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Office of Inspector General | United States Postal Service

## Audit Report

# **Automated Package** Verification

Report Number MS-AR-19-004 | September 18, 2019



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# Highlights

## Objective

Our objective was to evaluate the effectiveness of the U.S. Postal Service's Automated Package Verification (APV) program in identifying and reducing lost revenue due to underpaid (shortpaid) postage from PC Postage customers. The Postal Service collected **billion** in revenue from PC Postage customers in fiscal year (FY) 2018.

The Postal Service launched the APV program in August 2017 to help collect and deter shortpaid revenue. The intent of APV was to automate the revenue assurance process for customers who pay postage for their packages through PC Postage label providers. While APV was

APV verifies whether the correct postage was paid for each package by comparing the postage paid from a mailer's manifest to the postage calculated using the actual package weight and dimensions, as captured using scales and dimensional scanning devices installed on mail processing equipment. When incorrect postage is paid, the system generates an invoice and sends it to the label provider who then either sends payment to the Postal Service on behalf of the customer for the shortpaid amount or issues a credit or refund to the customer for the overpaid amount.

The Postal Service estimated total shortpaid PC Postage of million in FY 2018, which is comprised of million based on statistical sampling and million based on Postal Service estimates of duplicate barcodes and missing customer manifests.

## What the OIG Found

While we recognize the role APV plays in deterring customers from underpaying

postage,

of the estimated

. Specifically, the Postal Service assessed only million million percent) in shortpaid PC Postage in FY 2018,



The Postal Service acknowledged APV's implementation limitations and is currently deploying a more comprehensive solution —the Package Platform-Phase 2 (Phase 2). This will enhance APV's ability to verify PC Postage packages

. Phase 2 is scheduled

to be deployed in FY 2020; however, we believe that interim controls are necessary until Phase 2 is fully operational. Such controls could leverage existing equipment, including Passive Adaptive Scanning System technology to help identify and sample suspected shortpaid packages at delivery units.

We also note that even with implementation of Phase 2, the Postal Service does not have a plan to

We estimate lost revenue of million in FY 2018 due to a lack of systems and processes to mitigate revenue loss from shortpaid PC Postage.

### What the OIG Recommended

We recommended management:

Develop and implement interim controls for enhanced verification of packages

which could include leveraging existing Postal Service technology such as Passive Adaptive Scanning System.

- Develop and implement a system control for issues in real-time.
- Develop a plan to verify PC Postage packages that

claiming

# Transmittal Letter

September 18, 2019	
MEMORANDUM FOR:	MARC D. McCRERY VICE PRESIDENT, MAIL ENTRY AND PAYMENT TECHNOLOGY
FROM:	Janet M. Sorensen Deputy Assistant Inspector General for Retail, Delivery and Marketing
SUBJECT:	Audit Report – Automated Package Verification (Report Number MS-AR-19-004)
This report presents the r Number 19RG010MS000	esults of our audit of Automated Package Verification (Project )).
	ration and courtesies provided by your staff. If you have any nal information, please contact Joseph Wolski, Director, Sales , or me at 703-248-2100.
Attachment	
cc: Postmaster General Corporate Audit Resp	onse Management

## Results

## Introduction/Objective

This report presents the results of our self-initiated audit of the U.S. Postal Service's Automated Package Verification (APV) program (Project Number 19RG010MS000). The objective was to evaluate the effectiveness of the APV program in identifying and reducing lost revenue due to postage discrepancies. See Appendix A for additional information about this audit.

## Background

PC Postage revenue for fiscal year (FY) 2018 was billion, an increase of million from the previous year. The Mail Entry and Payment Technology (MEPT) team leverages data from the Origin-Destination Information-System -Revenue, Pieces, and Weight (ODIS/RPW)<sup>1</sup> statistical system to estimate the total amount of shortpaid PC Postage, which was million<sup>2</sup> in FY 2018.

The Postal Service created APV to address risks associated with shortpaid PC Postage and launched the APV program on August 14, 2017. The program automated the revenue assurance process for packages paid through PC Postage<sup>3</sup> and Click-N-Ship<sup>4</sup> label providers.

APV uses upgraded mail processing equipment<sup>5</sup> and dimension scanning devices to capture the weight and dimensions of a package with a PC Postage label to determine if correct postage was paid. If it was not, the Postal Service sends an invoice to the customer through the postage label provider, who sends payment to the Postal Service on behalf of the customer. If a customer has overpaid, the label provider issues a credit or refund. While APV was

of all PC

Postage parcels for accurate postage. See Appendix B for details of APV data flow.

