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Chief Review Services / Chef - Service d'examen

CRS / CS Ex

Audit of Warehouse Management

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Acronyms and Abbreviations

ADM(Fin CS)	Assistant Deputy Minister (Finance and Corporate Services)
ADM(Mat)	Assistant Deputy Minister (Materiel)
CA	Canadian Army
CAF	Canadian Armed Forces
CFSD	Canadian Forces Supply Depot
CFSM	Canadian Forces Supply Manual
CFSS	Canadian Forces Supply System
CJOC	Canadian Joint Operations Command
CMSG	Canadian Materiel Support Group
Comd CA	Commander Canadian Army
Comd CJOC	Commander Canadian Joint Operations Command
Comd RCAF	Commander Royal Canadian Air Force
Comd RCN	Commander Royal Canadian Navy
CRS	Chief Review Services
CTAT	Controlled Technology Access and Transfer
DAOD	Defence Administrative Orders and Directives
DGMSSC	Director General Materiel Systems and Supply Chain
DND	Department of National Defence
DRMIS	Defence Resource Management Information System
DSCO	Director Supply Chain Operations
FY	Fiscal Year
HMC	Her Majesty's Canadian
IMWG	Inventory Management Working Group
IMMRP	Inventory Management Modernization and Rationalization Project
KPI	Key Performance Indicator
L1	Level One
OAG	Office of the Auditor General
OCI	Office of Collateral Interest
OPI	Office of Primary Interest
RBAP	Risk-Based Internal Audit Plan
RCAF	Royal Canadian Air Force

RCN	Royal Canadian Navy
SIV	Staff Inspection Visit

Results in Brief

Chief Review Services (CRS) conducted an audit of warehouse management with a focus on materiel care, storage, and disposal. This audit was included on the Departmental Risk-Based Internal Audit Plan (RBAP) for fiscal years (FY) 2011/12 to 2013/14.

The Department of National Defence (DND) holds materiel worth $9.8 billion.[1] This audit focused on two types of warehousing facilities: base supply warehouses and large warehouses.[2] A base supply warehouse exists on each Canadian Armed Forces (CAF) base to serve immediate materiel needs. Large warehouses act to replenish inventory levels at the base supply warehouses and they provide logistic support to military operations.

Overall Assessment

There is a wide range in the effectiveness of the processes and controls to support effective and efficient warehouse management. The disposal of surplus inventory is not being performed in a systematic manner. The Department has developed initiatives that should help reduce the time required to dispose of demilitarized materiel. There is little knowledge by the stakeholders of the departmental guidance on warehouse management and monitoring in this area is weak.

Warehouse managers are responsible for the care and storage of materiel in their warehouses. They do not have control over decisions to purchase or dispose of materiel. These decisions are made at DND Headquarters.

There are five main organizations involved in the management of warehouses within the DND/CAF, something which makes for a challenging governance structure. The Assistant Deputy Minister (Materiel) (ADM(Mat)) is responsible for developing direction and guidance in this area, but the actual warehouses are managed by one of four organizations including Canadian Joint Operations Command (CJOC), the Royal Canadian Navy (RCN), the Canadian Army (CA) and the Royal Canadian Air Force (RCAF). The number of responsible stakeholders explains some of the discrepancies in the effectiveness of warehouse management.

A CRS risk analysis identified the storage function, including the disposal of surplus inventory as the areas of highest concern, thus explaining the audit's focus. The audit objective was to assess whether processes and controls are sufficient to support effective and efficient warehouse management.

[1] This amount was provided by Assistant Deputy Minister (Finance and Corporate Services) (ADM(Fin CS)) and represents the cost of the inventory ($6.1 billion) plus the net book value of asset pooled items ($3.7 billion) as of March 31, 2012.

[2] For the purpose of this audit report, the term "large warehouses" refers to the Canadian Forces Supply Depots (CFSD) in Edmonton and Montreal, as well as the Navy depots in Halifax and Esquimalt.

Key Findings and Recommendations

Materiel Disposal. As the sole authority over the inventory life-cycle of minor centrally-managed materiel,[3] inventory managers[4] are generally not carrying out their responsibilities for initiating disposal of surplus materiel. Additionally, the process to determine the appropriate method of asset demilitarization may sometimes be lengthy and cumbersome. Inventory managers face little consequence for neglecting disposal responsibilities and they remain focused on procurement and reprovisioning. This has contributed to a build-up of materiel, some no longer needed by the CAF, to a volume exceeding warehouse capacity. As a result, warehouse managers use locations never intended for storage, pile bulk items into limited space, purchase shelters, or spend resources to rearrange the warehouse layout. The Department has developed two initiatives that should help reduce the time required to dispose of demilitarized components.

Materiel Care and Storage. The audit found that controls and practices for materiel care and storage across DND warehouses vary from very good to inadequate. Although there is departmental guidance in this area, its existence is not widely known by stakeholders. The four headquarters oversight bodies are not monitoring these care and storage practices, thereby contributing to the wide range of practices observed.

Virtual Bins. The Canadian Forces Supply System (CFSS) does not have the functionality to track inventory movements through different areas of the warehouse or between different buildings within a warehousing complex. As a result, large warehouses create ‘virtual bin’ accounts for items that are temporarily in-transit. The audit found one warehouse with effective management controls to ensure inventory is transferred to its destination on a timely basis. Another site lacking these controls had large discrepancies in its CFSS records, which increased the time needed to locate items, increased risk of asset loss, and increased risk of inaccuracies in financial statements.

Note: For a more detailed list of CRS recommendations and management response, please refer to Annex A—Management Action Plan.

