April 28, 2000

WILLIAM J. DOWLING
VICE PRESIDENT, ENGINEERING

SUBJECT: Transmittal of Audit Report - Preventive Maintenance of Mail Processing Equipment at Processing and Distribution Centers
(Report Number AC-AR-00-001)

Attached is a report on preventive maintenance of mail processing equipment. The audit was requested by the chief operating officer and executive vice president. The audit objectives were to evaluate the integrity of preventive maintenance data in the Maintenance Management Information System and determine whether preventive maintenance was performed as scheduled. The audit revealed that the maintenance system did not provide consistent, complete, and accurate maintenance data that was needed to manage the preventive maintenance program. Limited tests also disclosed that preventive maintenance for mail processing equipment was not always performed as scheduled.

Management generally agreed with our recommendations and has planned actions addressing the issues in this report. Management's comments and our evaluation of their comments are included in the report.

We appreciate the cooperation and courtesies provided by your staff during the audit. If you have questions or need additional information, please contact Bennie M. Cruz, director, Delivery Operations, at (214) 775-9116 or me at (703) 248-2300.

Robert L. Emmons
Acting Assistant Inspector General
for Performance

Attachment

cc: Clarence E. Lewis, Jr.
John E. Potter
John R. Gunnels

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EXECUTIVE SUMMARY

Introduction

The chief operating officer and executive vice president requested that we review maintenance of mail processing equipment to evaluate the integrity of preventive maintenance data in the Maintenance Management Information System and determine whether preventive maintenance was performed as scheduled. This report presents the results of our audit. We initially planned to visit 19 locations to achieve our objectives. However, we limited our fieldwork to two locations[1] because many source documents were not available, maintenance directives were not consistently used, and some maintenance data was inaccurate and incomplete.

Results In Brief

The Postal Service should implement improvements to its Maintenance Management Information System because the system did not provide reliable preventive maintenance data. We found instances where maintenance cost and hour data was incomplete, inaccurate and selected reports contained considerable disparities at the local and national levels. In addition, area and local offices expressed concerns about the completeness and accuracy of the data and their inability to access and use the maintenance system. They also communicated problems with training, guidance, and support provided by headquarters. Consequently, Postal Service management could not use preventive maintenance cost and hour information to effectively manage the preventive maintenance program and assess whether required maintenance was performed. During our review, we noted that the Postal Service was in the process of making major modifications to the Maintenance Management Information System. When these system changes are implemented, the issues identified in this report may be resolved.

Postal Service officials did not have an overall performance measurement system to ensure that preventive maintenance was completed on mail processing equipment. We attempted to assess the completion of preventive maintenance for fiscal year (FY) 1999, but many source documents were not available, maintenance directives were

[1] The two locations visited were the Washington, D.C., Processing and Distribution Center and the Baton Rouge, Louisiana, General Mail Facility.

inconsistently used, and some preventive maintenance data was not recorded properly at the local level. This condition was compounded because there was no performance measurement system in place. As an alternative, we performed limited tests at two locations visited and found indications that not all scheduled preventive maintenance was performed. The absence of effective preventive maintenance could increase costs, affect safety, and adversely affect the throughput and acceptance rate of mail processing equipment. Insufficient levels of preventive maintenance can result in decreased equipment life, unplanned maintenance activity, and increased frequency of corrective maintenance actions.

Summary of Recommendations

To improve the integrity of preventive maintenance data in the Maintenance Management Information System and ensure scheduled preventive maintenance is performed, we recommend the vice president, Engineering assess the current maintenance system and make necessary improvements. Modifications are needed to ensure data is consistent, accurate, and complete. We also recommend that a performance measurement system be developed and implemented and current policies and procedures be revised. This would assure that preventive maintenance is completed, mail-processing interruptions are minimized, and unsafe working conditions are avoided.

Summary of Management's Comments

Management generally agreed with our recommendations. Specifically, management agreed that the Visual Maintenance Activity Reporting and Scheduling system was released prematurely without adequate testing and therefore, did not provide the consistency of data necessary to measure the preventive maintenance performance of the postal sites visited. However, they do feel that most postal equipment throughout the country is receiving adequate preventive maintenance. In addition, management stated that the establishment of incentives for preventive maintenance to ensure that preventive maintenance personnel have adequate time to perform their duties was not feasible. Management's comments are included in their entirety in Appendix B.

Overall Evaluation of Management's Comments	Management's comments are generally responsive to our findings and recommendations. Management's planned actions address the issues identified in this report.

INTRODUCTION

Background

Preventive maintenance is the planned, systematic, inspection, cleaning, lubrication, servicing, and custodial care required to retain the functional capabilities of mail processing equipment. The objective of preventive maintenance is to improve and prolong equipment life, avoid unplanned maintenance activity, and lower overall maintenance costs. During FY 1998 and FY 1999 the Postal Service incurred approximately $199 million and $163 million respectively, in preventive maintenance costs.

