August 27, 2007

WALTER O'TORMEY
VICE PRESIDENT, ENGINEERING

SUBJECT: Audit Report – Optical Character Reader Enhancements, Delivery Input Output Sub-System (Report Number DA-AR-07-004)

This report presents the results of our self-initiated audit of the Postal Service's Optical Character Reader (OCR) Enhancements Program (Project Number 06XG056DA000). The OCR Enhancements Program is a large Postal Service mail automation investment for letter operations that is expected to generate significant workhour savings. This audit is a follow-up to a previous audit which identified performance issues with similar Delivery Bar Code Sorter[1] – Expanded Capability (DBCS-EC) systems.

Background

Employees sort "non-machinable" letter mail manually, which is costly. To help reduce the amount of such sorting, in February 2004, the Board of Governors approved [redacted] to fund the OCR Enhancements Program. The program's Decision Analysis Report (DAR)[2] expected an overall savings of [redacted] workhours per year, or [redacted] over the 10-year operating period. Savings resulting from a decrease in manual letter processing are forecasted to be approximately [redacted] workhours per year (or 77 percent) of this total savings. To realize the expected manual workhour reductions, the OCR Enhancements Program will have to migrate approximately 30 percent of manual letter mail into automated processing.

The remaining workhour savings is expected from increased efficiency in automated letter operations through upgrades to the existing equipment and/or removal of the Multi-line Optical Character Readers (MLOCRs),[3] which as originally designed and

[1] The DBCS is a multi-level, high-speed bar code sorter. Implementation of the Delivery Point Bar Code allows the DBCS to sort mail in carrier walk sequence, eliminating the need for additional sorting at the delivery unit.
[2] A DAR prepared by the sponsoring organization is needed to justify major operating expense investments. A DAR ensures Postal Service investments are properly documented and reviewed, explains the background and purpose of the program, and fully documents costs and benefits estimates.
[3] The MLOCR is an automated letter sorting machine. The MLOCR captures an image of the address information on the mailpiece and performs character recognition functions of the address information on the mailpiece.

deployed could process most, but not all, letter mail. The OCR Enhancements Program's DAR called for reductions of over 900,000 workhours from automated letter processing, which would result in 23 percent of the projected total program savings.

The Postal Service completed OCR Enhancements Program deployments in May 2007. These deployments consist of several sub-components involving the purchase of:

- 1,086 OCR upgrade kits for the Advanced Facer Canceller Systems (AFCS).[4] These upgrade kits permit fewer subsequent handlings and quicker dispatch for letter mail processed on the AFCS machines, improving the efficiency of automated letter operations.

- 285 Remote Computer Reader modifications. These modifications enable the OCR to better interpret handwritten addresses and degraded print. This also improves the efficiency of automated letter operations.

- 222 upgrade kits for existing DBCS machines. These kits include various Delivery Input Output Sub-System (DIOSS) configurations. The various DIOSS configurations expand the capability to read bar codes and sort automated letter mail into delivery order. However, when the DIOSS C kit is installed on a DBCS-EC machine, the resulting machine can also process thick letter mail that, in the past, employees had to sort manually.

- 395 new Delivery Bar Code Sorter Input/Output Sub-Systems and Expanded Capacity (DIOSS D) machines. These new machines also sort thick letter mail in delivery point sequence that, in the past, employees had to sort manually.

Objective, Scope, and Methodology

Our objective was to assess the initial impact of the OCR Enhancements Program on letter processing operations. To answer our objective, we reviewed investment information for the OCR Enhancements Program, interviewed Postal Service field and program management officials, and sent surveys to 16 DIOSS C and D sites to determine usage. We analyzed changes in manual letter volumes and productivity, and compared changes in manual and automated letter workhours to the DAR Field Budget projections.

Per the DAR, the impact on manual letter operations is expected from the DIOSS C and DIOSS D systems, while the impact on automated letter operations will come from all DIOSS systems and upgrades to the AFCS machines. As a result, our analysis of manual letter operations included the DIOSS C and DIOSS D systems only, while our

[4] The AFCS culls, faces, and cancels letter mail through a series of automated operations.

analysis of automated letter operations consisted of the entire automated letter operation (LDC-11).[5]

Our analyses encompassed DIOSS sites with at least a 6-month deployment period as of February 2007. We excluded an assumed 2-month lag time in savings after the OCR enhancements installation,[6] resulting in selection of the following 16 sites:

