



Audit Report

# Inventory Management Audit

---

Internal Audit Function  
Internal Audit and Evaluation Directorate

March 2013



Library and Archives  
Canada

Bibliothèque et Archives  
Canada

Canada

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	<b>3</b>
<b>INTRODUCTION</b> .....	<b>5</b>
<b>Background</b> .....	<b>5</b>
<b>Risk Assessment</b> .....	<b>5</b>
<b>Objective and Criteria</b> .....	<b>6</b>
<b>Scope</b> .....	<b>6</b>
<b>Methodology</b> .....	<b>6</b>
<b>FINDINGS AND RECOMMENDATIONS</b> .....	<b>7</b>
<b>Stewardship Policy Suite</b> .....	<b>7</b>
<b>System User Roles Aligned with Business Requirements</b> .....	<b>8</b>
<b>Collection Testing Observations</b> .....	<b>8</b>
<b>APPENDIX A – MANAGEMENT ACTION PLAN</b> .....	<b>11</b>
<b>APPENDIX B – RISK RANKING OF RECOMMENDATIONS</b> .....	<b>12</b>
<b>APPENDIX C – SAMPLING METHODOLOGY</b> .....	<b>13</b>

## EXECUTIVE SUMMARY

### *Background*

The Holdings Management audit project was part of the 2012-15 Risk-Based Audit Plan which was recommended for approval by the Departmental Audit Committee and was subsequently approved by the Deputy Head in June 2011. Following a risk assessment of the Holdings Management audit project, it was determined that the focus of this audit would be on Inventory Management (Collection).

Library and Archives Canada (LAC) has built its collection over many years, and brings together the collections of the former National Archives of Canada (established in 1872) and the former National Library of Canada (established in 1953). As part of its mandate, LAC is responsible to acquire, preserve and provide access to the documentary heritage of Canada for the benefit of present and future generations. To this end, the Stewardship Branch, under the Chief Operating Officer, is responsible for holdings management. This branch is also responsible to ensure that holdings are preserved in appropriate facilities, inventory is tracked and holdings are secured in transit.

The objective of this audit was to determine if LAC holdings were effectively managed with regards to the accounting for and recording of inventory held in National Capital Region (NCR) facilities and inventory systems. Given the vast nature of inventory management, the focus was on examining the analogue holdings. This audit also concentrated on the MIKAN/CMS and AMICUS systems. The main observations are identified below.

### *Findings and Recommendations*

#### Stewardship Policy Suite

LAC is currently in the process of developing policies, directives and guidelines for holdings management. We found that LAC had in place the Policy Management Framework and Suite (PMFS) that is guiding the development of policy frameworks such as evaluation and acquisition, access, and stewardship. At the time of the audit, the Stewardship Policy Framework was still under development. The Stewardship Policy Framework is the primary guidance tool for holdings management. It is recommended that LAC considers the results of this audit in the development and implementation of its new Stewardship Policy Framework and ensures that the policies, directives and guidelines are completed, approved and adopted into practice.

#### System User Roles Aligned with Business Requirements

LAC has a formal process in place for the creation, modification and deactivation of user accounts in the MIKAN/CMS system. User access is provided by the Information Technology Branch (ITB) and specific access privileges are assigned to employees based on role requirements. However, some access restrictions placed on Holdings Management Division (HMD) managers and employees are impairing their ability to perform their duties in an efficient and effective manner. It is recommended that the HMD and the ITB work together to review and modify the user access roles so they better align with the role requirements of HMD managers and staff. Furthermore, to minimize risk to the collection, a user access policy should be developed to define appropriate access rights to LAC systems.

#### Inventory Testing Observations

For the sampling and testing of LAC's inventory, the audit team faced several challenges in obtaining system data. Due to the number of systems currently being used, the testing of the inventory had to be conducted separately on two different systems: MIKAN/CMS and AMICUS. Therefore, LAC could not demonstrate to the audit team that it had a consolidated holdings catalogue that incorporated all the functionalities of its legacy systems. Furthermore, the different inventory management systems required the audit team to rely heavily on the expertise of LAC staff in order to navigate them and to understand how the information found was related.

