

OFFICE OF INSPECTOR GENERAL
City of Chicago



REPORT OF THE INSPECTOR GENERAL'S OFFICE:

***DEPARTMENT OF WATER MANAGEMENT
INVENTORY PROCESS AUDIT***

OCTOBER 2012



Joseph M. Ferguson
Inspector General

OFFICE OF INSPECTOR GENERAL

City of Chicago

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To the Mayor, Members of the City Council, City Clerk, City Treasurer, and residents of the City of Chicago:

The City of Chicago Office of Inspector General (IGO) has completed an audit of inventory processes at the Department of Water Management's (DWM) Bureau of Operations and Distribution parts storage facilities where the City maintains an inventory of parts such as pipes, valves, clamps, and couplings used by DWM employees to repair water and sewer mains. The total 2011 year-end value of inventory reported by DWM to the City of Chicago Comptroller's Office was \$18,211,031, of which \$16,172,703 was parts while the remainder was tools and consumable supplies such as paper products. Based upon the results of our audit, we concluded that DWM's internal controls were inadequate to ensure that assets were properly accounted for and safeguarded.

More specifically, the IGO audit compared physical inventory at DWM storage locations to inventory balances recorded in the inventory software system. Our tests found that physical inventory amounts did not match the records for 43% of the parts sampled. DWM was unable to account for 27% of these inaccuracies, and offered a range of possible reasons for the others including employees moving parts in the warehouse without recording the change in location, incorrectly counting the number of parts in inventory, and adding or removing parts without notifying supervisors. We found that DWM did not have written policies and procedures to guide these manual inventory operations, and was not aware of the Comptroller's inventory policies and procedures, which it is required to follow.

We also found that the inventory balance of parts used to repair fire hydrant heads was overstated because parts were not removed from inventory records as they were used, and the 2011 year-end inventory balance was understated by at least \$152,925 due to an error in the design of the recordkeeping software. As a result of these over/understatements, the year-end amounts reported to the Comptroller's Office are incorrect and therefore incorrectly stated in the annual financial statements.

Finally, there were significant gaps in security measures needed to safeguard inventory at the main warehouse. The primary indoor parts storage location did not have security cameras, functional swipe card access panels, or a security guard.

DWM's responses to the audit do not dispute the IGO findings and reflect that DWM is implementing new mechanisms and procedures in response to the IGO's audit recommendations.

The IGO thanks the Commissioner and employees of DWM for their cooperation during this audit. I hope they, and other Commissioners, are able to use the audit results to improve their processes regarding inventory safeguarding and tracking.

Respectfully,

A handwritten signature in blue ink, appearing to be 'J. Ferguson', with a long horizontal stroke extending to the right.

Joseph M. Ferguson
Inspector General
City of Chicago

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I. AUDITOR'S REPORT

The Inspector General's Office (IGO) performed an audit of the Department of Water Management's (DWM) inventory process. We conducted inventory counts of selected parts in February and March 2012, reviewed a sample of All Purpose Requisition Forms (i.e., purchase orders) for the period of January 1, 2011 through December 29, 2011, and observed security measures in place at storage facilities.

The authority to perform such an audit is established in the City of Chicago Municipal Code § 2-56-030 which states that the Inspector General's Office has the power and duty to review the programs of City government in order to identify any inefficiencies, waste, and potential for misconduct, and to promote economy, efficiency, effectiveness, and integrity in the administration of City programs and operations.

DWM management is responsible for establishing and monitoring effective internal controls to properly safeguard and account for inventory. Our purpose was to observe, test, and evaluate inventory processes at DWM to determine whether inventory was properly accounted for and safeguarded.

We conducted this audit in accordance with generally accepted Government Auditing Standards (GAS) issued by the Comptroller General of the United States, except standard 3.96 which requires a peer review of the audit organization.¹ Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

While we did not find issues in the purchase ordering component of the inventory process, there were numerous errors in sampled inventory records, overstatements and understatements in inventory account balances, gaps in security measures, and a lack of policies and procedures to guide manual inventory operations.

Based upon the results of our audit, we concluded that DWM's internal controls were inadequate to ensure that assets were properly accounted for and safeguarded.

We thank the Department of Water Management staff and management for their cooperation during the audit. Their assistance contributed significantly to the successful completion of the audit.

City of Chicago Office of Inspector General

¹ GAS 3.96 requires that organizations performing audits and attestation in accordance with GAS undergo a peer review of the organization at least once every three years. The IGO is scheduled for such an external review in 2012.

II. EXECUTIVE SUMMARY

The Inspector General's Office (IGO) performed an audit of the Department of Water Management's (DWM) inventory processes for the period of January 1, 2011 through December 29, 2011.²

The objectives of the audit were to determine if:

- inventory was adequately safeguarded;
- inventory was physically present and accurately reflected in the Datastream inventory software system used by DWM; and
- inventory purchase orders were properly approved and recorded accurately and timely.

The audit resulted in four findings:

1. Forty-three percent of inventory balances sampled for audit testing were inaccurate. DWM was unable to account for 27% of these inaccuracies, and offered a range of possible reasons for the others including employees moving parts in the warehouse without recording the change in location, incorrectly counting the number of parts in inventory, and adding or removing parts without notifying supervisors. DWM does not have written policies and procedures to guide these manual inventory operations, and was not aware of the Comptroller's inventory policies and procedures, which it is required to follow.
2. The inventory balance of parts used to repair fire hydrant heads was overstated because parts were not removed from inventory records as they were used. The hydrant cage inventory balance submitted by DWM to the Comptroller's Office at 2011 year-end was \$329,120. Based upon the discussed practice, this inventory balance is known to be overstated, but the exact amount could not be determined without conducting a complete inventory count of the hydrant cage.
3. There were significant gaps in security measures needed to safeguard inventory at the main warehouse. The primary indoor parts storage location did not have security cameras, functional swipe card access panels, or a security guard.³
4. The 2011 year-end inventory balance was understated by at least \$152,925 due to an error in the design of the Datastream asset management software. This figure does not include every location managed by DWM, therefore the full understatement of year-end inventory reported to the Comptroller is likely to be higher.