Site	Deployment Date
Akron Processing & Distribution Center (P&DC)	4/21/2006
Amarillo Processing & Distribution Facility (P&DF)	5/25/2006
Baltimore P&DC	5/18/2006
Brockton P&DC	5/25/2006
Champaign P&DF	4/28/2006
Cincinnati P&DC	5/25/2006
Cleveland P&DC	4/13/2006
Colorado Springs P&DC	5/4/2006
Columbia, MO P&DC	4/21/2006
Daniels P&DC	5/25/2006
Frederick P&DF	4/21/2006
Las Vegas P&DC	5/25/2006
Louisville P&DC	5/18/2006
Salt Lake P&DC	5/25/2006
San Jose P&DC	4/13/2006
Suburban P&DC	5/25/2006

For each of the sites, we compared manual letter volumes and workhours for the 6-month post-deployment period to the same period last year. Additionally, we compared automated letter and manual workhours to investment targets for each site. Further, we analyzed trends at each site for average daily volume of mail processed on the DIOSS C and DIOSS D machines in the expanded capability mode to assess volume shifts from manual operations.

We conducted the audit from November 2006 through August 2007 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 obtained data from the Postal Service's Management Operating Data System (MODS). A prior OIG report[7] revealed that MODS internal controls were generally effective and MODS data was valid and reliable when used to assess overall plant efficiency. Uncorrected volume and workhour errors total less than 1 percent of MODS transactions. We also reported that

[5] The Labor Distribution Code (LDC) is a two-digit code that identifies major work assignments of employees. The first number identifies the function within the office and the second number identifies the type of activity performed.
[6] The DAR indicated the realization of the projected savings would not occur until 2 months after OCR enhancement deployment.
[7] MS-AR-07-DRAFT, *Management Operating Data System*, June 4, 2007.

internal controls were not effective in ensuring volume and workhour data recorded against MODS operation numbers was valid. Our report recognizes the data limitations at the operational level.

Prior Audit Coverage

The OIG previously issued a report titled *Delivery Bar Code Sorter – Expanded Capability* (Report Number DA-AR-03-007, dated September 30, 2003) covering an earlier generation DBCS-EC machine. The audit concluded the Postal Service's decision to continue the DBCS-EC program without fully addressing that First Article Test failures did not ensure the DBCS-EC could effectively process bulky mail (mailpieces that exceed the specifications of width and height for automated volumes) without damaging it.

Audit Results

At this early stage of post-deployment, the OCR Enhancements Program has had some success in reducing manual letter volumes and manual and automated letter workhours in certain plants. However, plant personnel have identified reliability and performance concerns primarily with the DIOSS D machines, which have limited these reductions. If left unresolved, this could prevent the realization of forecasted savings. It is important for the Postal Service to fully analyze and address these issues while the machines are still under warranty to ensure necessary retrofits are provided at no cost.

In addition to the performance concerns we identified, we also determined Postal Service Engineering was not tracking the OCR Enhancements Program performance metrics outlined in the DAR. Tracking program performance is necessary to determine whether the Postal Service is realizing expected investment benefits.

Projected Reductions Are Not Being Consistently Realized

Manual Letters

The DAR for the OCR Enhancements Program indicated deployment of DIOSS C upgrade kits and DIOSS D machines would reduce manual letter volume by 30 percent. This was the basis for the projected workhour savings. Manual letter savings were forecasted to be approximately [redacted] workhours per year (or 77 percent) of the total OCR Enhancements Program savings. As shown in Table 1, reductions in manual letter volumes have not been consistent among the 16 sites we reviewed. A review of MODS data indicated only three of the 16 sites achieved a reduction of manual letter volume of 30 percent or more. Eight sites had reductions between 10 and 30 percent, while five actually saw increases in manual letter volume.

Table 1 – Impact of OCR Enhancements Program on Manual Letter Volumes*

Redacted

***6-month post-deployment period compared to same period last year (SPLY). Excludes 2-month savings time lag. Source: Enterprise Data Warehouse (EDW) / MODS**

Although volumes have not decreased as quickly and consistently as projected, workhour reductions have been slightly more consistent. As shown in Table 2, comparing manual letter workhour reductions against DAR projections revealed six of the 16 sites exceeded their projected workhour reductions (Significant Impact) at this stage of deployment, while five sites saw some workhour reductions (Some Impact). However, five of the 16 sites experienced an increase in manual letter workhours (No Impact). (See Table 2.)