The results of the testing demonstrated that LAC holdings were managed with regards to the accounting for and recording of inventory held in the NCR facilities and inventory systems, although care should be given to the description of items for holdings management purposes.

During the "system to floor" testing, we reviewed 106 items in the collection (56 from MIKAN/CMS and 50 from AMICUS). We found:

- seven items with a discrepancy between the description of the item ordered and item reviewed (MIKAN/CMS); and
- three items had a discrepancy between the reference number of the item ordered and item reviewed (AMICUS).

During the “floor to system” testing, we reviewed 100 items from the collection (50 from MIKAN/CMS and 50 from AMICUS). We found:

- one item not accounted for in the inventory systems;
- five items with a discrepancy between the description of the item selected on the floor and item reviewed in MIKAN/CMS for inventory management purposes;
- five items had a discrepancy between the reference number of the item selected on the floor and item reviewed in AMICUS;
- six items where the reference number in AMICUS was incomplete; and
- uncatalogued material was observed at the facility on 395 Wellington Street.

Considering the diversity and size of its collection, LAC should continue to regularly conduct risk-based reviews, surveys and censuses in order to assess, on an ongoing basis, the management of its holdings. It is recommended that LAC reviews its process to document and update referencing and inventory descriptions, and formally include this process in the Stewardship Policy Framework, the Description Policy and LAC’s new metadata model initiative on implementing better descriptive information for holdings management purposes. Furthermore, it is recommended that LAC develops a strategy to address and account for uncatalogued material within its inventory.

### *Audit Conclusion*

The results of this audit indicate that LAC holdings were managed by the accounting for and recording of inventory held in the NCR facilities and in inventory management systems; however, the inventory management systems currently used are not efficient. The audit has also identified areas of improvements for:

- completeness of the policies, directives and guidelines under the Stewardship Policy Framework;
- alignment of user roles in the inventory management systems with the business requirements for holdings management;
- accuracy and consistency of the information describing holdings for inventory management purposes; and
- address and account for uncatalogued material in the collection.

### *Statement of Assurance*

This audit engagement was planned and conducted to be in accordance with the Internal Auditing Standards for the Government of Canada.

In my professional judgment as Chief Audit Executive, sufficient and appropriate procedures have been conducted and evidence gathered to support the accuracy of the conclusions reached and contained in this report. The conclusions were based on a comparison of the situations as they existed at the time of the audit and against the audit criteria.

### *Acknowledgements*

We wish to express our appreciation for the cooperation and assistance afforded to the internal audit team by management and staff during the course of this assurance engagement.

## INTRODUCTION

### Background

In 2004, the National Archives of Canada and the National Library of Canada were amalgamated by the *Library and Archives of Canada Act* to create a new memory institution for Canadians—Library and Archives Canada (LAC). The institution serves as the continuing memory of the Government of Canada and its institutions. As part of LAC's mandate, holdings management is a key function to help ensure the documentary heritage of Canada is preserved for the benefit of present and future generations.

In order to achieve its mandate, LAC acquires documentary heritage from three primary sources: Government of Canada, publishers, and private collections. LAC's holdings are sorted into two groups, analogue holdings and digital holdings and these represent LAC's inventory management universe. Analogue holdings were created over a period that ranges from the 15th century to the present day and include an estimated 20 million books, periodicals, newspapers, microforms, literary texts and government publications along with 3 million architectural drawings, maps and plans.

In addition to these traditional paper-based media, LAC also preserves 28 million photographs, 400,000 audio recordings, 150,000 video recordings, 90,000 motion picture film titles, 425,000 pieces of art, including paintings, drawings, watercolours, posters, prints, medals, caricatures, and 547,000 musical heritage items.