Based upon the results of our audit, we concluded that DWM's internal controls were inadequate to ensure that assets were properly accounted for and safeguarded. We recommend that DWM management design and implement internal controls to ensure the accuracy of inventory records and security of assets, including policies and procedures for manual inventory operations, adherence to the Comptroller's inventory policies, and recordkeeping improvements to correct over- and understatements of inventory. The specific recommendations related to each finding, and DWM's response, are described in the "Audit Findings and Recommendations" section of this report.

² December 29, 2011 is the date of the year-end inventory balance report sent to the Comptroller's office.

³ A security guard was added during the course of the audit, however.

III. BACKGROUND

DWM is responsible for purifying and distributing potable water to the City of Chicago and neighboring suburbs, as well as removing storm and waste water from streets and buildings. DWM's sewer systems convey storm and waste water to the Metropolitan Water Reclamation District of Greater Chicago for treatment and disposal of effluent. DWM operates and maintains water purification plants, pumping stations, water mains, sewer mains, and other water infrastructure.

The City's Capital Improvement Plan allocates over \$3 billion for water and sewer system improvements between 2012 and 2016, and states the City's ten-year goal of replacing 880 miles of water mains, rebuilding or relining 750 miles of sewer mains, and upgrading four steam-powered pumping stations to electrical power.⁴ This is an acceleration of capital improvements made possible by an increase in water and sewer rates passed in 2011.

DWM plans to replace 70 miles of water main and 17 miles of sewer main in 2012.⁵ Thirty miles of water main will be replaced by DWM employees and the remaining 40 miles will be replaced by contractors. The sewer main work will be split evenly between DWM employees and contractors. In addition to water and sewer main replacements, 98% of all system repairs are performed by DWM employees, and 2% are performed by contractors.

DWM is organized into five bureaus and the Commissioner's Office. The total 2011 operating budget appropriation was \$252.7 million, allocated as follows:⁶

Commissioner's Office	\$ 9,044,365
Bureau of Administrative Support	\$ 5,334,680
Bureau of Engineering Services	\$ 11,159,394
Bureau of Water Supply	\$ 77,815,150
Bureau of Operations and Distribution	\$138,731,544
Bureau of Meter Services	<u>\$ 10,623,243</u>
Total	\$252,708,376

The Bureau of Operations and Distribution is responsible for maintaining an inventory of parts such as pipes, valves, clamps, and couplings used by DWM employees to repair water and sewer mains. The total 2011 year-end value of inventory reported by DWM to the Comptroller's Office was \$18,211,031. Of this total, \$16,172,703 consisted of parts while the remainder was tools and consumable supplies such as paper products.

⁴ City of Chicago Office of Management and Budget, "City of Chicago 2012-2016 Capital Improvement Program," accessed August 15, 2012,

http://www.cityofchicago.org/dam/city/depts/obm/supp_info/2012%20Budget/CIP20122016.pdf, 4.

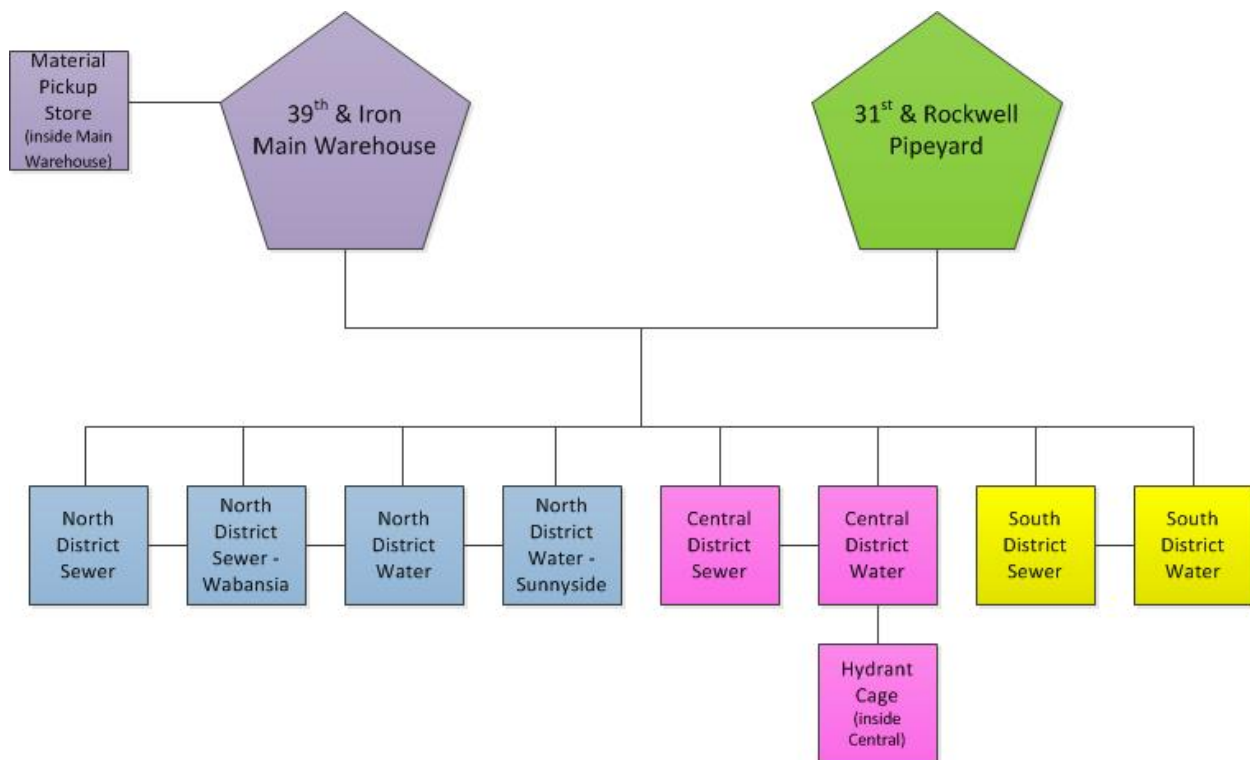
⁵ City of Chicago, "Budget 2012 Overview," accessed August 15, 2012,