Table 2 – Impact of OCR Enhancements Program on Manual Letter Workhours*

Site	Projected Workhour Change per DAR Field Budget Projections	Actual Change in Workhours*	Impact
Akron P&DC	[redacted]	[redacted]	Some Impact
Amarillo P&DF	[redacted]	[redacted]	Significant Impact
Baltimore P&DC	[redacted]	[redacted]	Significant Impact
Brockton P&DC	[redacted]	[redacted]	Significant Impact
Champaign P&DF	[redacted]	[redacted]	No Impact
Cincinnati P&DC	[redacted]	[redacted]	No Impact
Cleveland P&DC	[redacted]	[redacted]	Some Impact
Colorado Springs P&DC	[redacted]	[redacted]	Some Impact
Columbia, MO P&DC	[redacted]	[redacted]	Some Impact
Daniels P&DC	[redacted]	[redacted]	No Impact
Frederick P&DF	[redacted]	[redacted]	No Impact
Las Vegas P&DC	[redacted]	[redacted]	Significant Impact
Louisville P&DC	[redacted]	[redacted]	Significant Impact
Salt Lake P&DC	[redacted]	[redacted]	Some Impact
San Jose P&DC	[redacted]	[redacted]	No Impact
Suburban P&DC	[redacted]	[redacted]	Significant Impact

***6-month post-deployment period compared to SPLY. Excludes 2-month savings time lag.**
Source: EDW / MODS

Assuming DIOSS C and DIOSS D machines are primarily responsible for the manual volume decline, when volume decreases at a greater rate than workhours, manual letter mail operations productivity also decreases. As shown in Table 3, productivity declined in the manual letter operation at 11 of 16 sites.

Table 3 – Impact of OCR Enhancements Program of Manual Letter Productivity*

Site	Productivity Impact (Percent)
Daniels P&DC	48
Columbia, MO P&DC	25
Cincinnati P&DC	24
Colorado Springs P&DC	5
Cleveland P&DC	3
Baltimore P&DC	-3
Brockton P&DC	-7
Akron P&DC	-7
Suburban P&DC	-17
Champaign P&DF	-17
Salt Lake P&DC	-18
Amarillo P&DF	-18
Frederick P&DF	-19
San Jose P&DC	-23
Louisville P&DC	-25
Las Vegas P&DC	-32

***6-month post-deployment period compared to SPLY. Excludes 2-month savings time lag.**
Source: EDW / MODS

Some of the site volume and workhour declines shown in Table 1 and Table 2 were the result of a general decline in letter mail volume. In addition, some sites indicated better mail flow discipline and the transfer of secondary manual letter volumes to the field contributed to volume workhour reductions. In contrast, certain OCR Enhancements Program sites experienced an increase in manual letter volumes and/or workhours. In addition to the low confidence in the DIOSS machines discussed below, reasons provided by site officials included increases in overall letter volumes and employees clocking into the incorrect operation.

Our survey of the Managers, In-Plant Support (MIPS) at the sites reviewed revealed that a barrier to achieving forecasted manual letter savings was the reluctance of plant personnel to use DIOSS D machines due to system reliability and performance issues. Plant personnel had some concerns about the DIOSS D machines' ability to efficiently process bulky manual mail. MIPS mentioned problems with the machines' feeders. Feeder issues increase jam rates and double feed conditions, affecting the machines' ability to sort mail in Delivery Point Sequence (DPS). Additional system issues identified relate to premature part failures. Unless system confidence is restored, plant personnel may continue to process machinable candidate mail manually or on their MLOCR machines. Processing mail on the MLOCR machines requires additional processing operations and workhours. Addressing these performance challenges and increasing DIOSS use would allow for more success in realizing the manual workhour savings projected in the DAR.

According to Postal Service Engineering personnel, the vendor has developed a machine retrofit to alleviate the part failures. However, the vendor did not have a plan in place to address the feeder issue. Since the machines are still under warranty, it is of vital importance that management address all machine problems during the warranty period so the Postal Service will not have to fund these changes. According to the contract, all systems shall be under warranty for 2 years from the acceptance of the last installed system.

Automated Letters

As it pertains to automated letters, the DAR indicates the Postal Service will realize automated letter workhour savings by modifying DBCS and AFCS machines and removing some of the existing MLOCRs. Site analysis revealed some progress in reducing automation letter workhours to the DAR projections. As shown in Table 4, four of the 16 sites exceeded their projected workhour reductions (Significant Impact) and another three were making progress towards reducing workhours (Some Impact). However, nine of the 16 actually saw increases in workhours from the prior year (No Impact).

