶ The term false rejects refers to single-note inspection equipment incorrectly rejecting a note of acceptable quality.

NexGen \$100 notes in 2012.³⁷ The option chosen by BEP consisted of two phases. In the first phase, BEP was to acquire single-note inspection equipment that would be used to inspect and reclaim acceptable notes from the 1.4 billion NexGen \$100 notes.³⁸ Then in the second phase, after completing the 1.4 billion note disposition, the single-note inspection equipment would be integrated into BEP's manufacturing process for inspection and reclamation of notes from rejected sheets. The decision to acquire single-note inspection equipment was supported by both stakeholders - the Board and Secret Service.

At the time the cost-benefit analysis was developed, it was assumed that the single-note inspection equipment would recover greater than 95 percent of the 1.4 billion NexGen \$100 notes and after the reclamation effort was completed, the single-note inspection equipment would be integrated into BEP's manufacturing process to provide a cost savings of \$40 million.³⁹

Reclamation of 1.4 billion NexGen \$100 Notes Completed

Reclamation of the 1.4 billion notes using the single-note inspection machines was conducted from 2015 to 2017. BEP recovered approximately 39 percent or 539 million of the 1.4 billion NexGen \$100 notes as compared to the 95 percent in the original estimate.

According to BEP officials, the reason for the significantly lower recovery percentage was attributed to several factors beyond the initial quality issue of creasing. These factors included increased quality standards on the NexGen \$100 note, changes in the notes physical condition from sitting for an extended length of time in storage, and false rejects from the single-note inspection process. Additionally, BEP selected certain notes, depending upon the

³⁷ The cost-benefit analysis included three options which were: 1) destroying the 1.4 billion notes and printing new notes; 2) purchasing single-note inspection equipment to reclaim good notes from the 1.4 billion notes; and 3) same as option 2, but after inspection of the 1.4 billion notes was completed, the single-note inspection equipment would be integrated with an automated system for packaging notes for shipment to the Board.

³⁸ A total of four single-note inspection machines were purchased with two located at WCF and two at DCF.

³⁹ The initial cost savings estimate of \$40 million was based on savings from reclamation efforts by reducing manufacturing spoilage over 7 years.

position in the sheet of notes for bulk destruction. These notes were identified by BEP from its sampling to be at extreme high risk of being rejected by the single-note inspection equipment due to creasing and a joint decision was made by BEP and Board officials to destroy these notes.⁴⁰

In our 2012 report, we recommended that BEP's cost-benefit analysis include the impact of false rejects. Our review of BEP's cost-benefit analysis did not identify that false rejects had been taken into consideration. According to BEP officials and BEP documentation, false rejects had reduced the reclamation of NexGen \$100 notes by 15 percent. We also requested documentation on how BEP derived the cost savings displayed in its cost-benefit analysis. The documentation provided lacked specifics and we could not determine how the estimated \$297 million gain or savings shown from the utilization of single-note inspection equipment had been derived on the cost-benefit analysis. BEP officials told us that they were unable to provide detail on the cost-benefit analysis as the personnel who developed the cost-benefit analysis had departed from BEP.

According to GAO, a well-documented cost estimate is a best practice which provides enough information so that someone unfamiliar with the program could easily recreate or update it. Cost estimates are considered valid if well documented to the point at which they can be easily repeated or updated.⁴¹

In regards to the lower recovery percentage, BEP officials stated that BEP did not have experience to forecast the extent that the false rejection rate impacted the percent of notes that were recovered. The high false reject rate was attributed to tight acceptable tolerances set in order to ensure the quality and integrity of the notes reclaimed. Additionally, increased quality standards on the NexGen \$100 note were implemented after the completion of BEP's 2012 cost-benefit analysis.

The single-note inspection equipment was also used to reclaim approximately 85 percent or 344 million from the 406 million \$100

⁴⁰ When we discussed this with BEP in August 2018, BEP stated that it was working to identify the number of notes effected by each factor.

⁴¹ GAO, *Cost Estimating and Assessment Guide* (GAO-09-3SP; issued March 2009).

NexGen notes produced by DCF in 2013 which the Board initially had not accepted because of mashing.⁴²

Reclamation efforts in BEP's Production Process

According to BEP, the Board, and Secret Service officials we interviewed, the largest benefit anticipated from single-note inspection equipment will be obtained when the equipment is integrated into note production which was the second phase of BEP's cost-benefit analysis. We were told the current practice is to destroy an entire sheet of notes when a single bad note is detected on a sheet.⁴³ BEP's cost-benefit analysis estimated this waste to be 15 percent based upon the NexGen \$100 note production. The single-note inspection equipment was believed to be capable of reducing this waste by reclaiming the good notes from a sheet that otherwise would have been completely destroyed, thereby reducing note spoilage and manufacturing expense.