http://www.cityofchicago.org/content/dam/city/depts/obm/supp_info/2012%20Budget/2012BudgetOverviewRev11-8.pdf, 129.

⁶ City of Chicago, "Budget 2012 Overview," accessed August 15, 2012,

http://www.cityofchicago.org/content/dam/city/depts/obm/supp_info/2012%20Budget/2012BudgetOverviewRev11-8.pdf, 129.

The parts inventory is stored at five separate DWM locations, represented by different colors in the illustration below. These five locations are further subdivided into twelve system sites for the purpose of recordkeeping. Two locations order parts from outside vendors: the main warehouse at 39th & Iron and the yard at 31st & Rockwell. The yard at 31st & Rockwell only orders large parts that can be stored outdoors, such as water and sewer pipes. The 39th & Iron warehouse orders parts that come packaged for indoor storage as well as some outdoor storage parts. The ten other sites draw parts from these two primary locations but may order bulk commodities such as sand, stone, sewer tile, and brick directly from vendors.



Within the five physical locations there are fenced areas reserved for specific purposes. For example, the hydrant cage is a fenced area within the Central District location where parts used to repair fire hydrant heads are stored.

The Wabansia location closed in March 2012 and was merged with the North District location. Parts from the Wabansia location were physically transferred in the latter part of 2011.

DWM tracks inventory in an enterprise asset management software system called Datastream. The City has contracted with a vendor, CTR, to assist DWM in administering Datastream.

IV. OBJECTIVES, SCOPE, AND METHODOLOGY

A. Objectives

The objectives of the audit were to determine if:

1. inventory was adequately safeguarded;
2. inventory was physically present and accurately reflected in the Datastream software system; and
3. inventory purchase orders were properly approved and recorded accurately and timely.

B. Scope

The scope of this audit included all parts inventoried by the DWM Bureau of Operations and Distribution's 12 locations from January 1, 2011 to December 29, 2011, with a year-end balance totaling \$16,172,703.⁷

The scope of the audit did not include tools, supplies (e.g., paper products), or parts ordered specifically for pumping stations, filtration plants, and new construction. These parts are not inventoried, but are delivered directly to their destinations. The audit scope also did not include the process of transporting parts from the warehouses to the work sites.

C. Methodology

Audit steps included:

- Inspecting the premises to determine whether:
 - i. the arrangement of inventory is such that an accurate count is possible;
 - ii. the inventory is in good condition with adequate storage space, and items are properly packed or binned in a convenient manner for counting;
 - iii. obsolete or damaged goods are adequately identified and segregated;
 - iv. inventory owned by other departments is adequately identified and segregated;
 - v. inventory is adequately safeguarded against access by unauthorized persons and protected against deterioration; and
 - vi. inventory locations are clearly marked and visible.
- Selecting sample parts from the Datastream master inventory list with a total population of 1,394 parts⁸ and comparing the records to the parts physically present on the test day.⁹

⁷ December 29, 2011 is the date of the year-end inventory balance report sent to the City Comptroller's Office.

⁸ The master inventory list also included parts (i.e., commodity codes) for which the inventory amount listed was zero. The IGO excluded these parts from the population.

⁹ To assess the reliability of the Department of Water Management's Datastream System, we spoke with system officials about data quality control procedures and reviewed Datastream Standard Operating Procedures. In the course of inventory testing, we determined that the data was not wholly reliable because the "Store Inventory Values by Store, Bin, and Part" data report did not represent 100% of the target population, which resulted in an audit finding. Although this meant that our sample of data records selected for testing did not represent 100% of the population, we used additional tests such as sampling physical inventory to mitigate this circumstance.

- Selecting parts physically present on the test day and comparing them to the Datastream master inventory list.
- Selecting All Purpose Requisition Forms (i.e., purchase orders) from a Datastream list and testing to determine if orders were properly approved, parts were actually received, and parts were recorded in Datastream.

V. AUDIT FINDINGS AND RECOMMENDATIONS

A. Finding 1: 43% of Sampled Inventory Balances were Inaccurate

As described in the Background section of this report, DWM maintains an inventory of parts used by DWM employees to repair water and sewer systems and records inventory in a software system called Datastream.

IGO audit tests compared physical inventory at DWM storage locations to inventory balances recorded in Datastream and found that physical inventory amounts did not match the records for 43%, or 48 of the 112 parts sampled.

DWM employees researched the discrepancies and reported a variety of possible reasons for the errors, including:

- Employees moved parts in the warehouse without recording the new location;
- Employees took parts for use on job sites without notifying the Pipeyard Foreman or filling out a material requisition form;
- Employees distributed one part in conjunction with another part without recording both as removed from inventory;
- Employees incorrectly counted the number of parts in inventory;
- Employees dropped off surplus parts that had been delivered directly to new construction worksites and but did not inform the Pipeyard Foreman or provide documentation related to the parts; and
- Employees did not count the parts at the Wabansia site before physically transferring them to the North District when the Wabansia site was closed, thus the records may not have accurately reflected actual inventory transferred.