The Postal Service established a Maintenance Management Information System to plan, schedule, and document preventive maintenance on mail processing equipment. This system provides maintenance data relative to equipment, supplies, inventories, cost of parts, productivity, and labor and is comprised of two databases: the Visual Maintenance Activity Reporting and Scheduling system (local database) and National Maintenance Activity Reporting and Scheduling system (national database). The local database is a data collection system that uploads information to the national database. The national database provides information relative to equipment, productivity, labor, and maintenance scheduling. Current system deployment began in August 1998 and continued through September 1999 for about 500 locations. Postal officials stated the cost to implement this system was about $5 million. During deployment, some problems were identified and corrected. An updated version [redacted] was being developed, but had not been implemented at the time of our audit.

Objective, Scope and Methodology

The purpose of our review was to determine the integrity of preventive maintenance data in the Maintenance Management Information System and determine whether preventive maintenance was performed as scheduled. We issued an interim report titled Review of the USPS Equipment Preventive Maintenance Program (Report Number AC-MA-99-001, dated September 20, 1999) communicating our initial observations regarding the integrity of preventive maintenance data. Based on those results, we revised our initial audit approach. We initially planned to visit 19 locations, but subsequently reduced our visits to two locations when we found that many source

FOIA Exemption (b)(2)

documents were not available, maintenance directives were not consistently used, and some maintenance data was unreliable.

To accomplish our objectives, we interviewed Postal Service Headquarters Engineering personnel and reviewed national postal policies and procedures. We also visited two locations and disseminated surveys to all 11 area offices and 13[2] processing and distribution centers (Appendix A). Our surveys gathered information related to data integrity, local maintenance reviews, training, and headquarters guidance and support. At the two locations visited, we interviewed maintenance personnel, observed preventive maintenance inspections, photographed mail processing equipment, compared local and national reports, and reconciled source documents to local reports for FY 1999. To assist with our review, we requested the Maintenance Technical Support Center personnel inspect the mail processing equipment and determine whether scheduled preventive maintenance was performed.

Our review was conducted between September 1999 and April 2000 in accordance with generally accepted government auditing standards and included tests of internal controls that we considered necessary.

Prior Audit Coverage

In June 1998 the Postal Inspection Service issued an audit report on Flats Automation (Case No. 038-1234520-PA(2)). This report addressed five conditions at 14 processing and distribution plants within the Western Area.

The report concluded that the Postal Service was not completing all scheduled preventive maintenance on the flat sorting machines during the preventive maintenance windows. Management's decision to perform higher priority work caused preventive maintenance to be bypassed.

[2] The processing and distribution centers were not statistically selected.

The Postal Inspection Service recommended the following corrective action to the vice president, Western Area Operations:

1. Establish the maximum allowable scheduled preventive maintenance bypass rate for flat sorters (and other mail processing equipment).

2. Direct plant management to include standard operating procedures to perform scheduled preventive maintenance as required for flat sorting machines.

Management concurred with the findings and agreed to implement the recommendations. During our audit, we found similar conditions at the locations we visited. This report includes recommendations to address these issues for the maintenance program nationwide.

AUDIT RESULTS

Assessment of Maintenance Management Information System

The Postal Service should implement improvements to its Maintenance Management Information System because the system did not provide reliable preventive maintenance data. We found instances where maintenance cost and hour data was incomplete, inaccurate, and selected reports contained considerable disparities at the local and national levels. In addition, area and local offices expressed concerns about the completeness and accuracy of the data and their inability to access and use the maintenance system. They further communicated problems with training, guidance, and support provided by headquarters. Consequently, Postal Service management could not use preventive maintenance cost and hour information to effectively manage the preventive maintenance program and assess whether required maintenance was performed.

Integrity of Data

Our review disclosed that data in preventive maintenance reports was inaccurate, incomplete, and contained significant disparities with costs and hours. Maintenance managers need accurate cost and hours data to verify and analyze cost effectiveness, performance, trends, and efficiencies of mail processing equipment and systems.

Comparison of Reports. We identified considerable inconsistencies between local and national reports. We reviewed and compared various local and national reports (Appendix A) to determine the reliability of maintenance data. We visited 2 locations, surveyed 13 other locations, and reviewed reports for 6 types[3] of mail processing equipment. We noted the following:

- Local reports[4] from 5 of 15 locations did not contain the same cost information as national reports. The differences between local and national costs totaled about $538,000 or 11 percent of total costs in the five local reports. Comparable cost information was not available for the remaining ten locations.

[3] Advanced facer-canceler system/input sub-system; delivery bar code sorter; mail processing flats sorter machine; optical character reader/input sub-system; small bar code sorter/output sub-system, and small parcel and bundle machine.
[4] Comparison of FY 1999 local Plant Maintenance Cost Workhours Detailed by Acronym report to national Preventive Maintenance Costs report.