A prior report<sup>6</sup> identified revenue lost to postage discrepancies on PC Postage packages. The Postal Service implemented limited controls for identifying and collecting shortpaid PC Postage parcels, but their efforts had a very minor impact. The Postal Service's decision analysis report (DAR), Package Revenue Assurance DRIVE 46, dated March 2015, estimated revenue recovery million due to collection and deterrence in FY 2018 (see Table 1). of

#### Table 1. Projected Incremental Recovered Revenue Due to Collection and Deterrence

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
PC Postage <sup>7</sup> (\$M)							
Electronic Verification <sup>8</sup> (eVS) (origin entry) (\$M)							
Point-of-Sale (POS) (\$M)							
Recovered Revenue (\$M)	1						
Total shortpaid revenue (\$M)							
Percentage of total shortpaid recovered							

Source: Postal Service DAR, Package Revenue Assurance DRIVE 46, dated March 2015.

An internal information system by which data on mail volume, mail class or product, and other mail characteristics are collected, developed, and reported in the official Revenue, Pieces, and Weight Report. The system uses probability sampling techniques based on principles of mathematical statistics.

<sup>2</sup> Comprised of million based on statistical sampling and million based on Postal Service estimates of duplicate barcodes and missing customer manifests.

We use PC Postage to refer to both PC Postage and Click-N-Ship®. 3

<sup>4</sup> A service the Postal Service provides to allow individual and business customers to pay postage and print domestic and international shipping labels from the Postal Service website or mobile app. PC Postage is Postal Service-approved third-party vendor software that mailers can use to pay for and print their postage using a computer, printer, and Internet connection.

The four types of upgraded mail processing equipment are Automated Parcel Bundle Sorter (APBS), Automated Package Processing System (APPS), Small Package Sorting System (SPSS), and Manual Scan Where 5 You Band with dimensional scanners (DS-MSWYB).

Shortpaid PC Postage Parcels (Report Number MS-AR-17-007, dated May 9, 2017). 6

<sup>7</sup> Reflects amount after subtracting amount returned to customers due to disputes and overpaid revenue. 8

The revenue shown is due to deterrence.

According to the APV PC Postage Revenue Dashboard, during FY 2018, the APV program assessed **and** million of potential revenue incorrectly paid by mailers, **and** million of which was shortpaid postage collected and **and** million of which was overpaid postage refunded. During Quarter (Q) 1 of FY 2019, the Postal Service assessed **and** million of shortpaid PC Postage revenue and collected **and** million. In addition to the **and** million collected by APV in FY 2018, the Postal Service calculated a shortpaid revenue deterrence of million,<sup>9</sup> for a total of **and** million in revenue recovery. This amount exceeded the **and** million in revenue recovery projected in the DAR.

The Postal Service also provided data showing that PC Postage shortpaid revenue has decreased from FY 2016 through FY 2018 (see Table 2), while total PC Postage revenue has increased (see Table 3).

#### Table 2. PC Postage Shortpaid Revenue by Fiscal Year

	FY 2016	FY 2017	FY 2018
Shortpaid PC Postage Revenue			
Decrease from previous year			
Percentage decrease from previous year			

Source: OIG analysis of the PC Postage dashboard provided by the Postal Service.

#### Table 3. PC Postage Revenue by Fiscal Year



Source: OIG analysis of the PC Postage dashboard provided by the Postal Service.

#### Finding #1: Automated Package Verification is

In addition, certain PC Postage volume

While we recognize the role APV plays in deterring customers from underpaying			
postage, APV is	due to shortpaid		
PC Postage. Specifically, the Postal Service assessed only estimated million (percent) in shortpaid PC Postage in	million of the FY 2018.		
This occurred because management implemented APV with due to cost considerations and limitations with mail processing e	equipment.		

#### Limitations with Implementation and Mail Processing Equipment

Cost considerations resulted in the APV program being implemented with than originally anticipated. These limitations included:

•	Postage rates are    .      If the weight determined from mail processing equipment is within tolerance,      APV does
•	<i>Cubic, dimensional, and special pricing</i> . Transactional Records Processor (TRP) <sup>10</sup> programming logic, an essential component of APV, is
	rate categories. In addition, although mail processing equipment
	at has been upgraded with APV equipment and
	software, the data has
	and there are no plans currently for incorporating
	into APV.

altogether.

<sup>9</sup> Deterrence calculated through August 2018.

<sup>10</sup> Software that receives the claimed data collected from the National Meter Accounting Tracking System (NMATS) and captures data on piece characteristics (weight, packaging, dimensions, and zone) from processing equipment. TRP then identifies pieces suspected of postage discrepancies.



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#### Package Platform-Phase 2

The Postal Service acknowledged APV's implementation limitations and is currently deploying a more comprehensive solution — the Package Platform-Phase 2. Phase 2 will enhance APV's ability to verify PC Postage packages

. See

Appendix C for details of Phase 2 APV program enhancements.