DWM could not offer any reason for 13 of the 48 discrepancies (27%) found during the audit.

Although DWM has a Standard Operating Procedures guide for using Datastream, management informed IGO Audit that DWM has no written policies or procedures related to manual inventory operations such as filling and receiving orders, performing cycle counts, relocating parts within the warehouse, or accepting surplus parts from new construction worksites. Currently, inventory managers perform inventory counts whenever they see fit.

The Comptroller's Office has issued inventory policies and procedures applicable to all departments with inventory reflected in the City's Comprehensive Annual Financial Report, including DWM (see Appendix A). The Comptroller's Office policy states:

The purpose of this policy is to establish a uniform system for inventory cycle counts, inventory cut-offs, valuation of inventory, reconciliation of inventory to the City's books and records, and the accounting for obsolete inventory and discontinued goods. This policy does not address the procedures to be performed relating to the ordering of inventory, receipting the inventory order, and releasing the inventory to the field for its

intended use. Policies and procedures are departmental specific and based on the systems used by that department.¹⁰

DWM management stated that it was not aware of this policy.

Recommendation:

We recommend that DWM management design and implement internal controls to ensure that inventory is properly accounted for and safeguarded. These controls should include written policies and procedures for manual operations performed by DWM employees. We also recommend that DWM management adhere to the citywide inventory policies and procedures issued by the Comptroller's Office.

Management Response:

"The Department of Water Management responds to this Audit and specifically to this finding number 1 as follows:

DWM instituted DataStream in 2005 for its inventory system. Since that time DataStream has been implemented for work orders for certain crews including repairs and MeterSave installation crews. For the last 10 years on average per year we have 8.8 miles of sewer constructed, 17.7 miles of sewers lined and 32.0 miles of water main installed by in-house construction as well as contract construction crews. In 2012, DWM revised its Capital Improvement Program and is on pace to meet its targets to replace 70 miles of water mains, 17 miles of sewer mains and 47 miles of sewer lining. In addition, we respond and repair to more than 300,000 requests each year. Also, we have installed over 20,000 new water meters since 2009.

To ensure that our inventory is properly and accurately accounted and validated for we are drafting and implementing a new Policy Directive. Once complete, the new directive will be distributed to all affected DWM staff and will include training. Additionally, we will ensure adherence by DWM management to the citywide inventory policies and procedures issued by the Comptroller's office.

When the IG visited our sites for its audit of our inventory DWM Pipeyard Foreman had recently retired and DWM was rotating staff into the Acting Pipeyard Foreman position in accordance with already established Citywide policies and procedures. Further, at the time of the Audit one of our inventory facilities (Wabansia Pipeyard) was in the process of being closed as part of a consolidation effort."

¹⁰ City of Chicago Inventory Policies and Procedures, Effective October 31, 2008, 1-2.

B. Finding 2: Hydrant Cage Inventory Balance Overstated

The hydrant cage is a fenced area in the Central District location where parts used to repair fire hydrant heads are stored. Defective heads are brought to the cage for repair, and rebuilt heads are kept in the cage until they are needed.

We originally selected the hydrant cage as one of the locations for audit testing. However, when an IGO auditor attempted to compare hydrant cage inventory to Datastream records, the Pipeyard Foreman stated that the inventory counts would be inaccurate. The reason, he explained, was that while DWM employees charge parts to the hydrant cage when received from vendors, they do not remove the parts from the inventory records when they are used to repair hydrant heads. The result is an ever-increasing overstatement of the hydrant cage inventory balance. According to the Pipeyard Foreman, this is a longstanding practice.

The hydrant cage inventory balance submitted by DWM to the Comptroller's Office at 2011 year-end was \$329,120. Based upon the discussed practice, this inventory balance is known to be overstated, but the exact amount could not be determined without conducting a complete inventory count of the hydrant cage.

Recommendation:

We recommend that DWM conduct a complete inventory count of the hydrant cage and correct the inventory balances in the Datastream system. We also recommend that in the future, parts used to repair hydrant heads be taken out of inventory records to properly account for the remaining inventory balance.

Management Response:

"Prior to and at the time of the audit it was the practice that hydrants taken out of service were cannibalized and rebuilt for future use. During the refurbishment of the hydrants components were added from inventory and never removed from the hydrant cage. Since the audit, and as part of the DataStream upgrade this process has been changed so that parts taken out of inventory to rebuild hydrants are accounted for at the time of removal. This process change will be reflected in new procedures being implemented by DWM in conjunction with the DataStream upgrade."

C. Finding 3: Gaps in Security Measures to Safeguard Inventory

As part of the inventory audit, the IGO observed security measures in place to safeguard assets. During the observation of the main warehouse at 39th and Iron, an IGO auditor noted that there were no security cameras inside the inventory cage area, no functional swipe card access panels, and no security guard. The overhead garage door leading to the cage was consistently left open, the cage gates were often left open, and inventory was left unattended in an adjacent garage.

A Foreman of Construction Laborers reported that there have been discussions with management regarding adding security cameras and functional swipe card access panels but that bids received for these services have been high and there is a lack of funding. According to DWM management, there are no written policies or procedures regarding how inventory should be secured at the main warehouse or district locations.

As of Monday, March 19, 2012, a security guard was stationed inside the receiving area with full view of the dock doors at the main warehouse. Management stated that there will be a guard on duty there 24 hours a day, seven days a week.

Recommendation:

We recommend that DWM assess the current security environment and implement any security features needed to ensure the proper safeguarding of inventory at all locations. DWM management should design written policies and procedures for the safeguarding of assets and enforce their use.