- Local reports[5] from 8 of 15 locations did not contain the same hour information as national reports. The differences between local and national hours totaled about 43,000 or 15 percent of total hours in the eight local reports. Comparable hour information was not available for the remaining seven locations.

- Two national reports[6] from 9 of 15 locations did not contain the same hour information. The differences between hours for the nine locations totaled about 23,500 or 6 percent. Comparable hour information was not available for the remaining six locations.

While we could not identify all of the reasons for these differences, we did note that there was no single focal point to oversee and verify the consistency of data transmissions from the local to the national system. Consequently, management did not assure that transactions recorded at the local level were reported in the national database.

Comparison of Reports to Source Documents. We compared local reports to source documents at the two locations visited and found that data was not complete and accurate. For the four pieces of equipment reviewed, the system identified scheduled maintenance. However, we found that completion information for 81 routes[7] was either not entered or not accepted[8] in the system, completion information for 37 routes was recorded more than once and completion information on 222 partially completed routes was recorded as fully completed. These conditions occurred because the system allowed these transactions to be recorded or excluded.

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[5] Comparison of FY 1999 local Plant Maintenance Cost Workhours Detailed by Acronym report to national Preventive Maintenance Costs report and local Workload/Hours Operated Detailed Totals by Acronym report to national Preventive Maintenance Costs report.
[6] Comparison of FY 1999 Preventive Maintenance Costs report to Preventive Maintenance report.
[7] A route is a series of preventive maintenance tasks for specific types of mail processing equipment.
[8] The system does not accept preventive maintenance transactions when source documents are input after the nput cut-off date.

Survey of Preventive Maintenance Program	We surveyed 11 area and 13 local offices to obtain feedback on the preventive maintenance program. Most area and local managers indicated that maintenance data was not reliable. Maintenance managers also expressed concerns with the training, guidance, and support provided by headquarters, and their inability to access and use the local and national databases. We did not validate the accuracy of all reported items because of the quantity and significance of the concerns identified by the survey respondents. However, we believe the extent and nature of these concerns support our findings and warrant management attention. **Completeness and Accuracy of Data**. Officials at 10 area and 10 local offices expressed concerns with the overall accuracy and completeness of data. While all offices did not provide specific comments, one office stated that data entries were recorded erroneously in the system. For example, one route was reflected in the system seven times, although it was only entered once. **Training, Guidance and Support**. Although training was available, area and local officials conveyed concerns with training as well as guidance and support. Specifically, maintenance officials at six area and three local offices told us that no training was provided on the current system. Officials at 13 of the 15 remaining offices told us that training was inadequate for reasons such as system software did not work properly and instructors were not knowledgeable about the system. Additionally, nine area and five local offices stated there was lack of guidance for system use. Comments were made that tutorials were outdated, too general, and did not provide real life examples. Additionally, offices commented that there were not enough people to respond to technical questions. Conversations with headquarters Engineering officials disclosed that there were two employees in Oklahoma and four in headquarters to support about 500 locations. Area and local officials stated that responses to system questions were not always timely.

System Access. At nine area offices, officials stated they did not have computer on-line access to either the local or national databases. Officials at some locations indicated they had to contact local offices to obtain needed reports. The officials stated they would be able to monitor preventive maintenance activity more effectively if they had access to the data.

System Reliability	We believe that the considerable disparities in system data, as well as the concerns expressed by the area and local offices, raise questions about the system's ability to provide complete and accurate preventive maintenance data. As is, management can not use cost and hour data to effectively manage the preventive maintenance program or to determine whether preventive maintenance is completed.
Recommendation	We recommend the vice president, Engineering: 1. Modify system software to ensure that transactions are properly recorded. Specifically, the system should: not record partially completed routes as fully completed; accept data from documents that are submitted late; and not accept duplicate entries.
Management's Comments	Management agreed with modifying the software to insure that partially completed routes are not recorded as fully completed and to develop a check for duplicate data entries for Maintenance Operation Support clerk verification. However, they did not agree to modify system software to accept data from documents submitted late. They feel that the current practice of allowing one to two weeks to enter data is sufficient time for all sites. In addition, they have indicated that by extending this time, it would extend their time to provide the data nationally and to the areas.
Recommendation	2. Implement a formal process to proactively solicit feedback on the system from all users and take appropriate corrective action.
Management's Comments	Management agreed to formalize the current informal process by soliciting feedback, allowing comment on suggestions and providing the field information on what will and what will not be implemented.