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[3] For the purpose of this audit report, the term “minor centrally-managed materiel” refers to any consumable, replacement, spare part, or other centrally-managed materiel that is managed at the headquarters level, but is not a major support system or major weapon system.

[4] For the purpose of this audit report, the term “inventory manager” is used to represent all parties involved in the life-cycle management of materiel, which includes the Equipment Management Team, Life Cycle Materiel Manager, Supply Manager, Technical Authority, etc.

Introduction

Background

The Audit of Warehouse Management was included in the departmental RBAP for the period of FY 2011/12 to FY 2013/14. In recent years, a number of CRS audits touched on inventory management; however, this audit focused on the management of warehouses.

DND is the custodian of materiel estimated at $9.8 billion. This materiel is stored at multiple warehouses across Canada. In addition to specialized warehouses, DND has four large supply warehouses: two that serve as central points of distribution[5] and one on each coast that principally serve the needs of the naval bases. Additionally, each base across Canada has a supply warehouse that serves the base's local short-term needs. Warehouse management is critical in supporting the CAF's objective of maintaining operational readiness.

At DND, the materiel life-cycle management function and the materiel storage function are segregated. Procurement and disposal decisions are the responsibility of inventory managers who are part of the ADM(Mat) organization and are primarily located at National Defence Headquarters in Ottawa. The inventory managers have significant influence over the volume of inventory held by DND because they make the procurement and disposal decisions. Storage is the responsibility of the managers of the warehouse that are located across Canada. CJOC manages the two large warehouses located in Edmonton and Montreal, while RCN, CA and RCAF manage warehouses on their respective bases.

Some of the issues and concerns discussed in this audit are not new to warehouse and inventory oversight bodies. In 2010, CJOC identified the need for an Inventory Rationalization Program to reduce the surplus inventory stored at the large warehouses. Later, ADM(Mat) took the lead of the Inventory Rationalization Program and integrated it with their Inventory Management Working Group (IMWG), which has representatives from organizations involved in warehouse and inventory management. Currently, the IMWG aims to institutionalize the requirement for rationalizing inventory holdings of national stock so as to optimize materiel management in support of the CAF Readiness objective.[6] Some of the working group's initiatives are mentioned in detail in the Findings and Recommendations section of this report.

Objective

The objective of the audit was to assess whether processes and controls are sufficient to support effective and efficient warehouse management.

[5] These are the two CFSDs responsible for stocking supplies of materiel for distribution to bases and stations. Canadian Forces Supply Manual (CFSM), Volume 1-3A-008.
[6] Main Objective, ADM(Mat) Inventory Rationalization Program Master Implementation Plan, November 2011.

Scope

Warehouse functions include receiving, shipping, and storage. A risk analysis identified the storage function, including the disposal of surplus inventory, as the areas of highest concern, thus explaining the audit's focus.

The audit examined the processes and controls in place that are related to the care, storage, and disposal of materiel at DND warehouses over FY 2012/13. This audit focused on the processes and controls at large and small DND warehouses across Canada.

This scope does not include the following:

- ammunition warehouses;
- supplier locations holding inventory;
- petroleum/oil/lubricants storage areas; or
- ships' inventory holdings.

Methodology

The audit team reviewed DND policies, procedures, and key controls related to warehouse management, inventory care, storage, and disposal. Interviews were conducted with management and personnel from the CA, RCN, RCAF, CJOC, ADM(Mat), Assistant Deputy Minister Information Management and ADM(Fin CS).

Data analysis was performed on the information contained in the CFSS, DND's centralized inventory management system. During this audit, the main system used to record inventories was the Mincom Information Management System version of the CFSS. Prior CRS audits and Office of the Auditor General (OAG) audits have raised concerns about the accuracy of the inventory figures contained in this system. At the time of the audit, a small percentage of inventories had already been migrated to the new Defence Resource Management Information System (DRMIS) and so were excluded from our data analysis. The audit did not verify the accuracy of the inventory records; therefore, caution must be exercised in using the inventory figures in this report.

Site visits were conducted at the large warehouses in Montreal and Edmonton and supply warehouses at bases under the command of the CA (Petawawa), RCN (Halifax), and RCAF (Trenton). Site visits consisted of interviews, inspections, and inventory records sampling.

Audit Criteria

The audit criteria can be found at Annex B.

Statement of Conformance

The audit findings and conclusions contained in this report are based on sufficient and appropriate audit evidence gathered in accordance with procedures that meet the Institute of Internal Auditors' *International Standards for the Professional Practice of Internal Auditing*. The audit thus conforms to the Internal Auditing Standards for the Government of Canada, as supported by the results of the quality assurance and improvement program. The opinions expressed in this report are based on conditions as they existed at the time of the audit and apply only to the entities examined.

Findings and Recommendations

Materiel Disposal[7]

Disposal is the final stage in DND's materiel life cycle. Inventory managers are responsible for managing the entire life cycle of a product from procurement, through service and maintenance, and, lastly, disposal. Departmental policy identifies three major phases in the disposal process: 1) initiation, 2) planning, and 3) execution.[8]

The initiation phase of the disposal process is the decision by inventory managers to dispose of surplus items.[9] The planning phase of the disposal process begins with inventory managers obtaining a complete and accurate list of the items for disposal followed by subject matter experts verifying if the item is a controlled good. The inventory managers then prepare the physical demilitarization procedures to be taken in order to render the item unusable for its military purpose.[10] The execution phase of the disposal process is performed by warehouse staff, who dispose of the items as per the disposal instructions and subsequently remove the item from inventory records.

Disposal Initiation Process

Inventory managers are generally not carrying out their responsibilities for initiating disposal of surplus inventory. Additionally, policy does not provide adequate guidance on the requirement to periodically review assigned materiel holdings.