LAC's digital collection is comprised of content that is either born digital, created and acquired in digital form, or content that is digitized, created from an analogue version of the content. The collection contains between 35,000-40,000 monographs, 115,000-150,000 serial issues, 12.7 terabytes of web captures, 115,000 eTheses and 16,434 tapes of various types. This listing constitutes an example of the wide range of analogue and digital holdings held within LAC facilities.

In order to ensure that holdings are appropriately safeguarded, LAC has a number of specialized preservation facilities that protect its holdings from unauthorized access and other environmental risks such as fire, water, incorrect temperatures or humidity as well as protecting them from the risks inherent to the materials on which these holdings are produced.

At the time of the audit, there were nine preservation facilities in the National Capital Region (NCR). Of these nine facilities, five<sup>1</sup> were in the process of being de-commissioned due to the construction of the new Collection Storage Facility (CSF), which has an expected occupancy of summer 2013. In addition to centres located in the NCR, LAC also operates eight Regional Service Centres, which are located across Canada. However, Regional Service Centres are also scheduled to be closed, with the exception of the Atlantic, Manitoba and Pacific locations. For the most part, these Regional Service Centres hold government textual records.

LAC inventory is managed using multiple systems, depending on the type of holdings. The MIKAN system is used to provide descriptive information on archival holdings, while the CMS module of MIKAN provides information on the physical location of the analogue holdings. The AMICUS system is used for managing published holdings and provides a description of the holdings. The physical location of published holdings is obtained via an individual spreadsheet kept outside of the system. Audio-visual type holdings are managed using MISACS and the system provides a description of the item and the physical location. More than one system is required to track the different levels of information about holdings.

### Risk Assessment

A risk assessment was conducted during the planning phase of the audit to ensure the audit focused on the areas of most significance. From this assessment the following risks were identified:

- There is a risk that segregation of duties over holdings management is not appropriate.
- There is a risk that records for holdings are incomplete or misstated.
- There is a risk that records for holdings are misplaced or do not appear to exist.
- There is a risk that holdings management system migrations or upgrades did not accurately transfer historical holdings information.

---

<sup>1</sup> Leeds, Jean Edmond, 79 and 151 Bentley, Pink Road

## Objective and Criteria

The objective of this audit was to determine if LAC holdings are effectively managed. The audit criteria for this engagement were:

- LAC holdings are accurately captured in its systems and accounted for in its facilities.
- Segregation of duties is appropriate to effectively manage holdings in LAC facilities and systems.

## Scope

Given the size and vast nature of holdings management, the scope of the Inventory Management Audit included an examination of analogue holdings held in the NCR. The audit also included a review and testing of the inventory data held in the MIKAN/CMS and AMICUS systems. This audit did not include digital holdings, as they will be covered in a separate audit, nor did it include facilities located in regions outside of the NCR, as many are in the process of closing.

## Methodology

The audit field work was conducted in accordance with the Policy on Internal Audit and guidelines from the Treasury Board of Canada, which stipulate that the Institute of Internal Auditors' standards apply to the public service sector. These standards require that the audit be planned and performed in such a way as to obtain reasonable assurance that the audit objective is achieved.

The fieldwork was conducted between December 2012 and February 2013. The audit included procedures that were considered necessary to assess compliance with relevant policies, as well as assessing the tracking and retrieval processes in place for LAC's holdings in NCR facilities and in the inventory management systems MIKAN/CMS and AMICUS. The audit procedures included:

- a review of policies, directives and standards related to holdings management, including the *Archival Collection Management Reference Manual*, Stewardship Policy, *Guide to Handling Segregation and Housing Best Practices*, policies on stolen material, security for special collection, and the Policy Management Framework and Suite;
- a review of LAC's small-scale surveys and censuses for rare books, maps and globes;
- a review of the "State of the Holdings: The Condition of Analogue Holdings at Library and Archives Canada", dated February 2012;
- a walkthrough of the LAC Preservation Centre and the 395 Wellington facility;
- a high-level process mapping of the end-to-end holdings processes, including: registration, accessioning, deaccessioning and circulation processes;
- a sample testing<sup>2</sup> of LAC's inventory included "system-to-floor" and "floor-to-system" testing of the inventory management systems (MIKAN/CMS and AMICUS), and of the NCR facilities (LAC Preservation Centre and 395 Wellington Street); and
- interviews with project leads, management and other key personnel.

