

September 30, 2009

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SUBJECT: Audit Report – Controls Over the Bulk Mail Revenue, Pieces, and Weight System (Report Number CRR-AR-09-007)

This report presents the results of our self-initiated audit of the Bulk Mail Revenue, Pieces, and Weight (BRPW) system (Project Number 09RG003CRR000). The objective of our review was to determine whether controls over the BRPW estimation process were adequate. The Postal Accountability and Enhancement Act of 2006 (the Act) requires the U.S. Postal Service Office of Inspector General (OIG) to regularly audit the data collection systems and procedures the U.S. Postal Service uses to prepare its reports analyzing costs, revenues, rates, and quality of service for the Postal Regulatory Commission (PRC). This audit addresses both strategic and financial risk. See Appendix A for additional information about this audit.

Conclusion

Controls over the BRPW estimation process were generally adequate. Specifically, the program code used for processing BRPW data contains adequate edit controls. Revenue and Volume Reporting office personnel review processing logs, take necessary corrective action, and back up the program code and data. Further, they evaluate the reliability of calculated values by determining statistical measures and variances.

Our tests indicated that the software programs for extraction and accumulation of BRPW data function as intended. However, improvements are needed for developing and approving rate table codes;¹ and documenting, reviewing, and changing the database extract and statistical program code. Additionally, management can

¹ The Postal Service uses Volume Information Profile (VIP) codes in rate tables to map the revenue, volume, and weight data to individual rate categories as defined by the line items found on the postage statements for manual and automated post offices.

strengthen controls over the manual postage statement data input process by establishing a formal contract with the vendor inputting the data, and through better communication with post offices.

While we did not identify inaccuracies in the rates, implementing these improvements will assist in maintaining the integrity of the BRPW estimation process.

Rate Table Code Development and Maintenance

Although we did not find inaccurate assignment of rate table codes to rate categories, we found the Postal Service does not follow required change management procedures or best practices when creating or modifying rate table codes. Specifically:

- An established numbering scheme is not always used to develop and maintain rate table codes.
- Different administrators create rate table codes that deviate from the established numbering scheme, in order to meet business needs.
- The primary user conveys change requests informally to system programmers via electronic mail rather than using formal change management procedures.

Management did not require administrators to follow the established numbering scheme or update the specification document. Additionally, the system sponsor did not require employees to follow formal change management procedures for making changes to rate table codes. Implementing these controls could improve system utility, continuity, and ensure that code changes are valid and properly tested. See Appendix B for our detailed analysis of this topic.

We recommend the Manager, Statistical Programs, direct the Manager, Revenue and Volume Reporting, to:

- 1. Update the existing rate table code numbering scheme as needed to reflect current business needs.
- 2. Update the rate table code specification document as necessary.

We recommend the Vice President, Business Mail Entry and Payment Technologies, work with the Manager, Statistical Programs, and the Manager, Corporate Information Technology, to:

3. Ensure that new or modified rate table codes are documented, submitted, and approved in accordance with established *PostalOne!* ® change management procedures.

PostalOne! Extract File Program Code

The program code for preparing the *PostalOne!* extract file contains obsolete business rules. This occurred because the Postal Service did not develop and document proper requirements for the data extraction process or conduct an evaluation of the program code following migration of the Permit System to *PostalOne!*. Additionally, the *PostalOne!* data dictionary does not include a complete description of all BRPW data variables. Removing non-functional code could simplify program maintenance and an updated data dictionary would assist users in correctly extracting data. See Appendix B for our detailed analysis of this topic.

We recommend the Manager, Statistical Programs; the Vice President, Business Mail Entry and Payment Technologies; and the Manager, Corporate Information Technology, coordinate to:

4. Develop requirements documentation for the *PostalOne!* data extraction file process.

We recommend the Manager, Corporate Information Technology, direct the Manager, Information Platform Sales and Marketing, to:

- 5. Review the *PostalOne!* data extraction program and update it as required.
- 6. Update the *PostalOne!* data dictionary to include descriptions for all variables used by the *PostalOne!* data extraction program.