Management Response:

"Prior to the IGO audit, DWM was already in the process of assessing and improving the security at 39th & Iron. To that end, four security cameras have been installed inside the Inventory Cage Area at 39th and Iron: Two (2) Pan Tilt Zoom (PTZ) Cameras and two (2) fixed cameras. These cameras can be monitored live and they also record. In addition, two (2) access card readers have been installed to increase security and create a record of those entering and exiting the inventory area of 39th and Iron. The access card readers are located next to the overhead garage door entrances to the main warehouse area. One at the west end (main entrance for the warehouse). The other was installed off the garage on the southwest end of the warehouse. This work was completed in early July.

In addition, the duties and responsibilities for the Assigned Security Officer have been amended to include additional duties which are outlined in the directive below: For example, among other duties, security officers and warehouse supervisors now ensure that the overhead garage door leading to the warehouse and cage gates are secured when not being used. Further, the garage door will remain closed between 3:30 p.m. and 7:00 a.m. and on weekends, except in an emergency. The following are the updated directives for security officers at 39th & Iron."

**CITY OF CHICAGO
DEPARTMENT OF WATER MANAGEMENT
WATCHMEN SECURITY POST ORDER**

Post Location: Water Department - Main Warehouse
1424 West Pershing

Shift Hours: 7 a.m. to 3 p.m. / 3 p.m. to 11 p.m. / 11 p.m. to 7 a.m.

DUTIES AND RESPONSIBILITIES

Security Officers assigned at the 1424 West Pershing (Main Warehouse) must:

1. **Call and check in every hour with the JWPP Command and Control Center at telephone 312-744-7756; 312-744-7757 and 312-744-7758.** These check in calls will be entered on the security log. For example, "Nothing unusual to report."
2. **Security Officers assigned by the loading dock are required to and verify that proper paperwork is present.** The contractor pickup will be closed for lunch from 11:00 A.M. until 11:30A.M.
3. **Report for duty immediately prior to or exactly at the scheduled shift start time.** The officer should be in uniform and ready for the start of the shift.
4. **Debrief the outgoing security watchman about all activities on the prior shift.**
5. **Verify I.D.'s for all Department of Water Management (DWM) Employees.** Only **DWM personnel** will be allowed past the fence of the secure warehouse area and they must be escorted by warehouse personnel. (A list of warehouse employees will be available at the JWPP Command Center – this list will be updated as necessary or at a minimum of semiannually).
6. **Security Officer/s and warehouse supervisor/s will ensure that the overhead garage door leading to the warehouse and cage gates are secured when not being used. The overhead garage door will remain closed and secured from 3:30 P.M. to 7:00 A.M., and on weekends, unless an emergency occurs.**
7. **All city employees** and **contractors** must wear and have visible their city issued access badge to enter the building and offices. No one will be allowed in the warehouse area without proper authorization and or an escort as appropriate.
8. **Security Officers will observe activities in the building and around the property.**

This involves conducting security patrols of the buildings and property on an hourly basis for the duration of the shift. **Interior and exterior patrols must be conducted regardless of weather conditions.**

C:\Documents and Settings\21049\My Documents\39th and Iron Security Camera Proposal\39th and Iron- Main Warehouse post orders.wpd

D. Finding 4: 2011 Year-end Inventory Balance Understated by at Least \$152,925

DWM uses Datastream to track inventory and to generate the year-end asset balance reported to the Comptroller for the City's annual financial statements. The year-end balance is summarized in a Datastream report called the "Store Inventory Values by Store, Bin, and Part" that was to include all inventoried parts. The IGO used the same report to sample parts for audit testing, but found a part in physical inventory that was not listed in the report.

A program manager from CTR (a company hired by the City to assist in administering Datastream) determined that this discrepancy was because the part was not assigned a category in the system. The program manager ran a report of all parts that were missing a category and found over 2,000 parts.¹¹ The IGO summed the value of the parts that had been omitted from the "Store Inventory Values by Store, Bin, and Part" report for the five locations selected for audit testing and identified an understatement of \$152,925. This figure does not include every location managed by DWM, therefore the full understatement of year-end inventory reported to the Comptroller is likely to be higher.

The CTR program manager reported that as a result of this discovery during the IGO audit, Datastream has been redesigned so that all new parts must be assigned to a category and no existing records can be modified without a category being assigned. The CTR program manager expects this solution to prevent the omission of new and modified parts from the "Store Inventory Values by Store, Bin, and Part" report in the future, but recommended that all existing records without a category value assigned be reviewed and updated.

Recommendation:

We recommend that DWM review Datastream records to determine, document and report to the Comptroller the full understatement of inventory value reported to the Comptroller for 2011. We also recommend that DWM ensure all existing parts are assigned categories so that the 2012 year-end balance will not be understated.

Management Response:

"As to this recommendation, the inventory was actually present and accounted for in DataStream but did not appear on the report reviewed by IGO. Two technical preventive measures were implemented to mitigate that shortcoming:

- 1) Selection for unassigned parts was added to the report parameters.*
- 2) No new part records can be stored without the category info and no existing part records can be updated without the category info.*

There are reports now available in DataStream that list all un-categorized parts and such part records can be selected using standard DataStream filtering capabilities."

¹¹ The report of parts with missing categories included parts for which the current inventory amount was zero.