---

<sup>2</sup> The sampling methodology for the "system-to-floor" and "floor-to-system" testing is detailed in Appendix C.

## FINDINGS AND RECOMMENDATIONS

### Stewardship Policy Suite

**The Stewardship Policy Framework is the primary guidance tool for holdings management; however, the policies, directives and guidelines under this framework were at different stages of development.**

We expected to find holdings management policies, directives and guidelines, related to inventory management, that were complete, approved and fully implemented.

LAC has in place a policy framework guiding the development of policies, directives and guidelines that support the delivery of LAC's mandate related to the acquisition, stewardship and access to the collection. At the time of the audit, not all of the policy instruments were completed and implemented under the Stewardship Policy Suite, as they were all at different stages of development. The Stewardship Policy Suite is specifically related to holdings management.

The *Archival Collection Management Reference Manual* is the key document for inventory management. It was noted that the manual was approved, accessible and relatively current (2009). This manual included detailed roles and responsibilities (e.g. archivist, records control officer, data control clerk). The key activities to be performed at the facilities and the data to be captured in the inventory systems were described clearly as they related to a specific role. The manual also covered workflow, controls of archival material, client services and service standards.

As a result of the audit, a flowchart was developed to better understand the roles and responsibilities of employees involved in holdings management. The flowchart depicted the end-to-end process for the registration, accessioning, deaccessioning and circulation processes. This flowchart also represented the roles and responsibilities of the various groups, and detailed the required steps and tasks at each stage of the process. Based on the knowledge gained in producing this flowchart, we found that an appropriate segregation of duties existed for the management and circulation of the holdings.

We also noted that the employees clearly understood their roles and responsibilities, and that there was effective collaboration between LAC sectors. For example during the acquisition process, which does not technically fall under the Holdings Management Division (HMD) mandate, an archivist in the Acquisitions Sector initiates the process of bringing archival material to LAC. The archivist then contacts a records control officer in the HMD who plans, coordinates and implements the physical transfer or intake of archival records. This process includes activities such as obtaining insurance for the acquisition and ensuring its security in transport.

Though LAC has a suite of policies, directives and guidelines surrounding roles and responsibilities, not all of the policies were completed and implemented under the Stewardship Policy Framework. Therefore there is a risk of duplication of activities, errors and omissions that could occur in LAC's inventory management processes.

**Recommendation 1:**

It is recommended that LAC considers the results of this audit in the development and implementation of the new Stewardship Policy Framework and ensures that appropriate policies, directives and guidelines are completed, approved and adopted into practice.

## System User Roles Aligned with Business Requirements

**The restriction of system user access rights for the managers and employees of the Holdings Management Division is impairing their ability to perform duties in an efficient and effective manner.**

We expected to find in the MIKAN/CMS and AMICUS systems, user roles aligned with business requirements and supported by a user access policy.

For the MIKAN/CMS system, we found that LAC had a formal process in place for the account creation, modification and deactivation. Various user roles had been established by the Information Technology Branch (ITB) to define and manage access levels. New accounts and account modifications required business management approval before processing. While a process and documentation were in place, management identified challenges with the MIKAN/CMS system that sometimes impeded the work of Holdings Management Division (HMD). For example, collection managers did not have the appropriate access rights to carry out their activities and had to rely on lending services to meet their business needs. As a result, this process impaired the collection manager's work and created internal inefficiencies. During the review and analysis of MIKAN/CMS user access documentation, we found an instance where a collection manager requesting mould containers for the treatment of the collection had this request denied in the system due to limited user access. In this case, this access restriction impaired the manager's ability to safeguard and treat the holdings that were under the manager's jurisdiction and control.