Statistical Program Code

Multiple edit checks incorporated in the SAS® programs help ensure proper BRPW estimation. However, some portions of the SAS program code were hard-coded rather than using the best practice of macro variables, and some code may be obsolete. Additionally, the program code does not contain sufficient commentary documentation. Applying best practices for proper code development, maintenance, and review can reduce the likelihood of inadvertent programming errors and calculations. See Appendix B for our detailed analysis of this topic.

We recommend the Manager, Statistical Programs, direct the Manager, Revenue and Volume Reporting, to:

7. Conduct a detailed review of the SAS program code, delete obsolete code, implement changes such as increased use of macro variables to enhance the code as warranted, and provide sufficient comments throughout the code.

Manual Postage Statements

Management needs to improve controls over the submission and processing of manual postage statements. Specifically:

- Non-automated post offices did not always submit their postage statements to
 the Revenue and Volume Reporting Office in a timely manner. Fifty of 87 post
 offices did not submit one or more of their postage statements during the period
 October 2008 through January 2009. This occurred because management has
 not placed emphasis on the need for the post offices to timely submit the postage
 statements. Continued emphasis on this could reduce the need for statistical
 adjustments to account for missing postage statement data.
- The vendor hired to perform data entry from hard-copy postage statements operates without a formal contract and the required security clearances, nondisclosure agreements, and a site risk assessment were not performed. This occurred because the Revenue and Volume Reporting Office was under time constraints to initiate data entry capabilities. As a result, the Postal Service's interests are not adequately protected, which could negatively affect the Postal Service's brand.
- The Revenue and Volume Reporting Office does not reconcile the postage statements received with the related vendor invoices to determine whether the vendor processed all statements. The Revenue and Volume Reporting Office relied on tests of reasonableness based on past monthly averages to authorize payments to the vendor. Strengthening vendor invoice certification procedures will ensure the Postal Service pays only for services rendered and includes all submitted postage statements in the non-automated monthly population.

See Appendix B for our detailed analysis of this topic.

We recommend the Manager, Statistical Programs, direct the Manager, Revenue and Volume Reporting, to:

- 8. Communicate to the designated non-automated post offices on a recurring basis their responsibility to submit postage statements to the Revenue and Volume Reporting Office each month.
- Initiate a written contract for data entry services, initiate security clearance processes, complete non-disclosure agreements, and perform a site risk assessment.
- 10. Develop and implement an effective method for certifying vendor invoices for data entry services.

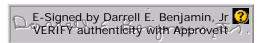
Management's Comments

Management agreed with the findings and recommendations in the 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 management's actions should resolve the issues identified in the report.

We appreciate the cooperation and courtesies provided by your staff. If you have any questions or need additional information, please contact Paul Kuennen, Director, Cost, Revenue and Rates, or me at (703) 248-2100.



Darrell Benjamin, Jr.
Deputy Assistant Inspector General for Revenue and Systems

Attachment

cc: William Ashley Lyons Robert E. Dixon Jr. Bradley V. Pafford Carla R. Siniscalchi

Bill Harris

APPENDIX A: ADDITIONAL INFORMATION

BACKGROUND

The BRPW system provides estimates of revenue, pieces, and weight totals for bulk mail categories. In fiscal year 2008, domestic bulk mail generated revenue of approximately \$43.7 billion. \$43.2 billion (99 percent) was generated from Postal Service field locations with access to *PostalOne!*, a national automated bulk mail acceptance and financial reporting system. The remaining \$47.5 million (1 percent) was generated from non-automated offices.

The BRPW input data consists of postage statement transaction information aggregated at the finance number level by rate table code (VIP code). The *PostalOne!* performs this aggregation for all automated postage statements while a SAS program performs this function for all non-automated data.

The Revenue and Volume Reporting Office within Statistical Programs at Postal Service Headquarters is the executive sponsor and primary user of the BRPW system. This office is the data steward of the rate table codes and they create the codes maintained in *PostalOne!*. The Vice President, Business Mail Entry and Payment Technologies, is the executive sponsor of *PostalOne!*. Postal Service policy² requires users to document change requests and enter the request into a formal change management system. The executive sponsor will then make a change request to the Change Control Board. The executive sponsor is responsible for defining the business requirements, securing funding, and communicating the change impact to the affected business organizations. The Change Control Board and the executive sponsor review and approve/disapprove implementation of the change.