At all large warehouses, the volume of inventory has increased to the point that it exceeds designed storage space. Inventory has overflowed to space outside the buildings, such as parking lots, tarmacs, and empty buildings that were never intended for inventory storage. The Department is also incurring costs for acquiring additional space. For example, one large warehouse has five outdoor storage structures that total over 90,000 square feet of storage space. Two of these were built in 2012, providing 28,000 additional square feet, and management is considering building another structure. The cost of acquiring or leasing additional space, the carrying costs of the inventory, the increased level of effort by warehouse staff to find items, and the increased security risk of the items in inventory all impact the Department's budget.[11]

Since the amount of surplus inventory is not known, the audit reviewed dormant inventory to provide some context. According to the definition used in a departmental reporting tool,[12] an inventory item is considered "dormant" when it has not moved from the warehouse in the last four years. Using this definition and the recorded value in

[7] Note that this section does not apply to the disposal of major weapon and support systems but it does include the associated spare parts held at the warehouses.
[8] Equipment Management Team Manual – Part 12 – Disposal Management – A-LP-005-000/AG-008.
[9] Disposal of major weapon and support systems is based on the approval of the Vice Chief of Defence Staff, which may affect the disposal initiation of the associated spare parts.
[10] Defence Administrative Orders and Directives (DAOD) 3003-0, Controlled Goods – Definitions and Controlled Technology Access and Transfer Manual – Part 1 Introduction – Section 4 Terms Definition and Description – C-02-007-000/AG-001.
[11] Due to limitations in available data, the audit was unable to estimate the total costs associated with carrying excess inventory.
[12] As per the CFSS Web Query Tool parameters.

Mincom Information Management System of materiel held at the three large warehouses visited, 32 percent of inventory was dormant as of 31 December 2012.[13] Although it is possible that an item with no usage in recent years (i.e., dormant) may be required in the future, there is an increased likelihood that dormant items are effectively surplus.

One of the main causes of the increasingly large volume of inventory is that inventory managers are not initiating disposal of surplus materiel. An item may become surplus because it is obsolete, uneconomical to repair, or in excess of forecasted requirements.[14] While departmental policy assigns responsibility to the inventory managers for identifying surplus materiel,[15] it does not require a periodic review of all assigned materiel holdings. The policy fails to state how frequently reviews should occur and does not require the establishment of a review monitoring framework.

It is the inventory manager's responsibility to initiate disposal of surplus materiel; however, this is a tedious process of researching current and possible future needs for items. Inventory managers indicated in interviews that this was their lowest priority task and that they were not concerned about the fact that this work was not being performed. While it cannot be disputed that operational requirements take priority, minimizing the costs related to storing items that are excess or obsolete is also important. Inventory managers indicated that they were not being assessed on their performance of disposal activities.

In an effort to reduce the warehouse space taken by obsolete and surplus items, DND has, in the past, allocated funds and resources to several inventory rationalization projects devoted to requiring inventory managers to initiate disposal. Rationalization projects were initiated in 1996, 2000, and 2005, but results show that the accumulation of surplus items resumed and warehouses again ran out of capacity. This has not been an efficient or effective strategy considering the time and cost of repeatedly performing inventory rationalization projects.

In its attempt to break this "accumulate and dispose" cycle, ADM(Mat) set up a working group, currently known as the IMWG. This working group has a goal of providing a systematic approach towards simplifying the disposal initiation process for inventory managers. Also, the IMWG has identified dormant items that need to be reviewed by inventory managers, concentrating on the larger volume items first. Unfortunately, because of other priorities, not all relevant senior managers are willing to commit resources to this rationalization project. The working group has reported that at the current rate, it will take five to seven years to reach their goal of identifying obsolete and surplus materiel that require disposal. A more aggressive timeframe would increase the chances that the Department would stay ahead of this on-going issue and reduce the costs of warehousing associated with surplus items.

The lack of an effective approach to disposing surplus inventory on an ongoing basis is causing inventory to accumulate at a rate in excess of current capacity and this impacts warehouse effectiveness and increases costs relating to warehousing inventory.

[13] Twenty percent had not moved in at least ten years.
[14] DAOD 3013-0, Surplus Materiel – Definitions; CFSM – Volume 3, Chapter 10, Section A 3-10A-001.
[15] DAOD 3013-1, Disposal of Surplus Materiel – Responsibility Table.

Recommendations

1. ADM(Mat) should ensure that inventory managers fast track the review and rationalization of dormant inventory in line with the IMWG's rationalization initiative so that it can be completed more quickly than the expected five to seven year time frame.
OPI: ADM(Mat)

2. ADM(Mat) should define, communicate, and enforce the frequency with which an inventory manager must review dormant inventory.
OPI: ADM(Mat)

Disposal Planning Process

The disposal planning process for identifying controlled goods and preparing or justifying demilitarization actions is time consuming.

After disposal is initiated and inventory items are deemed surplus, the second phase of the process is to plan the disposal. There are four major steps to ensure that items are disposed of in concurrence with Canadian and international laws and regulations. This is especially important for "controlled goods," which are defined as technical data, materiel, or equipment specifically designed or modified for strategic or military purpose.[16] Controlled goods require demilitarization[17] prior to disposal, unless they are sold to an authorized third party[18]. Not only is compliance with the applicable legislation a legal obligation, it is also vital to maintaining access to equipment procured from our allies.