Recommendation	3. Verify the consistency of data transmitted from the local database to the national database.
Management's Comments	Management agreed to perform checks on the consistency of data transmitted from local Visual Maintenance Activity Reporting and Scheduling sites to the National Maintenance Activity Reporting and Scheduling national database. They have also indicated that they will fix the inconsistencies between various Visual Maintenance Activity Reporting and Scheduling preventive maintenance reports and National Maintenance Activity Reporting and Scheduling reports. These fixes will be implemented, tested, and deployed to the field before the end of the fiscal year.
Recommendation	4. Review and evaluate the adequacy of training for the Visual Maintenance Activity Reporting and Scheduling system and ensure adequate training is provided to all system users.
Management's Comments	Management agreed to evaluate the adequacy of Visual Maintenance Activity Reporting and Scheduling training. Currently, eight different courses are available. They will evaluate the courses, see if improvements are needed and check to determine if they are being offered enough to meet demand. They plan to complete this effort within 90 days.
Recommendation	5. Update tutorials to reflect system changes and provide explicit instructions with practical examples to troubleshoot input problems.
Management's Comments	Management agreed with this recommendation. They will update tutorials as suggested, as part of version [redacted] which is expected to be released near the end of fiscal year 2000.
Recommendation	6. Assess the help desk's current workload and make necessary adjustments to ensure the help desk is appropriately staffed and timely responses are provided to system users.
Management's Comments	Management agreed with this recommendation and stated that due to year 2000 pressures and the premature release of Visual Maintenance Activity Reporting and Scheduling software, their help desk operations has been overwhelmed. They intend to work on this problem in two ways: providing

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better tested software, which will lead to fewer questions; and to find additional resources to provide a better help desk operation.

Recommendation	7. Review and evaluate the accessibility of maintenance system databases to all system users so they can retrieve information and more effectively manage the preventive maintenance program.
Management's Comments	Management stated that access to local system databases is already available and is used by technical specialist as part of their help desk operations. They intend, by May 1, 2000, to provide area staffs access to local system databases and the National Maintenance Activity Reporting and Scheduling national system. They will also, by July 1, 2000, develop and deploy to area staffs multiple software queries to access the preventive maintenance performance of all their sites.
Evaluation of Management's Comments	Management's comments were responsive to our recommendations, and their actions taken and planned should correct the conditions identified in this finding. Although management does not plan to implement our recommendation to modify system software to allow the system to accept data from documents submitted late, we are satisfied that the actions planned and taken to date will meet the intent of the recommendation.

Performance Measurement System	Postal Service officials did not have an overall performance measurement system to ensure that preventive maintenance was completed on mail processing equipment. We attempted to assess the completion of preventive maintenance for FY 1999, but many source documents were unavailable, maintenance directives were inconsistently used, and some preventive maintenance data was not recorded properly at the local level. This condition was compounded because there was no performance measurement system in place. As an alternative, we performed limited tests at two locations and found indications that all preventive maintenance was not performed. Insufficient levels of preventive maintenance can ultimately result in mail processing delays and unsafe working conditions. The Postal Service should establish a performance measurement system and revise current policies and procedures. This would assure that preventive maintenance is completed, mail processing interruptions are minimized, and unsafe working conditions are avoided.
Performance Measures	Headquarters maintenance officials had not established performance measures to evaluate preventive maintenance on mail processing equipment. These officials are responsible for defining and disseminating policies and strategies for maintenance of mail processing equipment. We found officials had not established performance standards, a performance base line, or an effective oversight process to measure performance and identify best practices. Specifically, the Postal Service had not: • Formally established or communicated preventive maintenance goals to area and local offices. Headquarters Engineering officials stated that 90 percent of scheduled maintenance should be completed to meet minimum requirements. • Established a base line to measure performance. A base line is important to establish current preventive maintenance levels, from which to compare and measure future performance. In addition, the Postal Service had not implemented a formal process to evaluate performance and identify best practices for preventive maintenance.

- Established an effective oversight process for monitoring and reviewing maintenance. Postal Service officials had access to standard reports, but were not using those reports to identify and correct poor performance in area and local offices.

Other Factors Affecting Assessment of Preventive Maintenance

We also noted other factors at the local level affecting the ability of Postal Service management to assess completion of preventive maintenance. Local management, at the direction of the area office, is responsible for ensuring maintenance is performed in accordance with national policies, including policy provided in Maintenance Operations Support, Handbook MS-63. In reviewing the preventive maintenance program at the local level, we noted source documents were not always maintained and maintenance directives were not consistently used. Specifically, we found:

- Source documents (PS Form 8152, Employee Daily Activity Card) to record and track preventive maintenance activity were not retained at some locations for FY 1999. These are the only source documents used to record preventive maintenance activity in the Maintenance Management Information System. These documents were not kept because the handbook did not require they be retained after system input. We obtained information regarding preventive maintenance activities from 13 locations and found that 4 did not retain source documents for the entire fiscal year.

- Local offices did not always use required guidance to establish maintenance procedures. Local offices are required to use Maintenance Management Orders that provide technical information such as preventive maintenance checklists and timeframes to develop maintenance procedures. A comparison of required Maintenance Management Orders with those actually used showed that 5 of 15 locations reviewed did not use required orders for at least one piece of equipment. Consequently, it would be difficult to determine if the maintenance performed satisfied current maintenance requirements.