Revenue and Volume Reporting Office personnel maintain five SAS programs that validate data from *PostalOne!* and non-automated post offices. These programs are used to prepare the BRPW estimates, as follows:

- 1. The first program performs the initial data validation and assignment of rate table codes for non-automated post office data.
- 2. The next three programs, which comprise the BRPW processing cycle:
 - a. Collect the current period's postage statement data extracted from *PostalOne!* and from the supplemental panel of non-automated offices;
 - b. Perform data verification checks on the source data; and
 - c. Inflate the output from the previous step by using office and stratum-based blowups and national trial balance factors.

² Change Management Policy, version 1.2, April 20, 2009.

3. The fifth program calculates estimates of the sampling variances and coefficient of variation for determining estimates of statistical reliability factors.

A sample of non-automated post offices provides approximately 1 percent of bulk mail data for the BRPW estimation process. Each month, these post offices provide hard copy postage statements to the Revenue and Volume Reporting Office, which then forwards the statements to a vendor for data entry. On July 7, 2009, the Postal Service filed a request with the PRC to use *PostalOne!* data to estimate the bulk mail revenue, pieces, and weights for non-automated post offices. Management expects the panel of sample post offices to become obsolete in FY 2010 if the PRC approves the request. This will reduce the need for third-party data input services.

The BRPW provides data to the Revenue, Pieces, and Weight Adjustment System (ARPW)³ which it uses to prepare monthly, quarterly, and annual Revenue, Pieces and Weight (RPW) Reports for the PRC. Annual reports prepared using ARPW system outputs include the RPW Report, the Cost and Revenue Analysis report, and the Postal Service's Annual Report. The PRC uses revenue, pieces, and weight information in evaluating the Postal Service's compliance with pricing policies prescribed by the Act.

See Appendix C for the BRPW process flow.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our objective was to determine whether controls over the BRPW estimation process were adequate. We reviewed Postal Service policies and procedures, best practices, BRPW rate tables, price list, and other documentation applicable to our audit objective. We interviewed key personnel from the Revenue and Volume Reporting Office and reviewed documentation and electronic postage statement data files as needed.

We used a contractor to determine whether the SAS programs used in BRPW estimation adequately function to detect inaccurate, incomplete, and invalid BRPW data results and whether the code was properly documented. We evaluated the contractor's findings to reach our conclusions regarding the SAS programs.

To determine the adequacy of the controls over the BRPW data extract process, we performed a site visit to the San Mateo, Integrated Business Systems Solutions Center and met with the *PostalOne!* managers, administrators, programmers, and analysts. During that time, we reviewed and discussed select portions of the code and gained an understanding of the process.

To determine the adequacy of the controls over the manual BRPW process, we interviewed the vendor who performs data entry of postage statement data; and

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³ Other systems that provide input into the ARPW include the following: Origin-Destination Information System and Revenue, Pieces, and Weight; System for International Revenue and Volume-Outbound; General Ledger System; and Point-of-Service.

obtained and reviewed invoices, payment documentation, postage statements, delinquent postage statements logs, and a BRPW data file the vendor prepared. We also performed a preliminary review of the data file and compared it with the corresponding hard copy postage statements.

We conducted this performance audit from October 2008⁴ through September 2009 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 objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. We used manual and automated processes to assess the reliability of computer-generated data used for our analysis and concluded the data used were sufficient to support the audit objective. We discussed our observations and conclusions with management officials on September 3, 2009, and included their comments where appropriate.

PRIOR AUDIT COVERAGE

There were no prior audits of the BRPW system.

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⁴ We suspended this audit in October 2008 and re-opened it in January 2009 because the Postal Service requested a delay while they prepared to meet Postal Accountability Enhancement Act data requirements.

APPENDIX B: DETAILED ANALYSIS

Rate Table Code Development and Maintenance

The Postal Service does not follow required change management procedures or best practices when creating or modifying rate table codes. While we did not identify inaccuracies in the rate table codes, implementing these controls could improve system utility, continuity, and ensure that code changes are valid and properly tested.