VI. APPENDIX A: CITY OF CHICAGO INVENTORY POLICIES AND PROCEDURES¹²

CONFIDENTIAL

**City of Chicago
Inventory
Policies and Procedures**

This policy relates to all City Departments that have inventory that is reflected in the City's Comprehensive Annual Financial Report. All inventory locations are required to have these policies and procedures in place to ensure proper inventory management. These policies and procedures will include:

- A. Organization of inventory facilities
- B. Inventory records and valuation
- C. Cycle counts and reconciliation to inventory records
- D. Inventory cut-off
- E. Year end inventory
- F. Year end compilations and reconciliation to financial records
- G. Discontinued goods and obsolescence
- H. Supplies

City departments affected by these policies and procedures include, but not limited to:

- 1. Finance (27)
- 2. General Services (38)
- 3. Fleet Management (40)
- 4. Health (41)
- 5. Police (57)
- 6. Streets and Sanitation (81)
- 7. Transportation (84)
- 8. Water Management (88)

All inventory policies and procedures will be coordinated by the Office of the City Comptroller and subject to the review by the City's Office of Compliance – Internal Audit.

Purpose

The purpose of this policy is to establish a uniform system for inventory cycle counts, inventory cut-offs, valuation of inventory, reconciliation of inventory to the City's books and records, and the accounting for obsolete inventory and discontinued goods. This policy does not address the procedures to be performed relating to the ordering of inventory, receipting the inventory order, and releasing the inventory to the field for its

Effective October 31, 2008

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¹² Reprinted with permission of the City of Chicago Comptroller's Office.

intended use. Policies and procedures are departmental specific and based on the systems used by that department.

Definitions

- Inventory – assets held by the City that are intended to be used in the course of the City's operations.
- Supplies – items that are consumable. Generally, these items would be commodities with a shorter life while in use than items that would remain in inventory after issuance or assignment for use. Examples include copy paper, print cartridges, forms, cleaning materials, etc.
- Cycle Counts – partial physical counts of inventory performed according to a schedule that is reasonable and appropriate for the inventory type. Part of the inventory should be counted on a periodic basis so that each item is counted multiple times per year.
- FIFO (first-in, first-out) – is an inventory cost method whereby the first goods purchased are assumed to be the first goods sold so that the ending inventory consists of the most recently purchased goods.
- Weighted Average – is an inventory cost method whereby different costs associated with inventory items due to the time the inventory was purchased affects the value of the inventory valuation. For example:

10 items purchased @ \$1.00 each
12 items purchased @ \$1.10 each
5 items purchased @ \$1.05 each
27 items valued @ \$1.0537 each

- Discontinued Goods – items that are no longer a current commodity but could still have some useful purpose. These items could be used to repair an older vehicle, machine, or pipeline.
- Obsolete Inventory – inventory items whose effective use periods have expired, have no useful life due to replacement by similar inventory items with enhanced capabilities and efficiencies, or are no longer usable for their intended purpose through contamination. Also includes inventory items that have not been used in over two years and currently are no longer used within the City.

Effective October 31, 2008

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City's Inventory Accounting Policy

The significant accounting policy included in the notes to the financial statements states that: *Inventory includes government – wide inventories which are stated at cost determined principally, using the average cost method. For proprietary funds, the cost of inventories is recorded as capital assets when used (consumption method). Governmental fund inventories are accounted using the purchase method and are offset by a reservation of fund balance to indicate that they do not represent expendable available financial resources.*

A. Organization of Inventory Facilities

Each department is responsible for maintaining a well organized and clean facility to ensure that inventory is accessible by authorized personnel, properly secured, and easy to count when performing an inventory cycle count. All inventories must be labeled and stored in its allocated space. At a minimum each inventory facility should:

- Maintain each type of inventory item in one location which is appropriately labeled to prevent the need to visit several areas of the facility to count an inventory item.
- Be secured to only allow authorized personnel in the facility. A list of authorized personnel should be maintained for each facility and updated on an annual basis or sooner, if needed.
- Be clean and organized with all inventory items located in the proper area.

B. Inventory Records and Valuation

Each department should maintain a detailed Inventory Ledger that includes **all** inventory items stored at the facility including the number of each inventory item, the location, the weighted average cost for each inventory item, and the total value (the number of inventory items multiplied by the average cost of the inventory item). The Inventory Ledger should be updated for inventory received from vendors and inventory used by the City on a daily basis. The source of the updates to the Inventory Ledger should be the shipping invoices from the vendors and the inventory request sheets provided by the City employee requesting the inventory.

If the weighted average inventory valuation method is not feasible, then the department can apply the FIFO method.

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C. Cycle Counts and Reconciliation to Inventory Records

Each department will determine the frequency of cycle counts (i.e. daily, weekly, or monthly) and the number of inventory items to be counted based on an internal risk assessment which will include an analysis of the type of inventory and past inventory experience. For inventory that turns over more frequently, is higher in value, and is more accessible to shrinkage/theft, the frequency of the cycle counts and the number of inventory items to be counted should be greater. Inventory cycle counts should be performed at least monthly.

The procedures to be followed should include the following:

1. Prepare the annual schedule for performing cycle counts prior to the beginning of the calendar year taking into consideration the risk assessment noted above. The final cycle count of the year should be scheduled within one week of December 31, 20xx (See Section E below).
2. For each inventory cycle count select a sample of items (i.e. 30 items) from the Inventory Ledger and count the number of items located at the inventory facility. All exceptions should be researched and resolved with appropriate adjustments made to the inventory records, if necessary.
3. For each inventory cycle count select a sample of items (i.e. 30 items) from the inventory facility and count the number of items and compare to the Inventory Ledger. All exceptions should be researched and resolved with appropriate adjustments made to the inventory records, if necessary.
4. Document inventory cycle counts on a Cycle Count Inventory Schedule to be maintained as documentation that the inventory cycle counts were performed and as documentation for any inventory adjustments. In addition, the Cycle Count Inventory Schedule should be maintained so it can be verified at a later date.
5. Should significant exceptions exist consider expanding the number of test items in the cycle count.
6. Report to the Office of the City Comptroller monthly any material inconsistencies and resolutions of the inventory cycle counts. In addition, provide copies of the reconciled inventory cycle counts to the Office of the City Comptroller on a quarterly basis within 5 business days of the end of the quarter.