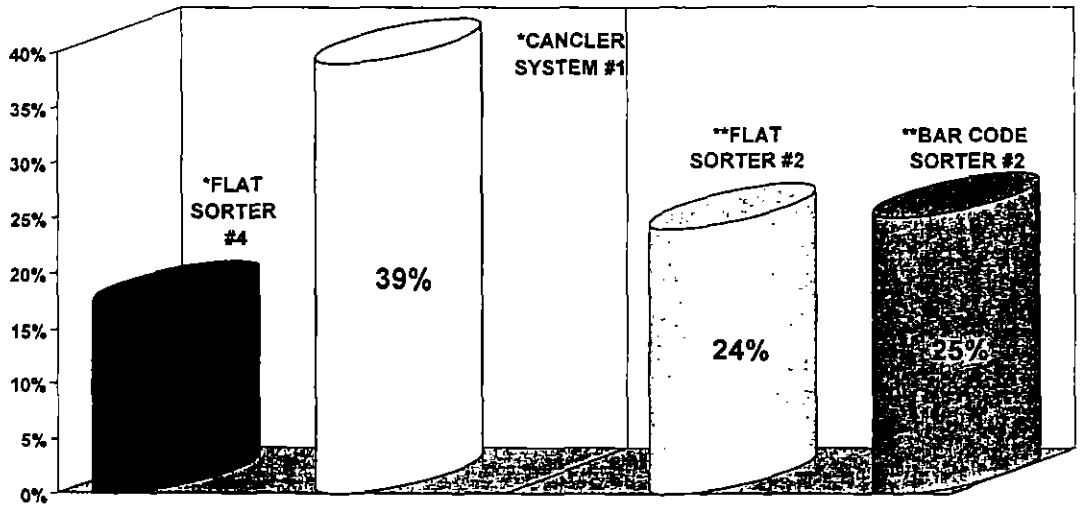
- We also found that documentation of changes to Preventive Maintenance Master Lists was not

maintained. The only list available was the one in effect at year-end. The Preventive Maintenance Master List established annual maintenance requirements and was updated periodically throughout the year. However, when updates occurred, previous versions were not maintained. As a result, it was difficult to determine whether current performance levels met all annual requirements.

Completion of Preventive Maintenance

We performed limited work at two locations that retained source documents and found indications that preventive maintenance was not completed. Specifically, our review of available source documents for four pieces of mail processing equipment revealed that 17 to 39 percent of scheduled annual preventive maintenance was not completed. The following graph presents our results for the specific equipment reviewed and locations visited.

PREVENTIVE MAINTENANCE NOT PERFORMED



*WASHINGTON, D.C. **BATON ROUGE, LOUISIANA

Postal Service maintenance technicians assisting us in the review confirmed our results at one location. At the Washington, D.C., location they reported that while these machines were capable of operating and processing mail, the overall condition of the equipment was poor. The technicians found deficiencies in the condition of equipment that was attributed, in part, to incomplete preventive maintenance.

Maintenance personnel told us that, in many cases, preventive maintenance was not completed because local Operations personnel did not release the equipment because of the need to process mail. Although maintenance times were negotiated in advance, they were not always adhered to; resulting in less time to perform required preventive maintenance. This condition occurred at two locations visited, as well as, 8 of 13 locations surveyed. We confirmed, for one piece of equipment at the [redacted] facility, that 32 of 41 (78 percent) documented bypasses[9] were due to operational needs. Consequently, operating requirements took precedence over preventive maintenance.

Impact of Preventive Maintenance

The absence of effective preventive maintenance could increase costs, affect safety, and adversely affect the throughput and acceptance rate of mail processing equipment. Insufficient levels of preventive maintenance can result in decreased equipment life, unplanned maintenance activity, and increased frequency of corrective maintenance actions.

For example, we asked the Postal Service maintenance technicians assisting us with the audit, to review mail processing equipment at the two locations visited. At the [redacted] facility the maintenance technicians identified preventive maintenance deficiencies that affected the safety, throughput, acceptance rate, and repair time on equipment. Specifically,

- Feeders on the four letter-sorting pieces of equipment reviewed were not properly aligned. The misalignment could cause degradation in throughput and increase the jam rate.
- Many indicator lights were nonfunctional. This could result in excessive time to diagnose and repair, in the case of machine failure.
- Three machines had emergency stop switches and safety interlock switches that were nonfunctional, resulting in unsafe conditions.

[9] A bypass occurs when a preventive maintenance route is not performed as scheduled.