Rate Table Code Numbering Scheme

The Revenue and Volume Reporting Office develops rate table codes by ensuring each code is unique to a line item on a postage statement; however they are unable to follow the existing numbering scheme as it is outdated. Following enactment of the Act, a change to *PostalOne!* expanded the length of the rate table code from five to 15 characters, in order to allow flexibility in assigning codes. Administrators created nearly 3,000 new rate table codes to meet specific business needs. While the initial numbering scheme used numeric codes, the current codes include both numeric and alphanumeric characters. Adherence to a systematic rate table code numbering scheme could also allow users to query the data more effectively. Additionally, updating the rate table code specification document to reflect current business needs could assist in system maintenance and reduce the potential for errors.

Change Management

The Postal Service did not formally document rate table code changes in the change management system used for *PostalOne!*. The Postal Service uses TRACKERINET to manage the developmental activities of *PostalOne!*. Although TRACKERINET contains 54 entries impacting rate table codes for the period October 2008 through August 24, 2009, detailed requirements for individual code changes were not always included in the change requests. Users in the Revenue and Volume Reporting Office communicate the requests directly to system programmers, who initiate testing and implementation of the changes. Using proper change management procedure provides greater assurance that approved rate table changes are documented, tested, and correctly included in the *PostalOne!*. This would also assist in maintaining stakeholder confidence in the accuracy of BRPW estimates.

System Documentation

The Revenue and Volume Reporting Office did not maintain adequate documentation to document rate table code changes and the related business reasons for the changes. For example, a bulk mail product was moved from the "Not-Flat Machinable" price category to the "Non-Automation Flats" price category; however, the rate table code remained the same and the change was not formally documented. As the data steward for BPRW data, the Revenue and Volume Reporting Office is responsible for

documenting changes to the codes that might affect the way the Postal Service uses data.⁵ Rate table code changes should be properly documented to ensure the changes are valid and properly approved through the change management process.

PostalOne! Extract File Program Code

The computer program for generating an extract file from the *PostalOne!* database contains obsolete business rules. System administrators use an extract program to create the data file for input into the BRPW system. This program was developed when management migrated the Permit system used for handling bulk mail information to *PostalOne!*. The extract program contains processing logic that provides reversals and adjustments that may have been needed during the initial years of transition, but is likely no longer needed. This occurred because the Postal Service did not develop requirements for the BRPW data extraction process. A detailed review of the program code is needed to determine whether this processing logic should be deleted.

We also determined the *PostalOne!* data dictionary does not include a complete description of all variables used by the extraction program. Written requirements and a proper data dictionary help the programmer to extract data correctly from the database.

The Postal Service had not conducted an evaluation of the program code since migration of the Permit System to *PostalOne!*. Without a post-implementation review, coding problems may not be identified and improvement to the processes may be overlooked. Developing requirements documentation, completing the data dictionary, and conducting a review of the program code could enhance the integrity of the data provided to the BRPW system.

Statistical Program Code

Obsolete Code

The Postal Service uses five SAS programs totaling more than 6,000 lines of code to perform various functions. When programmers update the program code to meet new business requirements, they add new lines of code but do not change or delete existing statements written by other programmers that have become obsolete. This increases the complexity of system testing and could lead to programming errors.

Hard-Coded Values

There are data element values hardcoded into the programs in multiple locations. When these values change, the programmer has to manually change the value in all applicable locations. Manually changing hard-coded values in multiple locations in

⁵ Management Instruction AS 860-2003-2, *Data Stewardship: Data Sharing Roles and Responsibilities*, March 2003.

⁶ Postal Service's *Technology Solution Life Cycle Policy – Technology Solution Release Management Process*, version 1.0.

several thousand lines of code can lead to errors. Best practices use macro variables instead of hard-coded values. A macro variable uses a literal in place of a value or a series of commands and is normally declared at the beginning of the program. The literal is used in the rest of the program rather than the value. Changing the macro variable requires making only one change, normally in the beginning of the program, and reduces the likelihood of errors.

Data Merge

One SAS program contained a procedure for merging data that could have unexpected results if not properly utilized. The MERGE procedure in SAS must be used carefully when multiple transactions rely upon the same key in merging datasets with an unequal number of transactions. While we did not identify any inaccuracies during our review, management took action to reduce the risk of potential inaccuracies when using the MERGE procedure during our audit.

