ENVIRONMENTAL SERVICES STOCKROOM AUDIT

PROGRAM EVALUATION AND AUDIT

METROPOLITAN COUNCIL

May 19, 2020

INTRODUCTION

Background

The Metropolitan Council operates a system of wastewater treatment plants (WWTP) that aim to clean water and reduce waste. To support these operations, the Metropolitan Council's Environmental Services Division (MCES) maintains a considerable inventory across 24 stockrooms. There is a stockroom at eight of the nine WWTPs, some mobile units, and smaller stockrooms in less frequently used facilities.[1]

Part of the Maintenance and Security Business Unit, MCES' Materials Management department is responsible for handling the inventory. Their responsibilities include receiving, reordering, maintaining, and dispersing stock items as needed. At full staff, the department has 10 staff. Recently, the department's manager retired after 30 years of service. As of March 2020, stockrooms contained an estimated value of $9.2 million dollars.

Objective

The purpose of this audit was to evaluate the effectiveness and efficiency of key controls for MCES' inventory control, including those for:

- Maintaining the Inventory's Accuracy
- Work and Access Management (WAM)[2]
- Cycle Counting

This audit considered the Council's *Thrive MSP 2040* outcomes and principles. Reviewing the controls around the maintenance of MCES' inventory is reflected in *Thrive MSP 2040's* desired outcome of *Stewardship*. *Thrive MSP 2040's* principle of *Accountability* is reflected by ensuring the inventory is accurate.

Scope

Based off MCES' retention schedule, the audit covered all processes, procedures, and records related to the inventory management process for the last three years. Final cycle count data covered the period of October 1, 2016 to October 1, 2019.

All stockrooms and lift stations were eligible for review. Specifically, the stockrooms at Blue Lake WWTP, the Metro Plant, Regional Maintenance Facility, and the Seneca WWTP were reviewed. Additionally, lift stations L65, L 32, L 29, L 38, L 71, and L 74 were reviewed. Inventory reviews covered items that were in the stockroom at that point in time.

The audit began in mid-June 2019. Onsite reviews were completed by mid-October 2019. Final data analyses and report writing finished in February 2020.

[1] The Rogers WWTP does not have a stockroom yet, as it was recently acquired.
[2] An Oracle product, WAM is MCES' inventory management system.

Methodology

Audit conducted interviews with MCES Materials Management staff on the topics of cycle counting, asset management, system rules, and security. Audit reviewed cycle count and inventory data for three years against MCES work instructions for the four most valuable stockrooms and a mobile unit. Audit conducted an inventory review at the stockrooms using a stratified method of sampling. Strata were determined based upon an item's total cost. After the inventory audits, five lift stations were reviewed for unaccounted inventory.

Audit met with MCES Materials Management staff to discuss the observations, findings, and recommendations prior to the exit conference with executives. Audit discussed the report with MCES executives prior to the committee presentation.

OBSERVATIONS

Several processes and procedures were reviewed. Most processes and procedures were found to be functioning without issue. Below is a summary of the reviewed areas and the results.

Known inventory is 96% accurate and 99% of the value was accounted for.

Audit conducted inventory reviews at 5 locations, reviewed 842 unique items in 705 locations, and counted 109,965 items valued at over $3 million cumulatively.[3] In total, 807 unique items were found in the correct location with the correct number of items. 99% of the cumulative reviewed item value was accounted for (**Table 1**).

Table 1: Inventory Results by Location

Location	SKUs Counted	SKU Discrepancies	SKU % Accuracy	Value Counted	Absolute Value Discrepancy	Value % Accuracy
Blue Lake WWTP	176	4	98%	$721,618.90	$30.68	≈100%
Metro Plant	360	5	99%	$1,524,619.69	$1,426	≈100%
Mobile Unit 01	15	7	53%	$226.77	$42.91	81%
Regional Maintenance Facility	153	13	92%	$446,153.73	$14,403.56	97%
Seneca WWTP	138	6	96%	$364,824.62	$332.16	≈100%
Totals	842	35	96%	$3,057,433.71	$16,582.00	99.5%

[3] 38,829 unique items were eligible for review. Audit sampled 2.17% of the universe. The cumulative value reviewed is approximately 32% of the total inventory.

The one exception to the overall accuracy is Mobile Unit 01. Mobile Units are rolling stockrooms that travel to remote locations in the course of MCES business. These units are not managed by Materials Management employees, but rather are the technician's responsibility.