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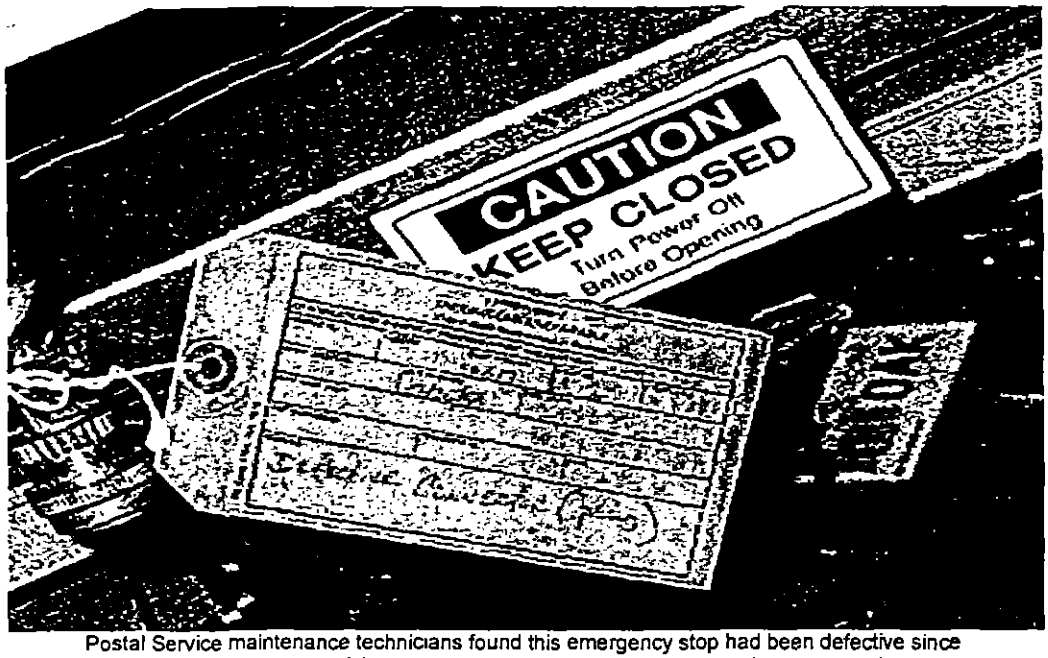

Postal Service maintenance technicians found this emergency stop had been defective since July 26, 1999. As of October 22, 1999, the equipment had not been repaired.

Recommendation	We recommend the vice president, Engineering: 8. Establish performance measures (levels) for preventive maintenance and formally communicate expectations to area and local offices.
Management's Comments	Management agreed to establish performance levels for preventive maintenance completion. They expect that these performance levels will vary with the criticality of the equipment and with the relative importance of particular preventive maintenance routes. They will also attempt to provide some flexibility for local management to handle unexpectedly high mail volumes while maintaining equipment performance levels. Management expects to be able to issue these performance measures by the end of December 2000.
Recommendation	9. Develop a base line of preventive maintenance performance.
Management's Comments	Management agreed to reimplement within 90 days the baseline of preventive maintenance performance by using the software queries mentioned in response number seven.

Recommendation	10. Monitor actual performance and identify and implement best practices at all locations.
Management's Comments	Management agreed to direct area maintenance staffs to monitor preventive maintenance performance at their facilities and provide them with best practices for national distribution. They will complete this by the end of December 2000.
Recommendation	11. Assess the current reporting system to ensure information provided can be used to measure performance.
Management's Comments	Management agreed to evaluate current Visual Maintenance Activity Reporting and Scheduling reports to determine the accuracy and to assess their usefulness in managing maintenance operations.
Recommendation	12. Modify nationwide policy to require that source documents (PS Form 8152, Employee Daily Activity Card) be retained for at least one fiscal year after system input.
Management's Comments	Management agreed to take steps to require retention of PS Form 8152, Employee Daily Activity Cards. They will provide this direction to the field before the end of FY 2000.
Recommendation	13. Ensure that local offices have the latest versions of Maintenance Management Orders and retain all versions of the Preventive Maintenance Master List for at least one fiscal year.
Management's Comments	Management agreed to ensure that local offices had the latest versions of Maintenance Management Orders by updating the master mailing and Maintenance Management Orders master lists annually. In addition, they would direct local offices to retain all copies of preventive maintenance routes for at least one fiscal after using them. They will issue this direction before the end of FY 2000.
Recommendation	14. Establish incentives for preventive maintenance that are comparable to those for mail processing operations to ensure that preventive maintenance personnel have adequate time to perform their duties.

Management's Comments	Management stated that the establishment of incentives for preventive maintenance that are comparable to those used in mail-processing operations is not feasible. Management further stated that they had presented the Overall Equipment Efficiency performance evaluation process to management in the past as a possible incentive for the field, but the process was not accepted. Management felt that Overall Equipment Efficiency performance would be reflected in the existing Economic Value Added performance measures. However, they plan to continue to work closely with operations to increase Overall Equipment Efficiency performance by cooperatively increasing the availability of equipment for the completion of preventive maintenance.
Evaluation of Management's Comments	Although management stated that establishing incentives were not feasible, we would recommend that management to continue pursuing the establishment of incentives for preventive maintenance. In addition, working closely with operations to increase the availability of the equipment should assist in facilitating the performance of preventive maintenance. We will continue to monitor the establishment of incentives for preventive maintenance.