For the AMICUS system, the ITB provided information on account creation, modification and deactivation processes, but no formal policy instruments were in place for system access rights.

If system user roles are not aligned with business requirements and no formal policy instruments are in place, there is a risk that employees do not have access to the appropriate information in the system to efficiently carry out their responsibilities for holdings management.

### **Recommendation 2:**

It is recommended that the HMD and the ITB work together to review and modify the user access roles so they better align with the role requirements of HMD managers and staff.

### **Recommendation 3:**

Furthermore, to minimize risk to the collection, a user access policy should be developed to define appropriate access rights to LAC inventory systems.

## Collection Testing Observations

For the sampling and testing of LAC's inventory, the audit team faced several challenges in obtaining system data. Due to the number of systems currently being used, the audit team cannot provide assurance that a complete and integrated list of holdings was available, also LAC could not demonstrate to the audit team that it had a consolidated holdings catalogue. For these reasons, the testing of the inventory had to be conducted separately on two different systems: MIKAN/CMS and AMICUS.

In addition, during the conduct of the "system to floor" testing, the audit team observed that employees were using legacy systems, such as TRAKKER, to track inventory information because it was easier and faster than consulting the current MIKAN/CMS system. We also observed that the corporate knowledge of the HMD employees was necessary for navigating between systems in order to ensure that inventory was managed efficiently despite the system challenges.

## Holdings in LAC Facilities and MIKAN/CMS and AMICUS systems

**LAC holdings were managed with regards to the accounting for and recording of inventory held in the NCR facilities and inventory systems, although care should be given to the description of items for holdings management purposes. Furthermore, uncatalogued material was observed in LAC facilities.**

We expected that holdings recorded in the inventory systems (MIKAN/CMS and AMICUS) be accounted for accurately in LAC facilities in the NCR. We also expected that holdings held in LAC facilities in the NCR were accounted for and recorded accurately in the inventory systems (MIKAN/CMS and AMICUS).

### *“System to Floor” Testing*

As the main objective of this audit was to review and assess the tracking and retrieval processes for LAC’s holdings, we conducted a “system to floor” testing to better understand LAC’s tracking systems and its ability to retrieve selected items. As part of this testing, 106 items were requested using the LAC accessible online catalogue and these items were subsequently delivered for review. The breakdown of the results, for both systems, is as follows:

<b>MIKAN/CMS – “System to Floor”</b>		
<b>Total sample</b>		<b>56</b>
<b>Items not reviewed</b>	MIKAN number linked to a finding aid and not an item – the originals are not within LAC’s collection.	1
<b>Items accounted for</b>		<b>55</b>
Items not recorded accurately	Discrepancy between the description of the item ordered and item reviewed.	7

<b>AMICUS – “System to Floor”</b>		
<b>Total sample</b>		<b>50</b>
<b>Items not reviewed</b>	Collection moved due to 395 Wellington Sprinkler Refit Project	9
	Collection moved to Collection Storage Facility (CSF)	13
	Not in LAC’s collection	1
<b>Total items reviewed</b>		<b>27</b>
<b>Items accounted for</b>		<b>27</b>
Items not recorded accurately	Discrepancy between the reference number of the item ordered and item reviewed.	3

Based on these results, for the most part, holdings in both systems were accounted for in LAC facilities. In MIKAN/CMS, one item was linked to a finding aid for which LAC does not manage the originals within its collection. It was also noted that for seven items, there was a discrepancy between the description of the item ordered and the item reviewed. Therefore care should be given in describing the holdings for inventory purposes.