Management is scheduled to deploy Phase 2 in FY 2020; however, we believe that interim controls are necessary until Phase 2 is fully operational. While we recognize the importance of Phase 2, the lack of interim controls resulted in

shortpaid revenues and puts future revenues at risk. The Postal Service can use current equipment and operations, such as the Passive Adaptive Scanning System (PASS) unit, to capture data to verify the postage of PC Postage packages.

Currently, there are approximately PASS machines that cover percent of PC Postage package volume. MEPT plans to use PASS equipment to

packages during FY 2020. Similarly, PASS could be leveraged for PC Postage package revenue protection by

While we acknowledge Phase 2 will address some of the gaps in the APV program, we believe management should implement additional controls to

Increase	for packages	and reduce lost
revenue due to po	ostage discrepancies. Currently, there	are
		This accounted for

million in shortpaid postage in FY 2018.

We estimate lost revenue of million for FYs 2018-2021 due to a lack of interim controls, systems and processes to mitigate revenue loss due to shortpaid PC Postage.

#### **Recommendation #1**

We recommend the Vice President, Mail Entry and Payment Technology, develop and implement interim controls for enhanced verification of

which could include leveraging existing Postal Service technology such as the Passive Adaptive Scanning System.

#### **Recommendation #2**

We recommend the Vice President, Mail Entry and Payment Technology, develop and implement a system control for

#### **Recommendation #3**

We recommend the Vice President, Mail Entry and Payment Technology, develop a system and processes to verify PC Postage packages that

### **Management's Comments**

Management disagreed with recommendation 1, but agreed with recommendations 2 and 3. Management also disagreed with aspects of the finding and the monetary impact.

Regarding recommendation 1, management disagreed, stating that they acknowledge APV's limitations and are in the process of deploying a more comprehensive solution of the Package Platform. Management stated they had determined this to be a more cost effective strategy than developing interim controls which would be more limited in scope. Management also stated that the OIG did not account for the human (labor) costs and time associated with the usage of PASS or similar systems which impact the return on investment and potentially delay dispatch, hurting service standards.

Regarding recommendation 2, management agreed with the intent of the recommendation, stating that equipment operators can view the **status** in real time. Management also stated that they plan to automate and integrate the trust report with the **status** report to create a more actionable solution for staff. The target implementation date is October 31, 2020.

Regarding recommendation 3, management agreed and stated that they will perform a gap analysis after deployment of Package Platform-Phase 2. The target implementation date is October 31, 2021.

Regarding management's comments on aspects of the finding:

1. Management disagreed with the statement that they implemented APV with due to cost considerations and limitations with mail processing equipment. They stated that the original DAR for the APV program requested funding for deploying five systems:

therefore, cost

considerations were not a reason for limited capability.

2. Management disagreed that postage rates are

They stated that the Postal Service evaluates

pieces when the claimed weight is deemed accurate, but the packaging, dimensions or zones do not match.

- Management disagreed that cubic, dimensional, and special pricing is
  They stated the Postal Service evaluates
  when running them on upgraded equipment.
- 4. Management disagreed that **and the problems are not identified in** real time and that 458 They stated that they give equipment operators a real-time indication of daily maintenance procedures. Management also stated that the percent statement is misleading and a more representative percentage of would be calculated by taking the

during the month of April 2019, resulting in a percevolume intervals during this time period.

percent of trusted high

We have included management's comments 5, 6, and 7 in the recommendations and monetary impact section of this report.



See Appendix D for management's comments in their entirety.

### **Evaluation of Management's Comments**

The OIG considers management's comments responsive to the recommendations in the report and their corresponding corrective actions should resolve the issues identified in the report.

Regarding recommendation 1, while we continue to believe interim controls would be beneficial in reducing shortpaid PC postage, we recognize the Postal Service

plans to implement Package Platform-Phase 2 in FY 2020 to address gaps with APV. Understanding that the Postal Service will begin implementing the program, we recognize that the return on interim controls may not be cost effective. We view management's alternate action of implementing Package Platform-Phase 2 to be sufficient to address the intent of the recommendation and consider management's comments to be responsive. According to the Package Platform-Phase 2 Decision Analysis Report, the implementation date for Package Platform-Phase 2 is March 4, 2020. In subsequent correspondence, management agreed with this implementation date.

solution for staff. This plan meets the intent of our recommendation.

Regarding recommendation 3, management stated that they plan to perform a gap analysis and reassess packages that bypass APV after Phase 2 implementation and then define a plan to detect additional volume of packages. This plan meets the intent of our recommendation.