Once an item has been identified as surplus, the following are major steps that must be completed prior to the disposal of that item:

1. The inventory manager obtains detailed information on the components (e.g., NATO stock number, special tooling and maintenance equipment, technical manuals and drawings, etc.).
2. The appropriate authority certifies the disposal of a component and the selection of a disposal option (e.g., sale, trade-in, donation, destruction, etc.).[19]

[16] DAOD 3003-0, Controlled Goods – Definitions and Controlled Technology Access and Transfer Manual – Part 1 Introduction – Section 4 Terms Definition and Description – C-02-007-000/AG-001.
[17] Demilitarization is the action that renders an item unusable for its intended military or strategic purpose. In other words, demilitarization changes the status of an item from a "controlled good" to a "non-controlled good". Disposal of Surplus Materiel Guidance, paragraph 2.4.
[18] DAOD 3013-1, Disposal of Surplus Materiel – Controlled Goods.
[19] DAOD 3013-1, Disposal of Surplus Materiel – Context and Controlled Technology Access and Transfer Manual – Part 2 Technical – Section 3 Disposal of Controlled Goods – C-02-007-000/AG-001.

3. The controlled goods expert at the Controlled Technology Access and Transfer (CTAT) office justifies the demilitarization code based on information previously obtained by the inventory managers. Justification includes updating the catalogue with the appropriate references to export restrictions and applicable legislation.
4. The inventory manager prepares the demilitarization instructions, if required.

Once the steps in the planning phase of the disposal process are completed, the inventory manager provides the instructions and authorization to warehouse staff to execute disposal of the items.

One of the main bottlenecks in the process occurs when the detailed information on the components is not readily available during the planning phase of the disposal process (see step 1). This creates delays in performing step 3 of the process, resulting in a significant time lag in the disposal planning of surplus items and in increasing costs related to wasted storage space.

ADM(Mat) is aware of this issue and has developed an initiative to minimize its impact. The collection of detailed information and the justification of the controlled goods (see steps 1 and 3) will now be done at the point of procurement and throughout the life cycle of an item rather than only at the point of disposal. The benefit of this change is that the justification will be performed when the information on the components is readily available. This will not remove the need to justify the status during disposal, but it is expected to simplify the process as most of the applicable research will have been completed. Additionally, ADM(Mat) has proactively developed a long-term plan to complete the justification for all inventory currently in storage. At the time of this audit, the estimated time required for completion was ten years as 90 percent of all inventory still required justification.

Another initiative that ADM(Mat) has developed through the IMWG is to introduce a Canadian Forces Technical Order that has defined generic demilitarization instructions that apply to all items identified under two categories of controlled goods. Given that 86 percent of controlled goods fall under these two categories,[20] the requirement for inventory managers to develop demilitarization instructions (see step 4) will be eliminated for a large number of items. Further, since inventory managers will not be required to develop demilitarization instructions, the disposal process will be accelerated. Warehouse managers will now be able to execute disposal as soon as the first three steps of the disposal planning process are completed.

The process for identifying controlled goods and preparing or justifying demilitarization actions is time consuming and causes delays in the disposal process and an increase in costs related to surplus inventory. ADM(Mat) has developed two initiatives to decrease the time frame for this phase of the disposal process thereby potentially reducing by months the time that surplus materiel is warehoused. Ensuring that the initiatives remain a priority is important.

[20] Based on controlled goods at the three largest DND warehouses on 29 April 2013.

Recommendation

3. ADM(Mat) should develop a plan to complete the justification of the demilitarization code for existing stock codes and monitor progress against annual targets.
OPI: ADM(Mat)

Disposal Execution Process

The final phase in the disposal process is to execute the disposal of items according to prescribed instructions and to remove materiel from the CFSS inventory. This is principally a responsibility of the repair and disposal sections at the DND warehouses. This audit concluded that this phase is well managed at the warehouse level. As a result, no recommendation is required.

Materiel Care and Storage

There is a lack of awareness of the departmental guidance on materiel care and storage, and monitoring is weak in this area. Controls and practices across DND warehouses vary from very good to inadequate.

Effective materiel care and storage involves implementing measures to facilitate warehouse productivity and to safeguard inventory. While the Department has developed some detailed guidelines on warehousing,[21] including on materiel care and storage practices, these guidelines have not been recently updated and none of the individuals interviewed indicated knowledge of their existence. Additionally, the four headquarters oversight organizations within the current governance structure are not monitoring materiel care and storage practices. It was, therefore, not surprising that the controls and practices for materiel care and storage varied significantly between locations.

The audit looked at the following areas of materiel care and storage:

- safeguarding of assets
- stocktaking
- storage location coding
- orderly work areas
- inventory organization

Safeguarding of Assets

Effective safeguarding of assets is important to avoid economic loss and to promote sound stewardship in the use of funds. At one warehouse, access was restricted to warehouse personnel only; storage crates were maintained in good condition; there was enhanced security for high-risk items; and special environmental settings had been installed to prolong storage of some items.

Good Practices

One site has a special room with controlled temperature and lighting to slow down deterioration of tires, a highly secure vault for attractive items, and outdoor shelters to protect items from weather damage.

Another warehouse visited had issues in these areas. Non-warehouse staff had direct access to the inventory stored outside; some items were stored in damaged crates; and some crates requiring weather protection were exposed to the elements.

Stocktaking

Having accurate inventory records is critical in managing a warehouse and effective stocktaking is key to achieving this. The physical counts identify discrepancies that could be the result of lapses in either physical custody or accounting controls, and are used to update inventory records. Effective stocktaking increases the likelihood that inventory records used for financial reporting and materiel attestations are accurate. Conversely, inaccurate inventory records make it more difficult to identify missing items and

[21] Warehousing and Materials Handling Manual.

negatively impact the efficiency of warehouse operations and the reliability of departmental financial reporting.