According to BEP officials, as of February 2018, three of the four single-note inspection machines are being utilized in BEP's manufacturing process for the reclamation of NexGen \$100 and \$20 notes.⁴⁴ BEP's cost-benefit analysis estimated the cost of the second phase, when the single-note inspection equipment was integrated into note production, to be approximately \$37 million. According to BEP officials, as of the end of December 2017, the single-note inspection equipment has been utilized to recover approximately 160 million NexGen \$100 notes and reduced the percent of manufacturing spoilage to almost half, from 15 percent to 8 percent.

BEP has produced a draft report that details the 1.4 billion NexGen \$100 note reclamation effort which covers the period of the first phase of BEP's cost-benefit analysis. Though the report provides detail on the methodology and results of the reclamation effort, it does not provide cost information. We were told by BEP that the

⁴² The reclamation of the 406 million NexGen \$100 notes was performed at both DCF and WCF from June 2014 through July 2015.

⁴³ Depending on the denomination and the specific manufacturing process, the number of notes in a sheet can be 16, 32, or 50.

⁴⁴ According to BEP officials, the fourth single-note inspection equipment was utilized by BEP's Quality Directorate for the testing of notes.

final report will not include cost information as this is not seen as value added and additionally there are also resource constraints.

According to GAO, cost estimates should be regularly updated to reflect all changes to the original. Not only is this a sound business practice; it is also a requirement outlined in OMB's *Capital Programming Guide*. The purpose of updating the cost estimate is to check its accuracy, defend the estimate over time, shorten turnaround time, and archive cost and technical data for use in future estimates.⁴⁵

Recommendation

We recommend the Director of BEP:

1. Ensure future cost estimates are appropriately documented and updated accordingly throughout the investment so that all costs, savings, and other lessons learned can be incorporated into future cost estimates.

Management Comments

Management concurs with our recommendation and has processes and procedures in place for ensuring that cost estimates are appropriately documented and updated throughout the investment (i.e. monitoring projects throughout the lifecycle and lessons learned are now conducted at the completion of every project).

OIG Comment

Management's response and corrective actions taken meet the intent of our recommendation.

* * * * *

We appreciate the cooperation and courtesies extended to our staff by BEP personnel. If you have any questions, please contact me at

⁴⁵ GAO, *Cost Estimating and Assessment Guide* (GAO-09-3SP; issued March 2009).

(617) 223-8638 or Ken O'Loughlin, Audit Manager, at (617) 223-8624. Major contributors to this report are listed in appendix 3 and the distribution list for this report is included as appendix 4.

/s/

Sharon Torosian

Director, Manufacturing and Revenue

The objective of our corrective action verification (CAV) was to determine if the Department of the Treasury (Treasury), Bureau of Engraving and Printing's (BEP) corrective actions taken in response to recommendations in the Treasury Office of Inspector General (OIG) audit report, *BILL MANUFACTURING: Improved Planning and Production Oversight Over NexGen \$100 Note Is Critical* (OIG-12-038; issued January 24, 2012) were responsive to our recommendations. In that audit report we made three recommendations to the Director of BEP which were to: (1) complete production validation tests and resolve technical problems in conjunction with the Board of Governors of the Federal Reserve System (Board) before resuming full production of the NexGen \$100 note; (2) implement a comprehensive and integrated project management function with the Board, United States Secret Service (Secret Service), and other relevant stakeholders for the NexGen \$100 note program and all future note designs. In addition, BEP, in coordination with its interagency partners, should update and finalize the 1998 MOU with FRB and the 2009 ICD draft charter; and (3) complete a comprehensive cost-benefit analysis of the available options related to the disposition of the NexGen \$100 notes that were not accepted by the Board and ensure that the option selected is agreed to by all parties, including the Board and Secret Service.

To accomplish our objective, we interviewed key BEP personnel involved with BEP's corrective actions. This included officials from its Manufacturing Directorate, Quality Directorate, Office of Strategy and Project Management, Office of Product Development, and Office of Technology Development. Additionally, we interviewed the MITRE Corporation's Program Manager who was contracted to assist in the review of BEP's new note requirements.⁴⁶

External to BEP, we interviewed stakeholders involved with BEP's corrective actions. This included officials from the Board's Division of Reserve Bank Operations and Payment Systems as well as its Currency Technology Office. We also interviewed the Board's lead consultant from PricewaterhouseCoopers LLP (PWC) who was

⁴⁶ MITRE Corporation is a not-for-profit organization that operates research and development centers sponsored by the Federal Government with expertise in scientific research and analysis, development and acquisition, and systems engineering and integration.

involved with implementation of Currency Quality Assurance Program at BEP. Additionally, we conducted interviews with current and former Secret Service officials involved with BEP's corrective actions. We also reviewed the August 2019 third party assessment report prepared by PWC, and a September 2019 Board letter to BEP regarding its review of the report.

To determine whether BEP's corrective actions were responsive to our 2012 recommendations, we reviewed documentation provided by BEP and the Board. This included documentation relevant to the NexGen \$100 note limited production validation and disposition of the 1.4 billion NexGen \$100 notes. We also reviewed documentation pertaining to BEP's policies, procedures and manuals related to the governance processes and oversight that had been implemented since our 2012 audit. In addition, we considered guidance from the Federal Acquisition Institute, Government Accountability Office, and the Project Management Institute to identify project management best practices.