In the AMICUS system, all items were accounted for in LAC facilities. We also found three items where the reference number in the system did not match the number of the item reviewed. The items related to the CSF move were clearly indicated as such in the system, while this was not the case for the Sprinkler Refit Project. Given that this audit took place during the preparation for the CSF move and sprinkler refit, the audit team followed standard procedures to not disrupt LAC’s activities related to the move by not requesting the opening and unsealing of holdings ready for transfer or temporary storage. Had the audit team made this request, additional time and level of effort would have been necessary from the audit team and LAC resources and this would not have been cost effective for LAC.

In addition to the testing, the audit team reviewed previous small scale surveys and censuses, conducted by LAC staff on higher risk holdings such as rare books, maps and globes. This practice has allowed LAC to improve its institutional knowledge on the state of high-risk holdings, and should be continued. The use of regular, small random sampling audits would further improve LAC’s inventory monitoring process.

### *“Floor to System” Testing*

To further review and assess the tracking and retrieval processes for LAC’s holdings, we also conducted a “floor to system” testing. This included selecting holdings in the facilities and searching for the item in the MIKAN/CMS and AMICUS systems. The results are as follows:

<b>MIKAN/CMS – “Floor to System”</b>	
<b>Total sample</b>	<b>50</b>
Item not accounted for in the system	1
Item record did not have a description in the system	5

<b>AMICUS – “Floor to System”</b>	
<b>Total sample</b>	<b>50</b>
The reference number on the floor did not match the system reference number	6
Items reference number incomplete	5

All of the selected holdings in LAC facilities in the NCR were accounted for except for one item. In both systems, issues were noted with regards to the recording of the reference number or description of the holding. As noted previously, care should be given when referencing and describing holdings. As a result, there may be a risk that inventory may not be recorded accurately.

During the audit testing at the facility on 395 Wellington Street we also observed that material was identified as uncatalogued. With items in transition due to collection moves, combined with uncatalogued holdings, there is a greater risk of items not being accounted for and potentially going missing. Even as items are being prepared for transition or waiting to be catalogued, item tracking should be available at all times.

**Recommendation 4:**

It is recommended that LAC reviews its process for describing and referencing holdings for inventory management purposes and formally include this process in the Stewardship Policy Suite, the Description Policy and LAC’s new metadata model initiative on implementing better descriptive information.

**Recommendation 5:**

It is recommended that LAC develops a strategy to address and account for uncatalogued material within its inventory.

## Appendix A – Management Action Plan

Internal Audit Recommendations	Management Response to the Recommendation	Action(s) to be taken	Estimated Completion Date	Responsibility
<p><b>1</b> - It is recommended that LAC considers the results of this audit in the development and implementation of the new Stewardship Policy Framework and ensures that appropriate policies, directives and guidelines are completed, approved and adopted into practice.</p>	<p>Agree</p>	<p>Management will consider the results of the <i>Inventory Management Audit</i> as it develops LAC's Stewardship Policy Framework as well as its policies, directives and guidelines.</p>	<p>Framework June 2013</p> <p>Policy on Holdings Management November 2013</p> <p>Rationalization of stewardship instruments March 2014</p>	<p>Director General Strategic Research and Policy in collaboration with Director General Stewardship</p>
<p><b>2</b> - It is recommended that the HMD and the ITB work together to review and modify the user access roles so they better align with the role requirements of HMD managers and staff.</p>	<p>Agree</p>	<p>HMD and ITB will collaborate in reviewing and developing user access roles to meet the specific needs of HMD managers and staff.</p>	<p>Q1 2013-14</p>	<p>Director General Stewardship with collaboration with CIO</p>
<p><b>3</b> - Furthermore, to minimize risk to the collection, a user access policy should be developed to define appropriate access rights to LAC inventory systems.</p>	<p>Agree</p>	<p>LAC will develop and implement a new access rights regime for LAC inventory systems.</p>	<p>Q4 2013-2014</p>	<p>Director General Stewardship - collaboration with Chief Information Officer</p>
<p><b>4</b> - It is recommended that LAC reviews its process for describing and referencing holdings for inventory management purposes and formally include this process in the Stewardship Policy Suite, the Description Policy and LAC's new metadata model initiative on implementing better descriptive information.</p>	<p>Agree</p>	<p>The Content Access Branch will also hold regular meetings to discuss the new approach to the description of holdings and will develop a new bibliographic system.</p> <p>LAC will develop a new framework for the description of all its collections and all stages of the production of catalogues, from acquisition to referencing, will be revised and amalgamated.</p>	<p>Sept 2014</p>	<p>Director General Content Access</p>
<p><b>5</b> - It is recommended that LAC develops a strategy to address and account for uncatalogued material within its inventory.</p>	<p>Agree</p>	<p>Develop an action plan to address uncatalogued material that includes a component for describing and another for re-evaluation.</p>	<p>Q4 2013-2014</p>	<p>Director General Content Access</p>

