



Metropolitan St. Louis Sewer District

Review of the Inventory Management Process: MRO Inventory (Maintenance Repairs Operations)

Fiscal Year 2017

April, 2017

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The St. Louis Metropolitan Sewer District
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INTRODUCTION AND SCOPE

The area of MRO Inventory (Maintenance Repairs Operations Inventory) was last reviewed by Internal Audit (IA) in 2011 (report issued September of 2011). The District's balance for MRO Inventory was approximately:

- \$6.8 million at 6/30/15
- \$7.3 million at 6/30/16
- \$7.6 million at 12/31/16

The District's Materials (Inventory) Management sites consist of the following nine (9) main locations:

1. Lemay:
 - Lemay Treatment Plant
 - Lemay Pump Station
2. Bissell:
 - Bissell Treatment Plant
 - Bissell Pump Station
3. Sulphur:
 - Sulphur Yard
 - Sulphur Garage/Shop
4. Grand Glaize:
 - Grand Glaize Hub (yard and small warehouse)
 - Grand Glaize Garage
 - Grand Glaize Machine Shop
 - Grand Glaize Treatment Plant
5. Mintert Yard
6. County Pump Station
7. Lower Meramec Treatment Plant
8. Missouri River Treatment Plant
9. Coldwater Treatment Plant

To manage the inventory items and the overall MRO process, the District currently utilizes an IBM operations system called MAXIMO, which is an asset/maintenance/work order management system.

Scope

The scope of this engagement consisted of a review of the District's processes and controls utilized to manage and administer the District's MRO Inventory assets. Inventory transactions and data for the period of January 1, 2015 through June 30, 2016 (**18-month period**) were reviewed, analyzed, and tested.

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OBJECTIVES

Objectives

The overall objective of this engagement was to ensure that the processes and procedures used to manage the District's MRO Inventory are designed and implemented in a manner that ensures inventory assets are properly safeguarded and utilized in a manner that is effective and efficient.

Specifically, Internal Audit (IA) focused on ensuring:

- Policies and procedures around the inventory management process are adequately designed, documented, and maintained (documentation reflects current process).
- The various sub-processes are adequately designed and implemented, which includes adequate separation of duties across and within the sub-processes below:
 - Warehouse Management:
 - Adequate safeguards are in place.
 - Secure – access is restricted.
 - Small Tools – high priority.
 - Assets are properly organized (bin-located).
 - Purchasing/Ordering Stock-Materials:
 - Adequate system controls are in place.
 - Stock/inventory levels are appropriate.
 - Excess and Obsolete (E&O) levels.
 - Proper review and approvals.
 - Receiving:
 - Physical receipt – Items are stored properly and timely.
 - Proper review and approvals.
 - Issuance:
 - Generation of issuance/pick ticket:
 - Materials are assigned properly (materials assigned make sense).
 - Procedures to physically “pick” materials are adequate.
 - Adequate reviews and approvals.

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OBJECTIVES (CONT'D)

- Cycle Counts/Inventory Adjustments:
 - Cycle count frequencies are adequate. (Coverage is adequate.)
 - Variances are adequately reviewed and researched.
 - Adjustments/Updates are properly reviewed, monitored and approved.
- Recordkeeping/Reporting:
 - Methodology to record transactions is in accordance with GAAP and meets the requirements of the Finance Department.
 - Design of Reports is adequate.
 - Reports are issued accurately and timely.