System Documentation

Documentation and comments within programs need improvement. Although documentation describing the code exists, the code does not contain sufficient documentation. Insufficient program comments within the program make it difficult for a new programmer to understand the logic or make necessary updates. According to best practices, proper maintenance includes good programming style along with sufficient written comments that make the code readable. The Postal Service can improve the overall program integrity of the SAS programs by conducting a program code review and improving documentation.

Manual Postage Statements

Postage Statements

Non-automated post offices did not always submit their postage statements to the Revenue and Volume Reporting Office in a timely manner. Fifty of 87 post offices did not submit all required postage statements during the period October 2008 through January 2009. Most of the responsible post office officials we spoke to informed us they were unaware of this requirement or they are new to their positions and their predecessors had not informed them. The Revenue and Volume Reporting Office issues a memorandum occasionally to remind the post offices of their responsibility to submit their postage statements each month. Postage statement data not included in the non-automated population are estimated based on a factor the Revenue and Volume Reporting Office establishes. Increased factoring decreases the effectiveness of the BRPW estimate.

⁷ The auditors contacted 12 post office officials. Seven of these informed us their predecessor had not advised them to do so.

Vendor Agreements

Management can improve controls over the manual postage statement data entry process. Although the vendor has been providing data entry services for the Postal Service for more than 4 years, the Revenue and Volume Reporting Office never established a written contract with the vendor hired for these services or obtain a non-disclosure agreement due to time constraints for needed data entry services. The Postal Service's guidance on professional and technical service contracts requires clauses for non-disclosure, records ownership, and privacy protection. These clauses are needed when sensitive business information is provided to a third party. The information provided to the vendor includes sensitive information such as mailer name and address, phone number, permit number, and mail volume.

Site Risk Assessment

The Postal Service did not complete a site risk assessment for the vendor's premises. The vendor stores the postage statement data on a compact disc for back-up and retrieval purposes and maintains the statements on site. A site risk review must be performed for each site hosting sensitive-enhanced, sensitive, or critical information resources. As a result, the BRPW data may not be adequately protected and this could impact the Postal Service brand.

Invoice Certification

The Revenue and Volume Reporting Office did not certify all vendor invoices received. The office paid invoices totaling \$97,292 for the 44-month period ending May 4, 2009. When a supplier submits an invoice directly to the contracting officer or installation, the invoice must be checked to ensure that it is complete, accurate, and that the goods or services have been provided. However, the Revenue and Volume Reporting Office did not account for all postage statement records before mailing them to the vendor; therefore, they could not perform a proper reconciliation of the invoice amounts. The Revenue and Volume Reporting Office relied on reasonableness based on past monthly averages to authorize payment. Reconciling invoices with postage statements provided to the vendor ensures that payments are provided only for services rendered.

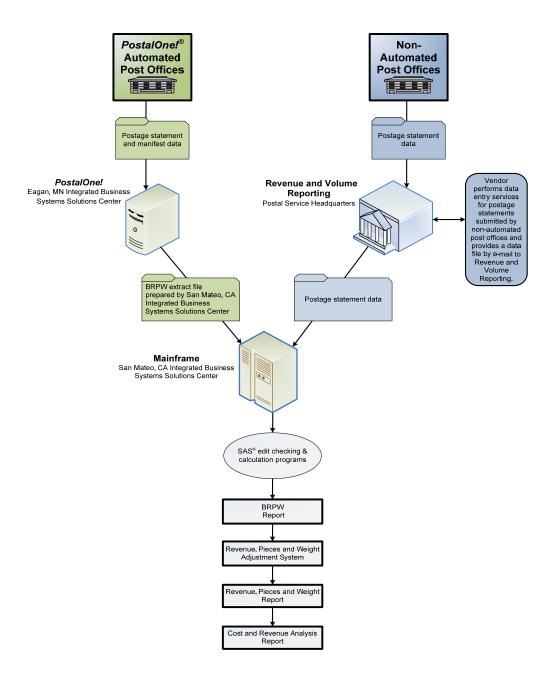
⁸ The Postal Service's Supplying Practices and Principles – Commodity Specific Practices.

⁹ PostalOne! data is classified as "sensitive but unclassified". As a feeder system, BRPW receives the same classification.

¹⁰ Handbook AS-805, *Information Security,* section 4-5, June 2009.