Cycle Counts are not occurring on-time but are occurring.

Similar to other inventory systems at the Council, MCES uses cycle counting to ensure that all items are reviewed in a particular time period based upon its classification. Cycle counts are designed to replace a year-end inventory and improve inventory accuracy throughout the year. Each day, WAM generates a list of items for inventory technicians to review and verify that the items are in the stated location. If an item is not in the correct location or the quantity is wrong, the inventory technician will mark the discrepancy and submit to the material specialists for review and reconciliation.

The cycle count process is governed by a set of 2014 work instructions.[4] MCES' inventory is classified into A, B, C, D, E, and X items according to the item's Total Issued Item Value (TIIV).[5, 6] Each classification has a different interval for review (**Table 2**).

Table 2: Cycle Count Classification WAM Business Rules

ABC Classification	Total Issued Item Value (TIIV) Range	Cycle Count Frequency
A	$1,000 and above	6 months
B	$500 - $999.99	6 months
C	$100 - $499.99	1 year
D	$.0001 – $99.99	1 year
E	$0.00	2 years
X	*No issuance*	*None*

Audit reviewed three years of cycle count data for Blue Lake WWTP, Metro Plant, Regional Maintenance Facility, and the Seneca WWTP to determine if cycle counts were being performed and occurring at the frequency stated in the work instructions.[7] At MCES' request, Audit also reviewed to see if the counts were occurring within 5 and 7 days after the interval.[8]

It was clear that the cycle count process was occurring, as more than 61,500 counts occurred in the three-year period. Approximately 37,500 of these were eligible for review.[9] However, cycle counts

[4] *Oracle WAM Cycle Count Process (2014)*.
[5] Total Issued Item Value (TIIV) is the item's average unit price (AUP) multiplied by the number of times the item was issued in the previous year. [TIIV = AUP * # of issuances].
[6] There are six classes of items, each noted by a letter. "A" items are the most frequently issued or most expensive items, followed by "B", and so on. Each item has a different cycle count interval. The only set of items that are not counted are "X" class items, or those that have not been issued in two years or do not have any quantity on hand.
[7] "On-time" is defined as a count that occurred either before or at the interval.
[8] Due to business needs, staff are not always present at some locations. A 5 to 7-day extension is reasonable for review to accommodate this.
[9] Due the scope of the review (3 years) the oldest count for each item was removed from the analysis. The necessary data for determining if the oldest count was on-time is outside the retention schedule.

were not occurring at the stated intervals at all locations (**Appendix B**). While cycle counts did not occur prior to the interval's expiration, they were generally completed within 5 to 7 days.

The root cause of the issue is not immediately clear. It could be an error in the rule set up for the WAM system. An item might not reappear on the list until after the interval has expired. If so, then the item will not be counted until the interval has expired.

Alternatively, it could be a resource allocation issue, as cycle counts are only performed daily at the Metro Plant or the Regional Maintenance Facility. All other locations share staff members, who visit specific locations on specific days. As such, if an "A" class item is supposed to be counted 183 days later, but that interval falls on a Wednesday, the item won't be completed until 2 days later on Friday when a staff member is present, making the count late.

If a control is not working as intended, the control's effectiveness decreases, and the risk associated with the activity increases. As cycle counts are the main control on the inventory system, late counts could weaken the effectiveness of the overall control.

Recommendation(s):

1. **(Essential)** MCES staff should evaluate the cycle count rules in WAM to determine if a rule is affecting when an item is counted. Staff should also consider adding an aging report that details when the item was counted last and when the interval is set to expire.

   Management Response: The business rule in WAM that defines the number of items that are counted per batch will be reviewed and adjusted. Management will also consider adding an aging report detailing when an item was last counted and the interval expirations.

   Staff Responsible: Manager Materials, Assets, and Inventory and WAM Business Systems Team

   Timetable: This will be completed by the end of Q3 2020

   Thrive 2040 Principle and Outcome: Stewardship and accountability

"X" Class items are not counted as part of the cycle count process.

In the onsite universe, 14,566 of the 38,829 unique items are "X" class items. While 13,672 "X" items are not in stock, the remaining 894 items are. "X" items are not part of the cycle count process as the classification is designed to be used on items that are not issued. By not counting "X" items, MCES is not counting all items in its inventory.

2. **(Essential)** MCES staff should either update WAM business rules to include "X" values or upgrade the 894 "X" items with quantity to an "E" classification to ensure they are counted.

   Management Response: Management will update X items to an E classification.