We conducted our fieldwork at BEP's Eastern Currency Facility in Washington, DC; and the Board's office in Washington, DC.

We performed our fieldwork from March 2017 through October 2017 with subsequent follow up through October 2019.

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



DIRECTOR

DEPARTMENT OF THE TREASURY
BUREAU OF ENGRAVING AND PRINTING
WASHINGTON, D.C. 20228

December 12, 2019

Sharon Torosian
Director
Department of the Treasury
Office of Inspector General
Boston, MA

Dear Ms. Torosian:

We have reviewed the Department of the Treasury, Office of Inspector General's (OIG) draft audit report entitled "Corrective Action Verification – OIG-12-038, Bill Manufacturing: Improved Planning and Production Oversight Over NexGen \$100 Note Is Critical". We appreciate the hard work that went into this audit and the creation of this report. Please find our management response to the audit recommendations below.

Finding 1 – Recommendation 1:

We recommend the Director of the Bureau of Engraving and Printing (Bureau/BEP) ensure that the NexGen \$100 note can be produced at both BEP facilities by completing the necessary production validations in fiscal year 2020.

Management Response

BEP agrees with the recommendation and the validation of the NexGen \$100 note is scheduled to begin in January 2020. BEP has developed a thorough and robust plan to complete feasibility testing, verification of each production process at the Washington, DC Facility (DCF), and finally production validation of the NexGen \$100 note at the DCF. This schedule is contingent on many factors, including, the new note design priorities and production requirements.

Finding 1 – Recommendation 2:

We recommend the Director of BEP ensure that all production validations at both facilities are documented consistently and completely.

Appendix 2
Management Response

Management Response

BEP agrees with the recommendation and steps have already been taken to address this issue. During the OIG fieldwork, BEP implemented an improved Change Control Board Process, which will ensure that production validations will be documented consistently and completely.

Finding 2 – Recommendation 1:

We recommend the Director of BEP review and update, as needed, BEP's guidance over its project management processes to include best practice procedures, such as developing an integrated master schedule, which are to be followed.

Management Response

BEP concurs with the recommendation. BEP has updated the Portfolio and Project Management Circular, which provides details on the processes for managing projects depending on the nature and complexity. BEP has also developed an Integrated Master Schedule (IMS), which the Bureau utilizes to inform internal and external leadership, project managers and key stakeholders of the status of the activities to produce the next family of Federal Reserve notes (FRNs). The IMS identifies major decision points and milestones and monitors program risks.

Finding 2 – Recommendation 2:

We recommend the Director of BEP finalize the required five year update of the Memorandum of Understanding (MOU) with the Federal Reserve Board (Board) to formalize BEP and the Board's responsibilities and authorities related to notes including activities, procedures, and obligations related to the annual production, destruction, and research and development of notes.

Management Response

BEP concurs with the recommendation and is working with the Board on a draft MOU to ensure the updated MOU adequately addresses all relevant areas.

Finding 2 – Recommendation 3:

We recommend the Director of BEP develop a plan to ensure the Banknote Development Process (BDP) and the other processes developed under the Currency Quality Assurance Program are properly transitioned and adhered to by BEP personnel after contractor support ends at the end of 2019.

Management Response

BEP concurs with the recommendation and has established the Executive Program Review (EPR) Committee. The EPR consists of senior executives from the Board and the BEP. The committee meets monthly to provide a formal review and oversight of the Currency Quality Assurance Program, as well as, other issues concerning the overall Currency Program.

Appendix 2
Management Response

BEP has instituted the following Quality Initiatives to ensure the BDP and the other processes developed under the Currency Quality Assurance Program are properly transitioned: BEP created a new division within the Office of Quality Operations to provide focused in-process quality assurance support; BEP is certified at the latest ISO Quality Management System, ISO 9001:2015; a formal monthly Quality Management Review process has been institutionalized; and, a new division was created in the Office of Quality Operations to provide an internal quality audit function utilizing subject matter experts.

Finding 3 – Recommendation 1:

We recommend the Director of BEP ensure future cost estimates are appropriately documented and updated accordingly throughout the investment so that all costs, savings, and other lessons learned can be incorporated into future cost estimates.

Management Response

Management concurs with this recommendation. BEP has processes and procedures in place for ensuring that cost estimates are appropriately documented and updated throughout the investment (i.e., monitoring projects throughout the lifecycle and lessons learned are now conducted at the completion of every project).

We appreciate the opportunity to respond to the formal draft report.

Sincerely,

/s/

Leonard R. Olijar
Director

cc: Kenneth F. O'Loughlin, Auditor Manager, Treasury, OIG
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Appendix 3
Major Contributors to This Report

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Committee on Banking, Housing, and Urban Affairs

U.S. House of Representatives

Chairman and Ranking Member
Committee on Financial Services

Chairman and Ranking Member
Subcommittee on Monetary Policy and Trade
Committee on Financial Services



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