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D. Inventory Cut-off

The following cut-off procedures should be followed when performing inventory cycle counts:

- If there are inventory items delivered during the performance of the cycle count, they should not be placed at the appropriate inventory location until the cycle counts are completed and any differences have been identified and agreed to by the inventory counter and the facility manager.
- If there are inventory items that need to be transferred due to emergency needs during the inventory cycle counts, they should be documented on an Inventory Reconciliation Sheet to be used when reconciling the cycle counts to the inventory records. The Inventory Reconciliation Sheet should include the name of the inventory item, the number of inventory items removed from the facility, and the reason for the removal of the inventory.

E. Year End Inventory

The final inventory cycle count of the year should be an expanded cycle count scheduled within one week of December 31, 20xx. All items with significant value must be included in the year-end cycle count. A complete inventory count is recommended. Any cycle counts taken outside of the one week window should be approved by the Office of the City Comptroller. The external auditors and the Office of Compliance – Internal Audit should be informed of the year end cycle counts at least one month before they occur to allow them the opportunity to observe the inventory if they so desire.

F. Year-end Compilation and Reconciliation to Financial Records

The results of the inventory cycle counts should be reconciled to the financial records at year end or more frequently if the cycle counts generate significant differences between the inventory records and the test counts. When reconciling inventory records to the financial records the following procedures should be followed:

1. Obtain the Inventory Ledger, discussed in Inventory Records and Valuation above, as of the date of the inventory cycle count (within one week of year end).
2. Obtain copies of the vendor invoices relating to the inventory delivered to the facility from the date of the inventory cycle count to year end.
3. Obtain copies of the inventory request sheets documenting the inventory used or taken by City employees from the date of the inventory cycle count to year end.

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4. Update the inventory ledger for the new inventory received from step 2 above and the inventory used from step 3 above including the number of units, the cost, and the extended value. See Exhibit A for sample year end inventory compilations.
5. Provide the final year-end Inventory Ledger to the Office of the City Comptroller reconciling all significant differences.

G. Discontinued Goods and Obsolescence

Each department should review the inventory on an annual basis to determine whether there are any discontinued goods or obsolete inventory. All discontinued goods and obsolete inventories should be summarized on an Inventory Obsolescence Report identifying the inventory item, inventory cost, and the number of items held by the City and **excluded from the year end inventory**. The Inventory Obsolescence Report should be submitted to the Office of the City Comptroller for review and approval. The Office of the City Comptroller will record the appropriate adjustment to write-off the inventory that is obsolete or discontinued.

Each department should be careful to maintain inventory items that are no longer manufactured or available to be purchased which are necessary to repair and replace certain infrastructure items.

H. Supplies

Departments with significant amounts of supplies should follow these inventory procedures to ensure proper safeguarding and prevention of shrinkage, slippage, and theft. When performing cycle counts, separate items that are considered supplies from the inventory and **do not include the supplies in the inventory count**. In addition, do not provide the final year end Supplies Ledger to the Office of the City Comptroller.

CONFIDENTIAL									
Exhibit A									
City of Chicago									
Department of _____									
Inventory Ledger and									
Year End Inventory Compilation									
December 31, 2008									
Inventory Item	A	B	C=A*B	D	E	F=A+D+E	G=B*F		
	Number on Hand at December 26, 2008	Location	Weighted Average Cost	Inventory Value at December 26, 2008	Number Delivered from December 27, 2008 through December 31, 2008	Number Used from December 27, 2008 through December 31, 2008	Number on Hand at December 31, 2008	Inventory Value at December 31, 2008	
A	250	xxxxxx	\$95	\$23,750	0	0	245	\$23,275	
B	54	xxxxxx	\$85	\$4,590	25	15	64	\$5,440	
C	96	xxxxxx	\$48	\$4,608	25	5	116	\$5,568	
D	9	xxxxxx	\$450	\$4,050	5	0	14	\$6,300	
E	45	xxxxxx	\$98	\$4,410	15	3	57	\$5,586	
G	119	xxxxxx	\$75	\$8,925	0	4	115	\$8,625	
H	66	xxxxxx	\$125	\$8,250	16	2	80	\$10,000	
				\$58,583				\$64,794	

Note: The final year-end inventory cycle count was taken on December 26, 2008

The columns labeled "Inventory Item, Number on Hand at December 26, 2008, Location, Weighted Average Cost, and Inventory Value at December 26, 2008" should be taken directly from the department's Inventory Ledger.

The column labeled "Number Delivered from December 27, 2008 through December 31, 2008" should be taken from the vendor invoices received with the shipment of the inventory.

The columns labeled "Number Used from December 27, 2008 through December 31, 2008" should be taken from the inventory request sheets completed by the employees requesting the inventory.

VII. APPENDIX B: ADDITIONAL MANAGEMENT RESPONSE

“DWM’S EXECUTIVE SUMMARY

The objectives of the IG audit were to determine if:

- 1. inventory was adequately safeguarded;*
- 2. inventory was physically present and accurately reflected in the Datastream software system; and*
- 3. inventory purchase orders were properly approved and recorded accurately and timely.*

INVENTORY WAS ADEQUATELY SAFEGUARDED

The Department of Water Management (“DWM”) is committed to maintaining security and safety in all of our operations and facilities. Ensuring that the Chicago Water and Sewer Systems are protected, including our employees and property is a top priority. We have both electronic and manned security at all DWM facilities and we have further enhanced both at 39th & Iron. In recognition of this priority, Management of our security staff has been tightened and increased. In October 2011, an Assistant Commissioner over Security started with the DWM. With a history of police and security expertise, a review of DWM’s facilities and procedures was undertaken. New and amended security directives and procedures were drafted and instituted in order to further enhance the security of our facilities. Additionally, since last October, 13 additional watchmen have been trained and deployed at our facilities, and 10 more are joining the security staff before the end of this year. Also, 13 cameras have been added to an already extensive electronic monitoring system to further improve security coverage.