APPENDIX A. LOCATIONS VISITED AND SURVEYED

1. The 11 area offices are: Allegheny, Capital Metro, Great Lakes, Mid-Atlantic Midwest, New York Metro, Northeast, Pacific, Southeast, Southwest, and Western.

2. The 13 survey locations (not statistically selected) include the following processing and distribution centers: [redacted]

3. The following local database reports were reviewed:
   (a) Preventive Maintenance Master List
   (b) Plant Maintenance Cost Work-hours Detailed by Acronym
   (c) Plant Maintenance Cost Parts or Material Detailed by Acronym
   (d) Maintenance Workload/Hours Operated Detailed Totals by Acronym
   (e) Preventive Maintenance Completion Rate by Acronym
   (f) Daily/Tourly Routes Scheduled for Crew Report
   (g) Preventive Maintenance Bypassed by Acronym
   (h) Preventive Maintenance Accomplished Report
   (i) Equipment Service Date List
   (j) Overall Equipment Effectiveness
   (k) End-of-Run Report
   (l) Plant Equipment Breakdown Summary Report

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APPENDIX B. MANAGEMENT'S COMMENTS

WILLIAM J. DOWLING
VICE PRESIDENT
ENGINEERING

UNITED STATES
POSTAL SERVICE

April 6, 2000

RICHARD CHAMBERS
DEPUTY ASSISTANT INSPECTOR GENERAL FOR PERFORMANCE
OFFICE OF THE INSPECTOR GENERAL

SUBJECT: Draft Audit Report – Preventive Maintenance of Mail Processing Equipment at Processing and Distribution Center

We have received and reviewed the draft report of the subject audit. We agree that the Visual Maintenance Activity Reporting and Scheduling (VMARS) system was released prematurely without adequate testing and therefore did not provide the consistency of data necessary for the OIG to measure the preventive maintenance performance of the postal sites they visited. We do, however, feel that most postal equipment throughout the country is receiving adequate preventive maintenance. General equipment performance, sorter availability, and National Maintenance Information Control System (NMICS) data before it was replaced with the National Maintenance MARS (NMARS) confirm this.

The VMARS system has been under development for some time and is a necessary improvement for the Maintenance Activity Reporting and Scheduling (MARS) system it replaced. MARS used unsupported software tools and was not Y2K compliant. It was a necessary part of hardware upgrades and integration of the maintenance system into the Information Systems Processing and Distribution (IS P&D) administrative Local Area Network (LAN) structure. In addition, the NMICS main frame software, which had supported the maintenance organization for more than 20 years and was not Y2K compliant, was scheduled to be replaced in early FY '99.

Under this pressure, the VMARS software was deployed starting in August 1998. The deployment was delayed between September and February to fix code bugs and stabilize the system. Deployment continued until May 1999, when the NMICS software was removed from service and NMARS became our maintenance reporting national system. Initial debugging efforts were focused on the NMARS connection to the Material Distribution Inventory Management System (MNDIMS) to ensure that spare parts support in the field would not be effected. Work on the maintenance management portions of the national software was delayed.

Unfortunately, it was at this point the OIG needed a stable environment to measure preventive maintenance (pm) performance. Sites had converted from NMICS to NMARS at different times during the year, and it was difficult to match data from one system to the other as well as to NMARS. However, PM is being regularly scheduled at hundreds of sites across the country Major automation and mechanization systems are performing with over 98 percent availability. It is unfortunate that the national and local systems are having inconsistencies but we feel that we can solve them and are working with the OIG in this effort.

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In addition, we intend to apply our Engineering Software Development Life Cycle process to this system beginning with the version [redacted] release. This process mandates a standardized planning and software testing by a separate organization. It has allowed us to significantly improve the quantity of automation software.

The following are our specific responses to the recommendations.

Recommendations #1

Modify system software to ensure the transactions are properly recorded. Specifically, the system should: not record partially completed routes as fully completed; accept data from documents that are submitted late; and not accept duplicate entries.

Response:

We will modify the VMARS system software to insure that partially completed routes are not recorded as fully completed. We will also develop a check for duplicate data entries for Maintenance Operation Support (MOS) clerk verification. However, we feel that the current practice of allowing from one to two weeks to enter data is sufficient time for all sites. Extending that time would extend the time for us to provide the data nationally and to the areas. Sites can still record late data as a PM workorder, allowing them to record the time but they would not be credited with a PM completion for national reporting. We will also fix the inconsistencies between various VMARS preventive maintenance reports and NMARS reports. These fixes will be implemented, tested, and deployed to the field before the end of the fiscal year.

Recommendations #2

Implement a formal process to proactively solicit feedback on the system from all users and take appropriate corrective action.

Response:

Management agrees with this recommendation. We will formalize the current informal process by soliciting feedback, allowing comment on suggestions and providing the field information on what will and what will not be implemented. This will be completed within 90 days.

Recommendations #3

Verify the consistency of data transmitted from the local database to the national database.

Response:

We agree to perform checks on the consistency of data transmitted from local VMARS sites to the NMARS national database. We will also improve built-in checks of data integrity. This will be completed before the end of the fiscal year.