Although policy requires warehouse managers to conduct stocktaking, this was not performed at all warehouses visited. At one site, warehouse managers recognized that they would not meet the policy requirements, so they established a team dedicated to stocktaking and investigating items that cannot be located. ADM(Mat) has updated the stocktaking policy[22] to increase accountability on warehouse management to carry out stocktaking. The policy includes a performance measurement and monitoring framework based on the warehouse's completion of annual plans and materiel discrepancies.

The OAG has expressed serious concerns regarding the accuracy of DND's inventory records. In response to the OAG's concerns, ADM(Mat) has introduced a National Stocktaking Initiative. This initiative focuses on conducting stocktaking at all warehouses.

Storage Location Coding

Storage location coding is a key component of an effectively managed warehouse. Each DND warehouse defines their own coding system and is responsible for labelling the storage areas. The main storage areas of all large warehouses are systematically coded in the CFSS, and clearly labelled. Coding of other storage areas varied from very good to poor. One example of poor coding at one warehouse is a storage area coded simply as "OUTSIDE." When a requested item is marked to be in that location, staff must search the perimeter of a 16,000 square foot building. Some local managers have broken down their outdoor storage areas into sections to make it easier to locate items on demand.

Orderly Work Areas

One aspect of storage that was generally good at all warehouses visited was that all aisles of the main storage areas were kept clear to provide easy access to all storage bins and to promote staff safety. One exception was the existence of shattered pieces of storage crates throughout the outside storage area of one warehouse.

Inventory Organization

Generally, warehouses were well organized. In one large warehouse, managers kept all similar items together and avoided mixing different items in a single location. In other warehouses, items were stored wherever there was space, resulting in storing similar items in multiple areas and stacking different items in the same location, making access to the lower items difficult.

Good Practices

In one warehouse, all similar items are grouped together making it easier and faster to find them and reducing potential errors in shipping incorrect items.

[22] CFSM, Volume 2, Chapter – Stocktaking.

Although this saves time when storing newly arrived items, it reduces productivity by either requiring extra time to search for items in multiple locations or by potentially shipping the wrong item.

Governance Challenge

The discrepancy in the effectiveness of the storage practices among the various warehouses is symptomatic of the fact that the warehouses fall under the authority of four independent organizations (CJOC, RCN, CA, and RCAF) rather than one central oversight body. As the scope of this audit did not include all of the warehousing responsibilities (e.g., receiving and shipping), a detailed analysis of the governance structure of warehousing in DND/CAF was not conducted. It was noted that ADM(Mat) had recently established the Material Acquisition and Support Transformation Steering Committee, which is a National Defence Level 2 governance body with the mandate to provide end-to-end strategic departmental direction and guidance of the supply chain. Since warehousing is part of the supply chain, the steering committee is in a position to provide functional guidance in terms of materiel care and storage at warehouses and regarding monitoring requirements.

There is a wide range in the effectiveness of the controls and practices relating to materiel care and storage that affects the efficiency and performance of warehouse operations. This could result in financial losses to the Department and ultimately impact CAF operational readiness. This issue is caused by the lack of knowledge and execution of the relevant guidance, and by the lack of monitoring by the four oversight organizations.

Recommendations

4. ADM(Mat) should review and update its guidance on DND warehouse materiel care and storage and ensure that all stakeholders are aware of its requirements.
OPI: ADM(Mat)

5. Oversight organizations should develop and implement a plan to perform regular monitoring of materiel care and storage and provide feedback to warehouse managers.
OPI: Comd CJOC, Comd RCN, Comd RCAF, Comd CA

Virtual Bins

Monitoring of the usage of virtual bin locations is insufficient to protect inventory items from waste, abuse, or misappropriation.

Virtual bins are codes used for items being transferred to a different area within the same warehouse, such as intra-warehouse receiving, shipping, and special projects. The CFSS requires that items always have a location code, so staff at large warehouses have created virtual bin codes for items that are in-transit for a brief period of time. The aim is to reduce time searching for an item that is no longer in its original location.

Inventory managers at one large warehouse have implemented some effective controls regarding the use of virtual bins. These bins are monitored to ensure that they clear out in a reasonable time frame and that they are promptly deleted once they have served their purpose.

At another large warehouse these controls were not in place and, over several years, thousands of virtual bins have been created with no trail of the actual movement or disposal of the items. At the time of this audit, around 3,000 such bins were in the database for this warehouse, of which 75 contained records of items with a total value of $37.3 million.

Good Practices

One warehouse limits the use of virtual bins and senior management monitors the virtual bins to ensure that items are cleared out on a timely basis. Supervisors are accountable to explain why items have been in a virtual bin for an unreasonable length of time. In addition to the continuous monitoring, virtual bin locations are deleted from the database once it is confirmed that all items have been cleared.

Although staff explained that a reasonable timeframe for transferring items from virtual bins to actual bins should range from one day to one week, one virtual bin identified during the audit has existed since 2002. This bin was created to track items being moved from storage to the disposal area. When staff were asked to locate a sample of items in this virtual bin, they stated that none of the items in this bin, which contained 192 items with a value of $7.25 million, still existed. Eight other virtual bins created to transfer items within the warehouse were analyzed. Although items should be transferred within a one-week period, these bins contained 2,122 items with a value of $8.1 million that had not been cleared out in over two months. Combined, these nine virtual bins had records totalling $15.35 million of items that should have been transferred and cleared out. However, this had yet to be done because of poor controls and monitoring.

Stocktaking is a control that could have identified these items as lost or misplaced. However, virtual bins are manually removed from count sheets on the basis of their temporary nature.

One action that may reduce the risk related to virtual bins is the implementation of a new inventory management module in DRMIS that would have the functionality to mark items as “in-transit.” While this would reduce the need for virtual bins, it appears that all warehouse managers would continue to have the ability to create them. Therefore, the risk of having temporary bin locations not being monitored can be expected to continue.