Table 4 – Impact of OCR Enhancements Program on Automated Letter Workhours*

Site	Projected Workhour Change per DAR Field Budget Projections	Actual Change in Workhours*	Impact
Brockton P&DC	[redacted]	[redacted]	Significant Impact
Champaign P&DF	[redacted]	[redacted]	Significant Impact
Columbia, MO P&DC	[redacted]	[redacted]	Significant Impact
Frederick P&DF	[redacted]	[redacted]	Significant Impact
Akron P&DC	[redacted]	[redacted]	Some Impact
Cincinnati P&DC	[redacted]	[redacted]	Some Impact
Suburban P&DC	[redacted]	[redacted]	Some Impact
Amarillo P&DF	[redacted]	[redacted]	No Impact
Baltimore P&DC	[redacted]	[redacted]	No Impact
Cleveland P&DC	[redacted]	[redacted]	No Impact
Colorado Springs P&DC	[redacted]	[redacted]	No Impact
Daniels P&DC	[redacted]	[redacted]	No Impact
Las Vegas P&DC	[redacted]	[redacted]	No Impact
Louisville P&DC	[redacted]	[redacted]	No Impact
Salt Lake P&DC	[redacted]	[redacted]	No impact
San Jose P&DC	[redacted]	[redacted]	No Impact

***6-month post-deployment period compared to SPLY. Excludes 2-month savings time lag.**
Source: EDW / MODS

The inability to achieve the automated letter workhour reductions was the result of:

- Employees clocking into the incorrect operation.

- Plants not reducing workhours associated with the removal of MLOCR machines.

Addressing these issues should enable the Postal Service to realize the projected automated letter workhour savings.

Investment Performance Is Not Currently Being Tracked

Engineering is not tracking the OCR Enhancements Program performance metrics outlined in the DAR. According to the DAR and the Investment Highlights, various system performance metrics should be monitored from project development through implementation. These metrics are:

- Average volume of mail processed on each DIOSS machine.
- Average daily volume of mail processed on DIOSS-EC machines in the "EC mode."
- Average daily volume of letter mail processed in operations where volume reductions are expected (automated outgoing secondary letter operations).
- Comparison of labor productivities in successor operations versus predecessor operations.
- Address recognition performance for the DIOSS and AFCS with OCRs.

Performance metrics are not currently tracked because management has not established tracking procedures and responsibilities. Tracking program performance is necessary to determine whether program benefits are being realized and also helps identify program deficiencies. This would assist in ensuring contract performance is occurring as planned and in identifying whether retrofits are needed during deployment while the system is still under warranty. In addition, tracking program metrics will enable management to comply with the recently enacted "Tollgate Process" which consists of structured Capital Investment Committee briefings before and after DAR approval, during deployment, and at post-deployment.

Recommendations

We recommend the Vice President, Engineering:

1. Develop a formal plan to identify and address DIOSS system reliability and performance issues not covered by the current retrofit. This should ensure any remaining issues are identified and addressed prior to warranty expiration.

2. Establish roles and responsibilities for tracking program performance on a continuous basis.

Management's Comments

Management disagreed with the mail analysis, but agreed with both recommendations. Regarding the mail analysis, in addition to volume, workhour, and productivity changes, management indicated there were other indicators to consider when measuring program success. In reference to recommendation 1, management stated that corrective actions were in progress for both design and operations. In reference to recommendation 2, management indicated that they were establishing roles and responsibilities to track program performance by September 2007. We have included management's comments, in their entirety, in Appendix A.

Evaluation of Management's Comments

Regarding management's disagreement with the report's mail analysis, the report acknowledges that other factors may influence mail workhours and volume — the principle basis of savings in the DAR. In particular, some of the site volume and workhour declines were the result of a general decline in letter mail volume, better mail flow discipline, and the transfer of secondary manual letter volumes — events unrelated to DIOSS deployment. Management specifically highlighted examples of transferring mail volumes between sites and operations, which we acknowledge and noted during our surveys of OCR Enhancement sites.

We recognize management actions to remove the total number of MLOCRs beyond the initial plan. However, as stated in the report, there have been reliability and performance concerns with the DIOSS D machines. We consider management's actions, taken or planned, responsive to the issues identified in this report and to our recommendations.

The OIG considers recommendations 1 and 2 significant, and therefore requires OIG concurrence before closure. Consequently, the OIG requests written confirmation when corrective actions are completed. These recommendations should not be closed in the follow-up tracking system until the OIG provides written confirmation the recommendations can be closed.