We address management's disagreement with various report statements below:

- We acknowledge the Postal Service's position that costs were not a reason for limited capabilities within the context of the original DAR. However, our evidence shows that certain limitations were identified during implementation but not corrected as a result of costs; therefore, we believe our report accurately reflects our results.
- Our evidence indicates that the current state of APV programming logic will not verify postage rates unless a package is flagged for weight discrepancy. We understand the Postal Service will address this issue with implementation of Package Platform-Phase 2.
- 3. We acknowledge the capability of the APV dimensional scanning machines to evaluate ; however, our evidence shows that fewer than of packages are processed on the dimensional scanners.

4. We acknowledge that equipment operators are given a daily indication of

; however, our evidence shows that notifications of problems occurring between daily maintenance procedures are not given. In addition, we believe the methodology supporting the **sector** is appropriate. We used the percent trusted high volume interval score for each APBS, APPS, and SPSS and consider our calculation representative of trustworthiness during April 2019.



All recommendations require OIG concurrence before closure. Consequently, the OIG requests written confirmation when corrective actions are completed. Recommendations should not be closed in the Postal Service's follow-up tracking system until the OIG provides written confirmation that the recommendations can be closed.

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# Appendices

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## **Appendix A: Additional Information**

## **Objective, Scope, and Methodology**

Our objective was to evaluate the effectiveness of the Postal Service's APV program. To accomplish our objective, we:

- Interviewed Postal Service Headquarters and program managers to discuss implementation of the APV program, the evaluation metrics used, and internal controls over packages the APV program cannot test.
- Obtained and reviewed the Postage Shortpaid Reconciliation Report (dashboard) for FY 2018 and Q1, FY 2019.
- Compared projected short paid savings identified in the APV project DAR to actual savings for FY 2018 and Q1, FY 2019.
- Identified packages that cannot be MPE and determine if additional measures are necessary to capture lost revenue from
- Obtained and evaluated the Postal Service's methodology for selecting sites for APV implementation.
- Visited a judgmental sample of seven plants to determine if
- Determined the status of the Automated Controls project outlined in the Package Platform Phase II DAR by interviewing project managers and reviewing project documents.

### **Prior Audit Coverage**

- Consulted with responsible Postal Service managers concerning any system issues related to PC Postage internal controls over the TRP, Electronic Shortpaid Assessment System (eSAS), and Universal Pricing Engine.
- Analyzed differences between ODIS-RPW PC Postage shortpaid and recovered shortpaid revenue identified within eSAS.
- Reviewed and analyzed prior OIG reports to determine if the Postal Service addressed prior audit findings.

We conducted this performance audit from February through September 2019 in accordance with generally accepted government auditing standards and included such tests of internal controls as we considered necessary under the circumstances. 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 finding and conclusions based on our audit objective. We discussed our observations and conclusions with management on August 14, 2019, and included their comments where appropriate.

We assessed the reliability of computer-generated data from the Postal Service's ODIS-RPW system by reviewing the data and interviewing Postal Service officials. We determined that the data were sufficiently reliable for the purposes of this report.

Report Title	Objective	Report Number	Final Report Date	Monetary Impact (in millions)
Shortpaid PC Postage Parcels	Evaluate Postal Service controls to identify and collect shortpaid postage on PC Postage parcels.	MS-AR-17-007	5/9/2017	

Appendix B: Automated Package Verification Process



## Appendix C: Phase 2 Automated Package Verification Program Enhancements

Package Platform Enhancements	Explanation	Annual Additional Shortpaid Detection \$M
	APV Integration	
1		
	I	

Source: Package Platform Phase 2 DAR, dated October 12, 2018.

## Appendix D: Management's Comments

	esident htry and Payment Technology
	ED STATES
POSTA	LSERVICE
Septer	nber 09, 2019
	ICK POLAND TOR, AUDIT OPERATIONS
SUBJE	CT: Automated Package Verification (Report Number MS-AR-19-XXX)
draft re the OIC	ement appreciates all of the findings and observations provided by OIG in the discussion port. While this report acknowledges the potential impact of Package Platform Phase 2, 3 insists that USPS develop other interim controls without accounting for the associated ind time to implement. Specifically, management disagrees with the following statements in ort
1.	"APV was implemented with and the data and due to cost considerations and limitations with mail processing equipment." The original DAR for the APV
	and as such, cost considerations were not a reason for limited capability. The
2.	"Postage rates are USPS evaluates pieces where the claimed weight is deemed accurate, but the packaging, dimensions, or zones do not match.
3.	"Cubic, dimensional, and special pricing is provide the second se
4.	problems are not identified in real-time In April 2019, 458 Equipment operators are given a real time indication of statement is misleading. A more representative percentage of statement is misleading. A more representative during the month of April 2019. The percent of high volume intervals were trusted during this time period.
5.	The OIG does not provide documentation in the report on where the figure comes from.
475 L'ENF/ WASHINGTO WWW.USPS	DN DC 20260-4000







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