Moreover, it is unclear at this point if and how management would monitor the use of the "in-transit" function.

The lack of controls of virtual bin locations is impacting the safeguarding of departmental inventory.

Recommendation

6. Warehouse senior management should ensure that virtual bins and materiel "in-transit" are monitored and cleared out on a timely basis; are included in stocktaking plans and performance reports; and are deleted from the system when they are no longer required.
OPI: Comd CJOC, Comd RCN, Comd RCAF, Comd CA

General Conclusion

The processes and controls to support effective and efficient warehouse management vary widely between warehouses. The identification and disposal of surplus inventory is not being performed on a systematic basis, and the process for determining if an item is a controlled good is inefficient. ADM(Mat) has developed some initiatives that, if implemented, should address some of the important underlying issues affecting the efficiency of these processes.

Guidance in the area of materiel care and storage is extensive but dated, and stakeholders are generally not aware of its existence. Implementation of warehouse management guidance and monitoring should improve the consistency of the quality of controls and processes related to materiel care and storage.

Governance is a challenge as no fewer than five Level One (L1) organizations are involved in the management of warehouses. This decentralized structure makes it challenging to achieve consistency amongst the various organizations. Improvements are required to the guidance on materiel care and storage and in the monitoring in this area. Stewardship practices related to the materiel care storage and disposal were also inconsistent. In terms of accountability, while roles and responsibilities are clear, the disposal activities are not being performed.

Annex A—Management Action Plan

CRS uses the following recommendation significance criteria:

High: Controls are not in place or are inadequate. Important issues are identified that could negatively impact the achievement of program/operational objectives.

Moderate: Controls are in place but are not being sufficiently complied with. Issues are identified that could negatively impact the efficiency and effectiveness of operations.

Low: Controls are in place but the level of compliance varies.

Materiel Disposal

CRS Recommendation (Moderate Significance)

1. ADM(Mat) should ensure that inventory managers fast track the review and rationalization of dormant inventory in line with the IMWG's rationalization initiative so that it can be completed more quickly than the expected five to seven year time frame.

Management Action

ADM(Mat) has prepared a comprehensive action plan, the Inventory Management Modernization and Rationalization Project (IMMRP). As part of this plan, the following actions will be taken to address the audit recommendation:

- ADM(Mat) has established the IMWG in consultation and collaboration with L1 stakeholders and representatives from ADM(Mat). The IMWG will address the departmental accumulation of dormant and legacy stock, and support the efforts of the IMMRP team.
- The IMMRP team will be augmented by subject matter experts and will undertake a review that will address materiel management processes in addition to undertaking an accelerated review and rationalization of dormant inventory in close consultation with ADM(Mat) stakeholders.
- The IMMRP will assist and prepare dormant inventory line item analysis and appropriate and supporting documentation to fast track a deliberate rationalization decision by respective ADM(Mat) Offices of Primary Interest (OPI).
- The work breakdown structure for the IMMRP is under development but preliminary work on the review and rationalization of dormant inventory has already commenced. The IMMRP closeout date is 31 December 2018, and all reviews will be completed by this date. Further adjustments to the target date will be articulated once subject matter resources are allocated and trained.

OPI: ADM(Mat)/DGMSSC/DSCO
Target Date: December 2018

Annex A

Milestones:

1. June 28, 2013 – Development of line item review standard operating procedures (completed)
2. January 15, 2014 – Identification of initial legacy projects and the work breakdown priorities of the dormant stock database
3. January 31, 2014 – Tasking and arrival of IMMRP team

CRS Recommendation (Moderate Significance)

2. ADM(Mat) should define, communicate, and enforce the frequency with which an inventory manager must review dormant inventory.

Management Action

ADM(Mat) has prepared a comprehensive action plan, the IMMRP. As part of this plan, the following actions will be taken to address the audit recommendation:

- ADM(Mat) has established the IMWG in consultation and collaboration with L1 stakeholders and representatives from ADM(Mat). The IMWG will address the departmental accumulation of dormant and legacy stock and support the efforts of the IMMRP Team.
- The IMMRP team will be augmented by subject matter experts and, in consultation with ADM(Mat) stakeholders, will undertake a review that will address materiel management processes, including inventory management reviews of materiel. Dormant inventory definitions and frequency of review will be included in this work.
- The work breakdown structure for the IMMRP is under development but preliminary work on the review period and definition of dormant inventory has already commenced. It is anticipated that sufficient progress on review definition and frequency will be completed for submission for policy implementation by 31 December 2014. Further adjustments to the target date will be articulated once subject matter resources are allocated and trained.

OPI: ADM(Mat)/DGMSSC/DSCO
Target Date: December 2014

CRS Recommendation (Moderate Significance)

3. ADM(Mat) should develop a plan to complete the justification of the demilitarization code for existing stock codes and monitor progress against annual targets.

Management Action

ADM(Mat) will continue to prioritize the justification of demilitarization codes based on the L1 (environment) divestment plans, which currently have a three-year outlook. This approach balances cost to DND and level of effort by staff as efficiencies are gained, executing justification from the top down by full system equipment registration numbers, as opposed to a bottom-up approach, with parts and components not linked with these numbers. ADM(Mat) will meet the three-year timeline for all the systems identified on L1 divestment plans. At current levels of effort and with existing resources, ADM(Mat) expects to complete the justification of all current items in the Controlled Goods Cataloguing System (CGCS) (approximately 979,000 line items) by 30 November 2021.