   Staff Responsible: Manager Materials, Assets, and Inventory and WAM Business Systems Team

   Timetable: This will be completed by the end of Q3 2020.

Thrive 2040 Principle and Outcome: Stewardship and accountability

265 Items did not have a classification.

In the onsite universe, 265 of the 38,829 unique items did not have a classification.[10] Items without a classification are not counted as part of the cycle count process. As the system of controls is based upon an item's classification, all items must have one.

3. **(Essential)** MCES staff should assign classifications to the items that lack one to ensure they are counted.

   Management Response: The list of unclassified items will be reviewed and updated to ensure they are included in the cycle count process.

   Staff Responsible: Manager Materials, Assets, and Inventory

   Timetable: This will be completed by the end of Q3 2020

   Thrive 2040 Principle and Outcome: Stewardship and accountability

In the on-site universe, 38 items in the inventory have an Average Unit Price (AUP) of $0.00 and a quantity.

The classification system is partially based upon an item's value. While 508 out of the 38,829 items had an AUP of $0.00, 470 of the 508 did not have a quantity associated with it. The remaining 38 items were in stock and should have a non-zero AUP.[11]

The zero value could be the result of user error, it could have been manufactured by the Council at the foundry or ordered outside of the control of the Materials and Management group.

4. **(Essential)** MCES staff should review the 38 items that have an AUP of $0.00 and a non-zero quantity and update their values. MCES should review system rules for WAM to ensure that future items do not acquire an AUP of $0.00 when they are in stock.

   Management Response: The 38 items with and AUP of $0.00 will be researched and updated with an AUP and a review of item AUP's will be done for all active items in Q1 each year and corrected.

   Staff Responsible: Manager Materials, Assets, and Inventory and WAM Business Systems Team

   Timetable: 38 items with AUP's of $0.00 will be updated by the end of Q3 and item list will be reviewed each year by the end of Q1.

   Thrive 2040 Principle and Outcome: Stewardship and accountability

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[10] The 265 items varied in quantity, type, and value. Some examples are putty knives, motors, and fork brackets. The items are valued cumulatively at $101,285.19. Of the $101,285, one item was responsible for 27.9% of the value. 93 items were not in stock.

[11] Examples of in stock items were patterns, terminal blocks, and park and ride signs.

The inventory system works off a "debit" and "credit" system when an item is issued and returned, creating a discrepancy in an item's classification.

During the onsite visits, Audit reviewed inventory items had been issued, but this issuance did not increase their classification (e.g. E to B) if the item was returned. As the cycle count system is based upon both an item's value and the number of times it is issued in a year, the item may not be classified accurately.

When an issued item is returned, the system wipes out the "debit" in the system (e.g. -1 + 1 = 0) and does not register that there was a change in inventory. It was as if the item was never issued at all. Since the classification system is based upon both the item's value and how many times it is issued, this debit/credit system rule misclassifies the inventory. In turn, this affects how often an item is counted in the cycle, since an "A" item is counted at a different frequency than "C", "D", and "E".

Recommendation(s):

5. **(Essential)** MCES staff should review WAM for a system rule that occurs when an item is issued and returned and eliminate it.

   Management Response: The current TIIV calculations in WAM will be reviewed to see if this rule can be eliminated.

   Staff Responsible: Manager Materials, Assets, and Inventory and WAM Business Systems Team

   Timetable: This will be completed by the end of Q3 2020

   Thrive 2040 Principle and Outcome: Stewardship and accountability

6. **(Essential)** If possible, MCES staff should review WAM for items that were issued and returned but did not change classes. Upon identification, staff should update the item's classification as needed.

   Management Response: The current TIIV calculations in WAM will be reviewed to see if these items can be updated in classification.

   Staff Responsible: Manager Materials, Assets, and Inventory and WAM Business Systems Team

   Timetable: This will be completed by the end of Q4 2020

   Thrive 2040 Principle and Outcome: Stewardship and accountability

Facilities and equipment are not always secured. Some items are stored outside of the containment area.

During the onsite visits, materials at all four locations were located outside of the warehouse. Additionally, at Seneca and Blue Lake Wastewater Treatment Plants (WWTP), Environmental Services (MCES) staff are not always present. On the days staff are not present, technicians can check items out from the stockroom themselves.

The issue is a combination of two items. First, staffing limitations prevent Materials and Management staff member from being at each location every day. Some inventory technicians split their duties

between plants, as the amount of inventory or the plant's activity may not justify having a full-time staff person on hand every day.