## Appendix B – Risk ranking of recommendations

The following table presents the recommendations and assigns risk rankings of high, moderate or low. Risk rankings were determined based on the relative priorities of the recommendations and the extent to which the recommendations indicate non-compliance with Treasury Board policies and other relevant policies and standards.

Recommendations	Risk Level
1 - It is recommended that LAC considers the results of this audit in the development and implementation of the new Stewardship Policy Framework and ensures that appropriate policies, directives and guidelines are completed, approved and adopted into practice.	High
2 - It is recommended that the HMD and the ITB work together to review and modify the user access roles so they better align with the role requirements of HMD managers and staff.	Moderate
3 - Furthermore, to minimize risk to the collection, a user access policy should be developed to define appropriate access rights to LAC inventory systems.	High
4 - It is recommended that LAC reviews its process for describing and referencing holdings for inventory management purposes and formally include this process in the Stewardship Policy Suite, the Description Policy and LAC's new metadata model initiative on implementing better descriptive information.	High
5 - It is recommended that LAC develops a strategy to address and account for uncatalogued material within its inventory.	High

## Appendix C – Sampling Methodology

### Rationale

The rationale for the sampling methodology took into consideration the following factors:

- Senior Management concerns related to pre-Confederation holdings;
- Results of previous LAC reviews conducted on specific types of holdings, such as rare books, maps and globes;
- Access to integrated holdings databases;
- Limitation of cost and time to perform testing and reviewing selected holdings.

The methodology applied for this audit consisted on obtaining a sample that would closely represent the characteristic of LAC’s actual collection, and for this reason a random selection approach was used. With a random approach, each element of the collection had an equal and independent chance of being selected, and the selection of one element did not affect the probability of selecting any other specific item. The determination of the sample size was in part based on guidance provided in *Sawyer’s Internal Auditing: The Practice of Modern Internal Auditing* manual and from the auditors’ professional judgment.

### MIKAN/CMS Sampling Methodology – “System to Floor”

To select a sample of holdings from LAC’s archival collection, we obtained the master table detailing the total population of records held within MIKAN/CMS. As per LAC’s request, pre- and post-Confederation holdings were to be identified. To isolate holdings that were dated prior to Confederation, the holdings population was stratified using the date of the record. From the population of items which contained a valid date we selected 50 items. To do so, we randomly selected every 70,000th item until a sample of 50 items was reached. Further discussion led us to include items that did not contain a valid date as this represented over 10% of the population. Using the sample method of selecting every 70,000th item, we selected 6 additional samples, bringing our total sample size to 56 items.

The table that was provided to us only contained information relating to the title, MIKAN number and date of the items. In order to obtain further information on each selected item, we used the MIKAN number of each item and performed a manual search in LAC’s accessible online catalogue to obtain additional information on the items such as: the author, a description and the type of media. The tables below identify the stratification used and the representation of the sample selected compared to the population and the distribution of the sample by media type and by sources.