OPI: ADM(Mat)/DIRAP-CTAT Office
OCI: ADM(Mat)/DGMSSC/DSCO
Target Date: For equipment identified on L1 divestment plans: 31 December 2016. For all active line items currently in the CGCS: 30 November 2021

Materiel Care and Storage

CRS Recommendation (Moderate Significance)

4. ADM(Mat) should review and update its guidance on DND warehouse materiel care and storage and ensure that all stakeholders are aware of its requirements.

Management Action

ADM(Mat) is responsible for the promulgation of Functional Direction and Guidance to the Department with regards to materiel management. As part of the ongoing ADM(Mat) Materiel Acquisition and Support transformation activities, all Materiel Acquisition and Support policies, processes and related training materials are undergoing review and updating.

- As the OPI for the DND Warehousing and Materials Handling Manual, ADM(Mat) will disseminate/promulgate updated departmental guidance on Warehouse Management by 31 March 2015.
- Preliminary scoping review of warehouse material care and storage completed by 31 March 2014

- Submission of draft for stakeholder review by 31 October 2014.
- Further adjustments to the target date will be articulated once subject matter resources are allocated and trained.

OPI: ADM(Mat)/DGMSSC/DSCO
Target Date: 31 Mar 2015

CRS Recommendation (Moderate Significance)

5. Oversight organizations should develop and implement a plan to perform regular monitoring of materiel care and storage and provide feedback to warehouse managers.

Management Action

The CA headquarters will review specific elements of the supply staff inspection visit (SIV) checklist to ensure this item is addressed at Levels 3 and 4 with monitoring by Levels 1 and 2. Further, with the ongoing CA transformation, the establishment of the Canadian Division Support Group's Technical Services Branch will provide additional technical oversight.

OPI: Comd CA
Target Date: April 2014

The RCN conducts logistic readiness inspections on Her Majesty's Canadian (HMC) ships as part of its internal monitoring program. Director Naval Logistics is planning to expand the logistic readiness inspections to base organizations, which will include the warehouses on both coasts. Formation inspection teams will be responsible for conducting inspections of coastal warehouses and providing reports on performance to Director Naval Logistics.

In addition, the RCN will direct that, on a quarterly basis, warehouse supervisors conduct walkthroughs to identify and correct issues in regards to care and storage of materiel.

Director Naval Logistics is currently monitoring supply performance on HMC ships using DRMIS. These reports are called Key Performance Indicators (KPI). The RCN plans to expand the scope of the KPIs to include submarines and coastal warehouse materiel management performance.

Target Dates: October 2013 – Base Logistics staff to begin conducting quarterly walkthroughs of their facilities
April 2014 – Director Naval Logistics to develop KPIs for coastal warehouse
August 2014 – Director Naval Logistics, in collaboration with the formations, to create logistic readiness inspections checklists for coastal warehouses
January 2015 – Implement logistic readiness inspections for coastal warehouses (to be conducted every two years)
OPI: Comd RCN

The A4 Log SIV schedule follows a two-year cycle that visits all wings and verifies compliance with a wide range of materiel management and warehousing principals and standards, as specified by the CFSM and other relevant publications and regulations. A series of 12 supply checklists cover functionally-specific areas including, inter alia, stocktaking and materiel adjustments and warehousing (comprising Obsolete Items, Stock held with no marked location in the supply system, Quarantine Items, stocktaking protocols, security measures, shelf-life items, etc.). Inspection reports contain both observations, which require responses and remediation to ensure/improve compliance, and observations, which contain recommended changes to improve current practices. Unit responses undergo additional technical review for concurrence with proposed action plans and remediation efforts.

With increased reporting and compliance requirements, and competing priorities for limited resources, A4 Log must leverage the efforts of other organizations to optimize our oversight and mitigate risk, and we are continually reviewing our checklists to harmonize our collective efforts with a view to improving the efficiency of our governance structures. That said, A4 Log is acknowledging the concerns as warehousing practices were not assessed by us during our visits to the wings. A4 Log will ensure the SIV checklists are updated to assess compliance with the A-LM-186-001/JS-001 Warehousing and Materials Handling Manual to enhance warehousing management. As well, A4 Log will ensure that these amendments to the checklists are communicated to the wings and that performance control measures will be developed to help the Wing Supply Officers carry out a better oversight of the warehousing activities under their areas of responsibility.

OPI: A4 Sup/Comd RCAF
Target Date: December 2013

Annex A

a. **Safeguarding of Assets.** Canadian Materiel Support Group (CMSG) recognizes the importance of safeguarding assets to avoid economic loss and promote sound stewardship practices. In general, access to the CFSDs is restricted to warehouse personnel, with the exception of some external storage areas in Edmonton (7 CFSD), where there is occasional shared access with the second line supply organization, and in Montreal (25 CFSD), where there is a common access with 202 Workshop and 3 Canadian Support Unit. This is mitigated by the presence of a commissionaire presence and by management oversight. While some smaller infrastructure and fencing initiatives are being prioritized through the supporting bases, overall safeguarding measures within CMSG are assessed as adequate. With respect to specialized storage practices, inventory volumes and infrastructure limitations, coupled with lack of cohesive policy and accompanying resources, often impede the adoption of best practices uniformly across the formation. Management is actively engaged in mitigating safeguarding concerns where capacity exists to do so.

b. **Storage Location Coding.** In 7 CFSD, all storage areas inside and outside the main building are coded, including sprung shelters and designated, outside paved and non-paved storage areas. In 25 CFSD, management has completed updating the identification of their various warehousing zones, and completed 80% of the physical transfer of materiel according to identified area. Storage location coding will be closely monitored by management during DRMIS roll-out at the end of August 2013 in 7 CFSD, in mid-October 2013 in 25 CFSD, and during ongoing re-warehousing initiatives linked to inventory rationalization.