METHODOLOGY

Methodology

To accomplish the above objectives, IA:

- Obtained and reviewed District policies and documentation related to the management of the MRO Inventory.
- Performed site visits and conducted interviews and walkthroughs with District personnel. Observed storage and movement of inventory assets and observed operations in real time.
 - Developed an understanding of and identified:
 - Key controls and processes used to manage and administer the District's inventory assets.
 - Roles and responsibilities of District personnel.
 - Process and/or control gaps or deficiencies, if any.
- Obtained access to the District's Operation's system:
 - MAXIMO (asset/maintenance/work order).
- Reviewed, analyzed and tested inventory data and transactions obtained from the operating system. Areas reviewed included:
 - Consumption (turnover) and stock levels.
 - Cycle count performance and results.
 - Inventory adjustment activity (overlaps with cycle counts).
 - Transaction activities by system user
- Obtained and reviewed listings of system access:
 - Reviewed for inappropriate access.
 - Reviewed for separation of duties conflicts
- Reviewed the recordkeeping/ reporting process:
 - Obtained monthly reports generated from the operating system data.
 - Reviewed and walked through the procedures for preparing the reports.
 - Analyzed by type of transaction:
 - Receipt
 - Issuance
 - Adjustment (includes cycle counts)
 - Return
 - Compared to requirements of GAAP and the requirements of the Finance Department.

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OVERALL CONCLUSION AND RESULTS

In the opinion of Internal Audit, in all significant respects, the controls and procedures utilized to manage and administer the District's MRO Inventory are effectively designed and implemented. However, IA did note matters that are opportunities for strengthening processes and improving the District's efforts to effectively manage and control the inventory maintained at the various District sites. These opportunities are discussed in detail in the *Opportunities for Improvement* section of this report.

Initial Inherent Business Process Risk: Moderate Risk # Overall Assessment of Engagement Results: Satisfactory **

DEFINITIONS

How Results Are Assessed

** Engagement results are evaluated as *Satisfactory*, *Generally Satisfactory* or *Unsatisfactory*.

- **Satisfactory** (*clean opinion*) – No significant engagement findings² or material weaknesses³ were noted. Engagement findings¹ may have been noted.
- **Generally Satisfactory** (*qualified opinion, i.e. "except for"*) – Results contain significant engagement findings². No material weaknesses³ were noted.
- **Unsatisfactory** (*adverse opinion, immediate Management attention required*) – Significant engagement findings² and/or material weaknesses³ were noted.

Types of Findings

1. Engagement Finding (#Low Risk): An engagement finding is a condition that could adversely affect the organization but is less severe than a significant engagement finding or significant deficiency. Classification includes process or control deficiencies that are not significant deficiencies as well as includes other low risk or low impact conditions.

2. Significant Engagement Finding (# Moderate to High Risk): A significant engagement finding is a condition that could adversely affect the organization. Definition includes all types of findings, such as irregularities, waste, ineffectiveness, conflicts of interest, illegal acts, errors, and significant deficiencies in internal control over financial reporting as well as other significant internal control weaknesses. A significant deficiency is defined as a deficiency, or a combination of deficiencies, in internal control over financial reporting that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

3. Material Weakness (# High Risk): A material weakness is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the financial statements will not be prevented or detected and corrected in a timely basis. For internal audit purposes, the definition also includes material and/or severe irregularities, waste, ineffectiveness, conflicts of interest, illegal acts, errors, and other material control weaknesses, etc.

(The term "material weakness" should be thought of as a serious category of significant engagement findings and/or significant deficiencies. However, not all significant engagement findings and significant deficiencies are material weaknesses.)

^ - Definitions are based on guidance from the IIA Standards, GAAS, and the PCAOB.

- Risk is assessed at the District (Entity) Level. (Risk to the District as a whole)

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OPPORTUNITIES FOR IMPROVEMENT

1. Inventory Levels

Condition:

When analyzing the quantities and types of inventory the District maintains on hand, IA noted the following regarding inventory levels:

- Inventory-on-hand quantities exceeded the average annual consumption for the previous three (3) years by 8.75 times.
- A total of 12,042 or 68% of 17,718 items, as of 6/30/16, had not been used in over 360 days. In addition, 8,756 or 49% of the 17,718 items had not been used in over 731 days (2 years).

It should be noted that Operations has initiated a process to review and analyze items for inclusion in a monthly accounting entry to record a reserve for items identified as “obsolete”.