Total Population from MIKAN				Sample Selected	
1	less than 0	358	0%	0	0%
2	0	450,793	11%	6	11%
3	1-1699	35,624	1%	1	2%
4	1700-1799	162,915	4%	2	4%
5	1800-1899	560,230	14%	8	14%
6	1900-1999	2,702,354	69%	39	70%
7	2000-2012	21,298	1%	0	0%
8	2013-9998	203	0%	0	0%
9	9999	17	0%	0	0%
<b>Total</b>		<b>3,933,792</b>	<b>100%</b>	<b>56</b>	<b>100%</b>

Distribution of sample by Media Types		
Media Type	Quantity	Percentage of Sample
Electronic container	1	2%
Graphic (art)	2	3%
Cartographic material	1	2%
Graphic (photo)	5	9%
Newspaper clipping	1	2%
Textual Records	37	66%
Microfilm reel	9	16%
<b>Total</b>	<b>56</b>	<b>100%</b>

Distribution of sample by Sources		
Source	Quantity	Percentage of Sample
Government	29	52%
Private	27	48%
<b>Total</b>	<b>56</b>	<b>100%</b>

### AMICUS Sampling Methodology – “System to Floor”

A table containing the full population of published holdings was not made accessible, therefore the audit team selected a sample of 50 items using LAC’s accessible online catalogue. For the sample selection, a random number generator was used to generate an AMICUS number. We used the AMICUS number to search in LAC’s online AMICUS database, and selected items located in the NCR region.

From the AMICUS record we noted the AMICUS number, the title, the description and the publishing date of each item selected. The tables below represent the distribution of the sample selected.

Distribution of sample by media types		
Media Type	Quantity	Percentage of Sample
Monograph	37	74%
Serial	6	12%
Serial/Microfilm	2	4%
Monograph/Microfilm	5	10%
<b>Total</b>	<b>50</b>	<b>100%</b>

Distribution of sample by dates		
Date	Quantity	Percentage of Sample
1800-1899	4	8%
1900-1999	40	80%
2000-2013	6	12%
<b>Total</b>	<b>50</b>	<b>100%</b>

### MIKAN/CMS Sampling Methodology – “Floor to System”

In order to select a sample of 50 items from LAC’s archival collection we performed a walkthrough of the LAC Preservation Centre. The Centre houses 48 vaults, of which 10 vaults are either inaccessible or do not contain holdings that are part of LAC’s collection. From the remaining 38 vaults we randomly selected one item from each vault and a second item from every third vault in order to obtain a sample of 50 items. Our method was to choose the tenth item on the tenth shelf in the tenth carriage. In the event that the tenth carriage was empty, we chose from the following carriage. If the selected carriage did not have 10 shelves, we selected an item from the top shelf of that carriage. For each item selected in the facility, we documented the item’s unique barcode, location barcode and noted a brief description of the item such as the title of the item, the date or the source of origin.

This methodology was established before the walkthrough started to ensure the auditors would not judgmentally select items and create a bias in the selection.

### AMICUS Sampling Methodology – “Floor to System”

In order to select a sample of 50 items from LAC’s published collection, a walkthrough of the facility at 395 Wellington Street was performed. The facility has a number of areas of varying sizes and floor layouts. The number of items selected from each area was based on the size of the area and was determined beforehand to ensure the auditors would not judgmentally select items and create a bias in the selection. As such, the selection was:

- 8th floor – 5 items
- 7th floor – 5 items
- 6th floor – 5 items

- 5th floor – 2 items
- 4th floor – 1 item
- 3M East – 1 item
- 2M East – 1 item
- 1B – 5 items
- 2B – 10 items
- 3B – 11 items
- 3M West – 2 items
- 2M West – 1 item
- GM – 1 item

Upon entering an area, the audit team went to the back of the room and selected the fifth item located on the fifth shelf from the first bay of every tenth carriage until we had reached our prescribed number of items for that area. In the event where the tenth carriage was empty, we moved on to the following carriage. If the selected carriage did not have five shelves, we selected an item from the top shelf. For each item selected, we documented the item's reference number and noted a brief description of the item, such as the title of the item, the date or the source of origin.