With respect to the 39th & Iron facility, there have been security improvements plans in place since the beginning of the year that have now been implemented as related to DWM inventory. In early July 2012, DWM installed two additional access card readers and four additional security cameras at 39th and Iron to monitor the inventory specifically. The cameras are monitored live and also produce recordings that can be reviewed on an as-needed basis.

Additionally, the duties and responsibilities of the Assigned Security Officers at 39th & Iron have been bolstered to include the following: Security Officers and warehouse supervisors will ensure that the overhead garage door leading to the warehouse and cage gates are secured when not being used. The amended directive was distributed along with refresher training on maintaining a daily log, walking the premises, checking all and identifications and verifying that proper paperwork is presented by contractors.

INVENTORY WAS PHYSICALLY PRESENT AND ACCURATELY REFLECTED IN THE DATASTREAM SOFTWARE SYSTEM

Contrary to the IG’s blanket assertions, in most instances, DWM established that the inventory in question was in fact present. DWM has reviewed the back-up reports provided by the IGO. The IGO audit consisted of comparing the physical inventory of parts at DWM storage locations to inventory balances recorded in DataStream. DWM is in the process of updating DataStream, creating a written inventory directive, providing additional training on the use of DataStream and is working with the Budget Office to hire a professional warehouse manager. The DataStream upgrade is scheduled to be completed by the end of 2012.

DWM agrees that there should be minimal, if no, discrepancies when conducting an inventory audit. The discrepancies found in this audit demonstrated the need to tighten our protocols. Many of the outcomes were accounted for or simply miscounted due to human error. In other instances the items were in the facility but not in the computer system.

Additionally, due to a short turnaround in the consolidation of facilities, DWM did not properly account for some inventory that transferred from the Wabansia site to the North District. In this instance, the items were still located on DataStream in the Wabansia site although they were physically at the North District.

Parts, materials and equipment needed for new construction crews are typically ordered and delivered directly to the worksite. However, when the new construction crews complete their work, they return any unused items to the warehouse. Under the old DataStream system, any unused items delivered to the warehouse were not getting entered into DataStream. DWM is ensuring that the DataStream upgrade will allow the system to accurately reflect all unused items delivered to the warehouse from new construction. While it is concerning that these items could not be located in DataStream for purposes of the audit that issue will be fixed with the upgrade. What is most imperative is that the actual items, have been accounted for, are physically present on City property, and the City has not been victim to loss or shrinkage.

DWM's primary focus this year has been advancing new work rules and practices to achieve its goals of replacing and repairing the City of Chicago's aging infrastructure. To that end, DWM has been accountable for, and proven successful in the installation of 70 miles of new water mains, 17 miles of new sewers, and 47 miles of lining of sewers. While we agree that the IG's audit has made some viable suggestions for areas of improvement in our inventory management, in most of the relevant instances, DWM was able to account for the physical presence of items even if DataStream was not up to date. To address areas of deficiency in counting, DWM is creating a new written inventory directive and will distribute and train its staff so that best practices for inventory will be adhered to. Further, DWM will hire a warehouse manager to ensure the proper and timely in-put and out-put of inventory, conduct regular and systematic cycle-counts, and adhere to the citywide inventory policies and procedures issued by the Comptroller's Office.

INVENTORY PURCHASE ORDERS WERE PROPERLY APPROVED AND RECORDED ACCURATELY AND TIMELY

It should be noted that the IG did not find issues in the purchase ordering component of the inventory process.

DWM thanks the IG for its time and effort throughout the audit process. DWM staff is working hard to address deficiencies surrounding ensuring that all inventory items that are physically present are also being accounted for in the DataStream System. Further DWM continues to hold safety and security of our people and our property as top priorities, and strives every day to maintain the highest level of integrity for the entire water and sewer systems."

CITY OF CHICAGO OFFICE OF THE INSPECTOR GENERAL

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To Suggest Ways to Improve City Government	Visit our website: https://chicagoinspectorgeneral.org/get-involved/help-improve-city-government/
To Report Fraud, Waste, and Abuse in City Programs	Call the IGO's toll-free hotline 866-IG-TIPLINE (866-448-4754). Talk to an investigator from 8:30 a.m. to 5:00 p.m. Monday-Friday. Or visit our website: http://chicagoinspectorgeneral.org/get-involved/fight-waste-fraud-and-abuse/

MISSION

The Chicago Inspector General's Office (IGO) is an independent, nonpartisan oversight agency whose mission is to promote economy, efficiency, and integrity in the administration of programs and operations of City government. The IGO achieves this mission through:

- Administrative and Criminal Investigations
- Audits of City programs and operations
- Reviews of City programs, operations and policies

From these activities, the IGO issues reports of findings, and disciplinary and policy recommendations to assure that City officials, employees and vendors are held accountable for the provision of efficient, cost-effective government operations and further to prevent, detect, identify, expose and eliminate waste, inefficiency, misconduct, fraud, corruption, and abuse of public authority and resources.

AUTHORITY

The authority to produce reports and recommendations on ways to improve City operations is established in the City of Chicago Municipal Code § 2-56-030(c), which confers upon the Inspector General the following power and duty:

To promote economy, efficiency, effectiveness and integrity in the administration of the programs and operations of the city government by reviewing programs, identifying any inefficiencies, waste and potential for misconduct therein, and recommending to the mayor and the city council policies and methods for the elimination of inefficiencies and waste, and the prevention of misconduct.