¹¹ Management Instruction FM-610-2000-2, *Compliance with the Prompt Payment Act*, Receipt and Certification of Invoices, May 7, 2000.

APPENDIX C: BRPW PROCESS FLOW DIAGRAM



APPENDIX D: MANAGEMENT'S COMMENTS



September 30, 2009

LUCINE M. WILLIS

SUBJECT: Controls Over the Bulk Mail Revenue, Pieces, and Weight System (Report Number CRR-AR-09-DRAFT)

Management has reviewed the subject report and is in agreement with the findings and recommendations. Additionally, there are no Freedom of Information Act issues related to this audit.

Recommendation #1

Update the existing rate table code numbering scheme as needed to reflect current business needs.

Response

We agree to update the Volume Information Profile (VIP) numbering scheme for the existing coding structure by February 1, 2010, and when changes in VIP codes occur in the future.

Recommendation #2

Update the rate table code specification document as necessary.

Response

We agree to update VIP code specification documentation by February 1, 2010.

Recommendation #3

Ensure that new or modified rate table codes are documented, submitted, and approved in accordance with established *PostalOne!*® change management procedures.

Response

The Manager of Mailer Enterprise Integration will ensure that the change management process for placeholder requirements is appropriately documented. The Manager of Statistical Programs will establish a change control process working with Mailing and Shipping Services for approval of VIP codes by January 1, 2010. As is the case with rates, VIP codes are provided to Information Technology after the *PostalOnel* change management process for requirements associated with VIP code modifications or additions is complete. The requirements submitted through *PostalOnel* change management serve as a placeholder for insertion of new codes.

Recommendation #4

Develop requirements documentation for the PostalOne! data extraction file process.

Response

PostalOne! will generate design documentation that describes the business rules as implemented currently. We will review this documentation with the business stakeholders and annotate any

475 L ENFANT PLAZA SW WASHINGTON DC 20260 WWW.USPS.COM additional requirements that may not be fulfilled by the existing implementation by January 4, 2010.

Review the PostalOne! data extraction program and update it as required.

Response

PostalOne! will work with our business drivers to schedule the implementation of unfulfilled requirements as identified in the actions that result from the response to Recommendation 4. PostalOne! will schedule these changes according to the priorities set by the participating stakeholders including the Office of Inspector General by March 12, 2010.

Recommendation #6

Update the PostalOne! data dictionary to include descriptions for all variables used by the PostalOne! data extraction program.

Response

We agree to update the PostalOne! data dictionary to include the requested material by the March 12, 2010, release date for Full Service Release 3.

Recommendation #7

Conduct a detailed review of the SAS program code, delete obsolete code, implement changes such as increased use of macro variables to enhance the code as warranted, and provide sufficient comments throughout the code.

We agree to update and comment the Bulk RPW system SAS program code by April 1, 2010.

Recommendation #8

Communicate to the designated non-automated Post Offices on a recurring basis their responsibility to submit postage statements to the Revenue and Volume Reporting Office each

Response

We agree with this recommendation. A letter will be mailed to the Bulk RPW panel offices in late September or early October 2009 regarding their involvement in FY2010 and will include language noting their monthly responsibilities. Note that it is expected that the panel will become obsolete in FY2010 when the Postal Regulatory Commission (PRC) approves a proposal (see PRC Docket No. RM2009-7 filed July 7, 2009) to model non-automated office activity.

Recommendation #9

Initiate a written contract for data entry services, initiate security clearance processes, complete non-disclosure agreements, and perform a site risk assessment.

Response
Pending the PRC's decision on the Postal Service's request for an alternative estimation approach (see response to Recommendation 8), a written contract will be initiated no later than November 30, 2009.

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Recommendation #10

Develop and implement an effective method for certifying vendor invoices for data entry services.

Response

Pending the PRC's decision on the Postal Service's request for an alternative estimation approach (see response to Recommendation 8), a method for vendor invoice certification will be implemented no later than November 30, 2009.

John T. Edgar Vice President

Information Technology Solutions

Pritha N. Mehra Vice President

Business Mail Entry & Payment Technologies

J. Ron Poland Manager

Statistical Programs

cc: Ashley Lyons Robert E. Dixon, Jr. Bradley V. Pafford Carla R. Siniscalchi

Bill Harris