Recommendations #4

Review and evaluate the adequacy of training for the Visual Maintenance Activity Reporting and Scheduling system and ensure adequate training is provided to all system users.

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Response:

We will evaluate the adequacy of VMARS training. Currently, eight different courses are available via PSTN or resident training from NCED, our training center in Norman, OK. We will evaluate the course, see if improvements are needed and check to determine if it is being offered enough to meet demand. These courses range from a three-week resident course covering maintenance operation support using VMARS to three-day satellite training. Over 2,939 students have been exposed to VMARS training since March 23, 1998. This effort will be completed within 90 days.

Recommendations #5

Update tutorials to reflect system changes and provide explicit instructions with practical examples to troubleshoot input problems.

Response:

Management agrees with this recommendation. We will update tutorial as suggested as part of version [redacted] expected to be released near the end of Fiscal Year 2000.

Recommendations #6

Assess the help desk's current workload and make necessary adjustments to ensure the help desk is appropriately staffed and timely responses are provided to system users.

Response:

Management agrees with the recommendation. Due to Y2K pressures and premature release of VMARS software, our Help Desk operation has been overwhelmed. We intend to work on this problem in two ways. We feel that better tested software will lead to fewer questions. We also intend to find additional resources to provide a better Help Desk operation.

Recommendation #7

Review and evaluate the accessibility of maintenance system databases to all system users so they can retrieve information and more effectively manage the preventive maintenance program.

Response:

Access to local system databases is already available and is used by our technical specialists as part of our Help Desk operation. We intend to provide this information to area staffs by May 1. We will also provide the access to the NMARS national system. By July 1, we will develop and deploy to area staffs multiple software queries to access the preventive maintenance performance of all their sites.

Recommendations #8

Establish performance measures (levels) for preventive maintenance and formally communicate expectations to area and local offices.

(b)(2)

Response:

Management agrees with this recommendation. We will establish performance levels for preventive maintenance completion. We expect that these performance levels will vary with the criticality of the equipment and with the relative importance of particular preventive maintenance routes. We will also attempt to provide some flexibility for local management to handle unexpectedly high mail volumes while maintaining equipment performance levels. We expect to be able to issue these performance measures by the end of December 2000.

Recommendations #9

Develop a base line of preventive maintenance performance.

Response:

We agree with this recommendation. The baseline of preventive maintenance performance which was interrupted by the termination of the non-Y2K compliant NMICS system will be reimplemented within 90 days using the software queries mentioned in response number 7.

Recommendations #10

Monitor actual performance and identify and implement best practices at all locations.

Response:

We will direct area maintenance staffs to monitor preventive maintenance performance at their facilities and provide us with best practices for national distribution. We will complete this by the end of December 2000.

Recommendations #11

Assess the current reporting system to ensure information provided can be used to measure performance.

Response:

We will evaluate current VMARS reports to determine the accuracy and to access their usefulness in managing maintenance operations.

Recommendations #12

Modify nationwide policy to require that source documents (PS Form 8152, Employee Daily Activity Card) be retained for at least one FY after system input.

Response:

Management agrees with this recommendation. Retention requirements for Form 8152, Employee Daily Activity Cards, was dropped in our last publication of our MS-63 handbook as an effort to simplify paperwork requirements. We now see it was a mistake and will take steps to require its retention. We will provide this direction to the field before the end of FY 2000.

Recommendations #13

Ensure that local offices have the latest versions of Maintenance Management Orders and retain all versions of the Preventive Maintenance Mast List for at least one fiscal year.

Response:

We will ensure that local offices have the latest versions of Maintenance Management Orders (MMOs) by updating our master mailing list. We will continue to update the MMO master list annually. We will retain all versions of the Preventive Maintenance (PM) Master List for at least one fiscal year by changing our VMARS application. We will save all changes made to a PM route in our PM Master List for the current fiscal year. We will print the PM Master List during our VMARS fiscal year close process and require field offices to file this list in their Maintenance Operation Support (MOS) office for one fiscal year.

Recommendation #14

Establish incentives for preventive maintenance that are comparable those mail processing operations to ensure that preventive maintenance personnel have adequate time to perform their duties.

Response:

We have found the establishment of incentives for preventive maintenance that are comparable to those used in mail processing operations to ensure that preventive maintenance personnel have adequate time to perform their duties is not feasible. We presented the Overall Equipment Efficiency (OEE) performance evaluation process to management in the past as a possible incentive for the field to accomplish preventive maintenance. The OEE process was not accepted. Management felt that OEE performance would be reflected in the existing Economic Value Added (EVA) performance measurements in place. We will continue to work closely with our operations customers to increase OEE performance by cooperatively increasing the availability of equipment to maintenance for the completion of preventive maintenance.

William J. Downing

cc: Clarence E. Lewis, Jr., John E. Potter, Richard Porras, John R. Gunnels

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