Recommendation:

To reduce the amount of inventory maintained on hand and potentially reduce operational costs, IA recommends that Management:

- Perform additional analyses of inventory levels and related usage.
 - Revisit and re-establish optimum stock levels and order points.
 - Update the system and the inventory purchasing/ordering process as necessary.
 - Continue process to evaluate and identify potential obsolete items. Expand the process to identify potentially “excess” items (E & O; excess and obsolete).
 - Take appropriate steps to address the identified E&O items.

Risk Rating at District (Entity) Level: Low

Risk Rating at Business Process Level: Moderate

Process Owner Response:

Materials Management supports the plants and pump stations, which are valued in excess of \$1 billion dollars in assets. A large part of the inventory is critical spare parts needed to ensure continued operations and mitigate risk at the facilities. The inventory value on-hand will far exceed the annual consumption rate, but not having these parts on-hand exposes us to unwarranted risk.

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OPPORTUNITIES FOR IMPROVEMENT

Management agrees that inventory levels need adjustment. The Operations Department is in the midst of initiating an asset management approach throughout all divisions; a component of this program is to manage the bill of materials for critical assets. We will execute these tasks:

- Develop a process to manage the bill of materials for critical assets. This will identify critical spare parts.
- Develop a stocking strategy that addresses critical spare parts that are stored to mitigate risk and a more analytical approach for demand based items (i.e. maximum/minimum quantities and economic order quantity).
- Develop a process to identify obsolete or surplus inventory and work with the Purchasing Group to establish disposal options.

Date of Implementation:

The bulleted items will be initiated by June 2017.

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OPPORTUNITIES FOR IMPROVEMENT

2. Separation of Duties and System Access

Condition:

In reviewing inventory system transactions and user access for the system, IA noted the following:

- Separation of duty conflicts exist as follows:
 - o Nineteen (19) individuals have the system ability to order, receive, issue out, enter counts and/or make inventory adjustments, etc.. In addition, several of the individuals physically control the inventory and perform the cycle counts.
- Identified four (4) Maximo system users who were not authorized on the system security listing to have access rights to the inventory module. (Maximo = District's operations system: asset/maintenance/work order system)

Recommendation:

To provide more oversight and improve controls over and around inventory transactions, IA recommends that Management:

- Review and take steps to eliminate or mitigate the separation of duty conflicts as identified by IA:
 - o Adjust system access as necessary.
 - o Adjust processes to ensure duties are physically performed in a manner that maintains adequate separation of duties or mitigates the extent of any existing conflicts.
- Determine and review system user access to the inventory module in the operations system. Reconcile this access with an approved and accurate listing of system users requiring access to the Inventory module. Make appropriate system access adjustments as necessary.
 - o Once access is corrected, implement procedures that provide for periodic monitoring of system access to prevent user access issues from arising in the future.

Risk Rating at District (Entity) Level: Low

Risk Rating at Business Process Level: Moderate

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OPPORTUNITIES FOR IMPROVEMENT

Process Owner Response:

Management recognizes the separation of duty concerns expressed by IA; we must also consider the cost to deliver materials management services to the organization. We will implement the following tasks to strengthen the controls:

- System user access will be reviewed and adjusted as recommended. Process will be established to review user access for inventory system access on an annual basis.
- Develop a Business rule within Maximo to limit procurement to a storeroom from outside the Materials Management Division.
- When reviewing the Documented Procedures (Issue 5), we will partner with the Finance Department to identify improved controls to mitigate separation of duties to the extent practical.

Date of Implementation:

- System user access will be addressed by June 2017.
- Deployment of the business rule will be by June 2017.
- Procedure manual will be published by June 2018.