We appreciate the cooperation and courtesies provided by your staff during our review. If you have any questions or need additional information, please contact Miguel A. Castillo, Director, Engineering, or me at (703) 248-2100.

E-Signed by Darrell E. Benjamin,
VERIFY authenticity with ApproveIt

Darrell E. Benjamin, Jr.
Deputy Assistant Inspector General
for Support Operations

cc: William P. Galligan Jr.
Katherine S. Banks

APPENDIX A. MANAGEMENT'S COMMENTS

WALTER O'TORMEY
VICE PRESIDENT
ENGINEERING

UNITED STATES POSTAL SERVICE.

August 17, 2007

DARRELL E. BENJAMIN, JR.
DEPUTY ASSISTANT INSPECTOR GENERAL
SUPPORT OPERATIONS

SUBJECT: Optical Character Reader Enhancements, Delivery Input Output Sub-System (Report Number DA-AR-07-DRAFT)

Thank you for the opportunity to review and provide comments on the subject draft audit report. The attachment highlights differing views on some of the audit statements and findings.

In principle, we agree with the two audit recommendations. The response to the first recommendation identifies the corrective actions already undertaken as part of standard acquisition program management processes prior to audit. For the second recommendation, the response highlights activities underway to establish long-term roles and responsibilities for program performance.

All references in the audit report referring to the Decision Analysis Report cost, savings and return on investment figures are to be redacted and exempt from disclosure under FOIA.

If you have any questions or comments on this response please contact Lilo Rheinstein from Technology Acquisition Management at (703) 280-7875.

for Walter O'Tormey

Attachment

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COMMENTS ON OIG REPORT FINDINGS

Background - General Comments

1. There are comments throughout the audit that while they do not affect the audits recommendations, they make evaluating it difficult. Listed below are a few from the background section.
2. These new machines (DIOSS-Ds) will sort thick letter mail in delivery point sequence that, in the past, employees had to sort manually. This is not correct. While the machine can delivery point sequence thick mail, the program was designed to process thick mail to the finest depth of sort, where it is then sent to the delivery unit.
3. The various DIOSS configurations expand the capability to read bar codes. This is not correct. The DIOSS configurations do not expand the capability to read bar codes.
4. The 285 Remote Computer Reader modifications enable the OCR to better interpret handwritten address and degrader print. This is not correct. This program did not include improvement work to improve the reading and coding algorithms.

Projected Reductions Are Not Being Consistently Realized
Manual Letters

5. Page 4 -6 and Tables 1-3
   The results of the manual mail analysis results presented in the audit are not the only indicators to make judgments on the success of the OCR Enhancement Program. The audit implies that the DIOSS C and DIOSS D equipment are primarily responsible for manual volume, work hour and productivity changes at the 16 sites that were studied. **We disagree with this finding.** The audit fails to address the other factors. Examples include:

   - Area Mail Processing (AMP) changes – moving volumes from one site to another
   - Customized MarketMail® - new marketing initiative moving marketing mail from machinable to non-machinable
   - Dialog mailings (Dilbert and Kathy) – USPS Marketing mailings that do not meet mailing specifications and require manual processing

   The OCR Enhancement Program was also designed to move mail from MLOCRs onto the DIOSS machines. The program exceeded the goal. The goal was to remove 646 MLOCR. To date, 653 MLOCRs have been removed, 7 more than planned and an additional 21 are scheduled for removal.

6. Page 6 – Paragraph 2 implies the machines have a feeder issue and paragraph 3 states there are no plan to address it. **This in not correct**. The issues were identified, verified and are being fixed.

RESPONSES TO OIG REPORT RECOMMENDATIONS

We recommend that the Vice President, Engineering:

1. Develop a formal plan to identify and address DIOSS system reliability and performance issues not covered by the current retrofit. This should ensure any remaining issues are identified and addressed prior to warranty expiration.

Management Response: Management agrees with the recommendation. As part of the acquisition program management process, the issues were identified, verified, evaluated, and corrective action is in progress for both the design and operational issues.

2. Establish roles and responsibilities for tracking program performance on a continuous basis.

Management Response: Management agrees with the recommendation. Engineering is evaluating the performance results to determine if they met the DAR goals. The analysis should be completed in October 2007 and the results will be presented to the Capital Investment Committee (CIC) as part of the Post-Deployment Tollgate Process. The plan to establish roles and responsibilities for tracking performance on a continuous basis will be established by the end of September 2007.