However, MCES has compensating controls that appear to be effective. When an inventory technician is not present, technicians are required to write down the item, code, bin, and quantity that they took. Additionally, there is badge access to stockrooms and cameras. While Audit did not find any major discrepancies, this system works on a level of trust. A bad actor could take advantage of the situation. Additionally, this also opens the system to more user error, if the technician fails to properly check an item out. If so, the mistake would not be caught until the next cycle count. Depending on the item's classification, it could be up to two years before it is caught.

Second, the situation is the result of geographic constraints. Some items, such as filter pallets or impellers, are too large to fit in the current stockroom. This is the case at Seneca and the Regional Maintenance Facility. At the Metro Plant and Blue Lake, items are kept in different locations due to the equipment's size or where equipment is primarily used in a specific part of the plant. As a result, some items are kept outside the secured area. If it is a box of items, it would be easy for a person to walk off with a box without notifying Materials Management. Alternatively, someone could move the inventory without alerting the inventory technician and place it in an unknown location. Additionally, this limitation decreases the amount of control the Materials Management group has over the inventory.

Recommendation(s):

7. **(Significant)** MCES staff should consider the effectiveness of electronic controls to monitor stockroom access when an inventory technician is not present at the facility.

   Management Response: Management will review the current electronic controls for each plant stockroom and review access reports annually.

   Staff Responsible: Manager Materials, Assets and Inventory and MCES Plant Security

   Timetable: This will be completed by the end of Q2 2020

   Thrive 2040 Principle and Outcome: Stewardship and accountability

8. **(Essential)** MCES staff should assess the items that are kept outside the stockroom and determine if there is a more secure location. If relocation is deemed unnecessary, MCES staff should create a method for tracking items stored outside of the room.

   Management Response: Items inventoried in WAM but located outside the stockroom will evaluated for improved local control and inventory process.

   Staff Responsible: Manager Materials, Assets, and Inventory

   Timetable: This will be completed end of Q4 2020.

   Thrive 2040 Principle and Outcome: Stewardship and accountability

CONCLUSIONS

MCES' stockroom and inventory management are critical to supporting MCES' operational goals and ensuring that public funds are appropriately spent and maintained. With a 95% accuracy rate, the system of controls is largely effective. However, there are improvements that can be made to the frequency of counts, classification scheme, data, and asset security. Materials Management staff are proactive in addressing potential issues and improving processes around managing the inventory. Staff have identified other areas for improvement on performance goals, acquisition and disposition procedures, and assessing less frequently issued items.

Appendix A – Recommendation Classification

Program Evaluation and Audit recommendations are categorized according to the level of risk they pose for the Council. The categories are:

- **Essential** — Steps must be taken to avoid the emergence of critical risks to the Council or to add great value to the Council and its programs. Essential recommendations are tracked through the Audit Database and status is reported twice annually to the Council's Audit Committee.
- **Significant** — Adds value to programs or initiatives of the Council but is not necessary to avoid major control risks or other critical risk exposures. Significant recommendations are also tracked with status reports to the Council's Audit Committee.
- **Considerations** — Recommendation would be beneficial but may be subject to being set aside in favor of higher priority activities for the Council or may require collaboration with another program area or division. Considerations are not tracked or reported. Their implementation is solely at the hands of management.
- **Verbal Recommendation** — An issue was found that bears mentioning but is insufficient to constitute a control risk or other repercussions to warrant inclusion in the written report. Verbal recommendations are documented in the file but are not tracked or reported regularly.

Appendix B – Cycle Count On-time Statistics

Location	Blue Lake WWTP			Metro Plant			Regional Maintenance Facility			Seneca WWTP		
Class	Interval +0	Interval +5	Interval +7	Interval +0	Interval +5	Interval +7	Interval +0	Interval +5	Interval +7	Interval +0	Interval +5	Interval +7
A	16%	65%	73%	34%	47%	49%	26%	69%	76%	14%	41%	54%
B	17%	64%	76%	35%	51%	54%	17%	59%	63%	15%	37%	45%
C	13%	63%	70%	42%	77%	79%	20%	73%	80%	16%	43%	53%
D	1%	59%	65%	35%	70%	73%	1%	62%	70%	6%	32%	40%
E	61%	88%	97%	77%	95%	96%	48%	84%	89%	53%	75%	81%
Total	32%	73%	81%	63%	85%	86%	28%	74%	80%	33%	57%	65%

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