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OPPORTUNITIES FOR IMPROVEMENT

3. Inventory Adjustments

Condition:

IA noted the following regarding the inventory adjustment transactions:

- Adjustment transactions are not supported by any type of documented independent review or approval by Management. I.E. Personnel that are not directly involved with the transactions are not reviewing and approving the activity.
 - For the scope period, adjustments to inventory activity can be summarized as follows:

<u>Summary of Activity</u>	
Quantities – Net Adjustments	*4,902 Units
Quantities – Absolute Value of Adjustments	*527,616 Units
Individual Adjustment Transactions	13,494 Transactions
Adjustments Transactions with Quantity of 20 or more	1,268 Transactions (9.5% of total)
Transactions with Increases (+) of 20 or More	586 Transactions
Transactions with Decreases (-) of 20 or More	^682 Transactions

^ For eighteen-month scope period: An average of thirty-eight (38) transactions with decreases (-) of twenty (20) or more per month.

* **Note:** For brick: Absolute value quantities of 186,651; net quantities of 16,163; Total of twenty-five transactions (25; 13 - ; 12 +).

Recommendation:

To provide more oversight and improve controls over and around inventory adjustment transactions, IA recommends that Management:

- Develop and implement procedures in which adjustments transactions are formally reviewed and approved by Operations personnel who are independent of the adjustment process. Potential procedures include:
 - o Utilizing standard reports to be reviewed and approved by Management at periodic intervals.
 - o Holding periodic meetings in which adjustment activity is formally reviewed, discussed, and approved. (Should include personnel independent of the process as well as the actual process owners). An example of such a process at the District is the ARC (Adjustment Review Committee) process utilized for Accounts Receivable.

Risk Rating at District (Entity) Level: Low

Risk Rating at Business Process Level: Moderate

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OPPORTUNITIES FOR IMPROVEMENT

Process Owner Response:

Management supports improved controls and oversight for inventory adjustments and will develop a process to enable management authorization when appropriate. This process will include standardized reporting and creation of a Review Committee that meets on a regular, periodic basis as recommended. Operations staff will involve the Finance department in the process to ensure transparency.

Date of Implementation:

The inventory adjustment process will be completed in June 2017 for implementation with the start of the new fiscal year (FY18).

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OPPORTUNITIES FOR IMPROVEMENT

4. Cycle Counting

Condition:

When reviewing cycle count processes and procedures, IA noted the following:

- Eighty (80) SKU's (stock keeping units) were not counted in accordance with the predefined A B C cycle count schedule utilized by the District.
 - o It should be noted that:
 - The eighty (80) SKU's identified represent less than a 1/2% of the total number of SKU's (17,718) on hand.
 - Fifty-two (52) or 65% items are less than 3 months late.

Recommendation:

Based on the above data, IA does not consider the condition to be a high risk item. However, it is an area that Management should continue to monitor and continue to make efforts to improve.

With that in mind, IA recommends that Management:

- Review the identified exceptions and determine the cause of the omission from the counting procedures.
 - o Determine why process controls did not prevent the omissions.
- Take steps to strengthen controls to ensure that **all (100%)** SKU's are counted in accordance with the District's predefined counting schedule.

Risk Rating at District (Entity) Level: Low

Risk Rating at Business Process Level: Low

Process Owner Response:

Management agrees that the Cycle Counting process can be improved. Current process addresses items to be counted as they become due with no future forecasting of counts. The Materials Management Group will update the cycle count process to ensure all counts are being completed prior to becoming due.

Date of Implementation:

The inventory cycle counting process will be completed by December 2017 for implementation by January 2018.

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OPPORTUNITIES FOR IMPROVEMENT

5. Documented Procedures

Condition:

Regarding internally-developed inventory procedural documents, IA noted the following:

- The (11) documents appear to have not been reviewed and/or updated in several years. The most recent documented revision/review date for the various procedural documents is 5/1/2005:
 - A systematic process is not in place to ensure the procedural documents are periodically reviewed and updated.
 - Documented procedures, in some cases, may not reflect the actual procedures currently being performed by Operations personnel.