c. **Orderly Work Areas.** In general, the depot staff maintain very orderly work areas and have excellent occupational health and safety records. Where applicable, shattered storage crates have been segregated and contained in a designated area pending expedited disposal.

d. **Inventory Organization.** Within CMSG, the practice is to store items based on criteria (such as individual size of an item, accumulated volume of the item, frequency of inventory turnover, special storage considerations, etc.) to achieve optimal fit. Optimal inventory organization is heavily influenced by factors outside CMSG's control. Initiatives to improve the forecasting and synchronization of inbound inventory and to expedite the disposal of defunct materiel are welcomed. In 7 CFSD, hybrid racking (a combination of push-back racking and castered pallets) is used to allow for easier access both to dissimilar items stored in the same area and to crated items. In 25 CFSD, the identification of commodities into serviceable, dormant, repairable reserve, operational stock, etc., and the consolidation of material according to identified status or commodity, have been completed.

e. **Stocktaking.** Both 7 CFSD and 25 CFSD have dedicated stocktaking teams and adhere to a four-year cyclical stocktaking schedule. Following a short delay in one unit to accommodate repairs to shelving units in a specific area, both units are up-to-date with their stocktaking.

While the Management Action Plan has a target completion date of December 2015, a number of initiatives and procedures have already been implemented, as per above. These initiatives are in line with the DND and CAF goals outlined in the Defence Renewal Plan to ensure that the CAF warehouses are the right size and efficient with the optimum amount of inventory being held. In the longer term, ADM(Mat) initiatives in the realm of inventory rationalization, governance and oversight, as well as Automated Information Technology tools, will have a significant impact on our warehousing operations and will also address some of the shortfalls identified in the audit.

OPI: Comd CJOC
Target Date: December 2015

Virtual Bins

CRS Recommendation (Moderate Significance)

6. Warehouse senior management should ensure that virtual bins and materiel "in-transit" are monitored and cleared out on a timely basis; are included in stocktaking plans and performance reports; and are deleted from the system when they are no longer required.

Management Action

The CA mandated 100 percent stocktaking during FY 2012/13 in support of the DRMIS supply chain integration rollout to confirm holdings and make the necessary system adjustments to ensure accurate rollover. Further, stocktaking plans for FY 2013/14 have been developed and performance will be monitored to ensure compliance. It is expected that the rollout of the DRMIS supply chain integration will reduce the use of virtual bins for in-transit materiel but until the system is fully implemented, the usage of temporary locations cannot be quantified.

OPI: Comd CA
Target Date: April 2014

Annex A

The RCN will investigate the use of virtual bins in the coastal warehouses. If virtual bins are utilized, an approval process for the creation of virtual bins will be followed whereby only warehouse supervisors can authorize the creation of bins. Virtual bins will then be monitored by warehouse supervisors to ensure those bins are cleared in a timely fashion.

KPIs will include monitoring of the activity in virtual bins.

Target Dates: October 2013: Formations to report to Director Naval Logistics on use of virtual bins (to include number and nomenclature of bin)
April 2014: Director Naval Logistics to implement the use of virtual bin KPIs
OPI: Comd RCN

The importance of addressing this concern is acknowledged. A4 Log staff will examine this specific practice across the RCAF to determine the extent to which higher-level intervention is required and what management action is appropriate.

OPI: A4 Sup/Comd RCAF
Target Date: December 2013

CMSG has put in place measures to ensure that virtual bins are monitored and cleared in a timely manner and that they are included in future stocktaking plans. The best practices in place in 7 CFSD are currently under review with the DRMIS On-Site Support Team as they proceed through the DRMIS rollout to ensure an appropriate mechanism is maintained to manage materiel in-transit within the depot. In 25 CFSD, resources have been reallocated internally to investigate and identify materiel “missing” from virtual bins. To date, efforts in this regard have reduced the amount of deficient stock from $37 million to less than $4 million. In anticipation of the DRMIS rollout in mid-October 2013, 25 CFSD is also clearing outstanding legacy transactions. It is expected that the associated CF-152 Materiel Adjustment reports will be submitted for ministerial approval in the mid-September timeframe.

OPI: Comd CJOC
Target Date: December 2015

Annex B—Audit Criteria

The audit criteria were assessed using the following levels:

Level 1: Satisfactory
Level 2: Needs Minor Improvement
Level 3: Needs Moderate Improvement
Level 4: Needs Significant Improvement
Level 5: Unsatisfactory

Stewardship

Criterion. Warehouse management practices result in ensuring effective materiel care, storage, and disposal.

Assessment. Level 3 – Stewardship varies at the sites visited. The Department should improve policies and guidelines for warehouse management. Oversight bodies should improve monitoring of the effectiveness of materiel care and storage practices, and strengthen controls over the use of virtual bins.

Accountability

Criterion. Roles and responsibilities are clearly defined and communicated.

Assessment. Level 3 – The roles and responsibilities of warehouse managers and inventory managers are clearly defined and communicated. The Department should ensure that inventory managers are exercising responsibilities over materiel disposal.

Governance

Criterion. Clearly communicated objectives exist and oversight is done on a continuous basis to identify issues to be addressed.

Assessment. Level 3 – Most warehouses visited have operating objectives that are clearly defined and communicated to staff. The IMWG is tasked with overseeing materiel disposal and national inventory stocktaking. The oversight of warehouses is decentralized to multiple organizations, creating a lack of consistency in effectiveness of processes and controls.

Annex B

Sources of Criteria

The source for the audit criteria was the document "Audit Criteria Related to the Management Accountability Framework: A Tool for Internal Auditors" (March 2011), by the Office of the Comptroller General of Canada.