Recommendation:

IA recommends that Management:

- Initially, evaluate and reconcile documented procedures with actual procedures. Review and update the documented procedures, as appropriate, and correct or adjust the actual procedures performed, as appropriate.
- Develop a systematic process to ensure that documented procedures are periodically evaluated, updated, and reconciled with the actual procedures performed.

Risk Rating at District (Entity) Level: Low

Risk Rating at Business Process Level: Low

Process Owner Response:

Management agrees with IA's recommendations and will review documented procedures with actual practices and update the procedures as appropriate. These updated procedures will be consolidated into a manual for ease of use. The manual in turn will outline a routine review process for the procedures to ensure sustainability of operations.

Date of Implementation:

Procedure manual will be published by June 2018.

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OPPORTUNITIES FOR IMPROVEMENT

6. Policy Regarding Items Identified as Obsolete, Excess, and/or Scrap (*This issue is directed to the attention of the Finance Group.*)

Condition:

Regarding the disposition of inventory items identified as obsolete, excess, or damaged/scrap. IA noted the following:

- No policy or guidance exists for the appropriate disposal of such items:
 - Currently, Operations personnel use their best judgement when determining to how handle such items.
 - Official District policy/guidance should be in place to govern the process for disposing of such items.

Recommendation:

IA recommends that Management from the Finance group develop a set of procedures and/or a policy to govern the process for disposing of items identified as obsolete, excess, damaged/scrap, etc.:

- Communicate with and utilize input from Operations personnel when developing the policy/procedures.
- Obtain appropriate approvals from Executive Management. Communicate the finalized policy/procedures to Operations personnel.

Risk Rating at District (Entity) Level: Low

Risk Rating at Business Process Level: Low

Process Owner Response:

Management agrees that guidance is needed for this area. The Finance Group will develop and publish a District policy/procedure document that addresses the policies and procedures for the disposition of inventory items identified as obsolete, excess, or damaged/scrap.

Input from the Operations Group will be utilized in the development of the Policy. The policy/procedure document will be reviewed and approved by Executive Management.

Date of Implementation:

Policy/Procedure document will be developed and published by September 1, 2017.

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OPPORTUNITIES FOR IMPROVEMENT

7. Monthly Reporting of Inventory Transactions

Condition:

Regarding the monthly reporting of inventory transactions provided by Operations to Finance, IA noted the following:

- The monthly reporting details the change in the overall inventory balance for each month by providing a “roll-forward” schedule and breaking out the activity into categories or classifications of activities:
 - Most of the categories contain standard types of transactions that flow through the particular category.
 - However, there are times when unusual (non-standard) transactions occur that are mixed within a particular category population.
 - It is difficult for the Finance group to identify and evaluate such transactions, as the transactions are not readily apparent.

Recommendation:

To provide more oversight and improve controls over the recording of inventory transactions on the general ledger, IA recommends that Operations personnel:

- Make modifications to the existing monthly reporting procedures as follows:
 - Provide additional detail for the transactions for each classification.
 - Establish and define the types of transactions that normally flow through each classification.
 - For amounts/transactions not meeting the normal “definition” for a particular classification in a particular month, list out the items and explain the details of the transactions.
 - Provide any other detail or information that Finance would like to see in the monthly reporting for inventory transactions.
- This extra detail will enable Finance personnel to better evaluate inventory transactions and make adjustments to the general ledger when deemed necessary.
 - Ultimately, Finance is responsible for the accuracy and propriety of the general ledger and the resulting financial statements.

Risk Rating at District (Entity) Level: Low

Risk Rating at Business Process Level: Low

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OPPORTUNITIES FOR IMPROVEMENT

Process Owner Response:

Management supports IA's recommendation for better visibility of inventory transactions. The Materials Management group will partner with Information Systems to develop a dashboard for Inventory. The existing monthly reporting will be migrated to the dashboard platform.

Date of Implementation:

Dashboard will be established by October 2017

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