



City of Cape Coral **City Auditor's Office**

TO: Mayor and Council Members
FROM: Margaret Krym, Interim City Auditor 
DATE: June 20, 2011
SUBJECT: Fuel Management Audit

We were asked to perform an audit of the acquisition, management and disbursement of fuel within the City during the years 2006 through 2010 and the internal controls related to these processes. In accordance with our inter-local agreement, we invited the Lee County Clerk of Courts Internal Audit Department to assist us in that effort.

Attached is the final report of the Fuel Management Audit.

We would like to thank the City Manager, Fleet Management, Financial Services Department and the ITS Department staff for their help and cooperation during this audit. We would also like to thank the Lee County Clerk of Courts Internal Audit Department for their assistance.

We will be happy to respond to any questions or concerns you may have about this report.

Attachments

xc: Gary R. King, City Manager
Dolores Menendez, City Attorney
Rebecca van Deutekom, City Clerk
Victoria Bateman, Financial Services Director
John MacLean, ITS Director
Audit Committee

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City of Cape Coral

Fuel Management

Review

June, 2011
Cape Coral-Internal Audit Department
Lee County Clerk Internal Audit Department

June 20, 2011

Margaret Krym, Interim City Auditor

The Lee County Clerk of Courts Internal Audit Department, in accordance with the Inter-local agreement with the City of Cape Coral, Florida dated December 20, 2010, has participated in the audit of the City of Cape Coral's Fuel Management System and Controls. Senior Internal Auditor, Thomas Cianflone, CISA, CFE, CFSA, working in conjunction with you, conducted this audit. Attached is the final report resulting from this audit work.

We wish to thank the City of Cape Coral employees for their assistance and cooperation during the audit. We have attached a response to the audit findings from the City of Cape Coral City Manager.

This report will be posted to the Clerk of Courts website www.leeclerk.org under Internal Audit, Audit Reports.

Sincerely,



Chuck Short, Director
Internal Audit Department
Lee County Clerk of Courts

Thomas Cianflone
Senior Internal Auditor
Lee County Clerk of Courts

Cc: The Honorable Charlie Green, Clerk of Courts, Lee County, Florida

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Executive Summary

The City Council requested that the City Auditor's office review the processes controlling the acquisition, management and disbursement of fuel within the City.

In accordance with an Interlocal Agreement between the City of Cape Coral and the Lee County Clerk of Courts, the Cape Coral Interim City Auditor requested that the Clerk's Internal Audit Department perform an audit of the City's fuel acquisition, disbursement and management processes for the period of 2005 through 2010. The audit fieldwork began in mid-February 2011.

Audit Findings:

- The version of the Fuel Management System (FMS) software being used from 2005 to early 2011 is antiquated and has limitations. There is no software support agreement with the vendor for this FMS.
- The integrity of the FMS database is suspect. Information provided by the FMS system generated reports was found to be incomplete and inaccurate; in other cases the data was corrupt.
- Internal controls and management procedures for the receipt, dispersal and record keeping of fuel purchased, received and dispersed for City of Cape Coral vehicles and equipment were not adequate. In addition, internal controls relative to both application and physical security needed improvement.
- Management did not appear to review the data for completeness and accuracy nor did they use any system reports to manage fuel usage.
- Pumps required calibration adjustment and meter replacement parts were needed for five locations.
- Fuel transaction data from Fire Station #5 was not transferred into the FMS server from July 2010 to December 2010.
- The Financial Services Department (Finance) had no record of reconciliations of fuel purchases to allocated fuel costs. Financial accounting data shows a difference of \$31,693 between payments made for fuel purchases and fuel costs allocated to user departments from 2005 through 2010.
- Fuel tax returns filed with the State Department of Revenues were missing fuel invoices and therefore fuel purchases were under reported.
- We reviewed the concerns presented about inappropriate modifications and alterations being made to the database in the FMS system but we found no evidence to conclusively indicate that inappropriate changes were made.
- During the course of this engagement, no information has come to our attention indicating that fraud, illegal acts, or abuse may have occurred and we have found no evidence of fraud; however, because of weak controls we are not able to provide assurance that fuel was effectively safeguarded.

Recommendations:

We are aware that during the past six months, City Management has made a great deal of progress in addressing internal controls, deficiencies and reducing the risks associated with them. For example:

1. Implementation of internal controls addressing requisitioning, purchasing, delivery, receiving, invoice payment and cost allocation for fuel required for the City of Cape Coral operations.
2. Enhancement of software application security controls over personal identification numbers (PINs) and Dallas keys.
3. Development of a comprehensive City Administration Regulation addressing the City's policies and procedures governing the use and distribution of fuel by City vehicles and equipment.
4. Independent reconciliation of all transactions for fuel acquisition and usage.
5. Upgrading the FMS software and revalidating the FMS database to accurately reflect PINs, rings and vehicle and equipment inventory.
6. Creating a new FMS database to provide future fuel data integrity.
7. Monthly summary reports to the City Manager of the fuel purchases and cost allocation to user departments.
8. All fuel pumps have been inspected, tested, and recalibrated as needed. Four fuel pumps were found to require repair or replacement.

Items still requiring corrective action include:

- Enhancing physical security controls, including installation of surveillance cameras at the City Hall and Fleet fuel storage sites.
- Establishing a software support agreement with the vendor.
- Establishing a regular reconciliation process between data captured in the financial accounting software system (JDE) and the database maintained in FMS.

If the Fleet operation is to remain in-house, we recommend that the City consider acquiring an enterprise-level "Fleet Management System" rather than a "Fuel Management System." Besides fuel management, a Fleet Management System would encompass other core services provided by Fleet and could provide:

- Billing integration.
- Accident reporting for operators and accident information for risk management.
- Asset inventory (acquisition and disposal) and asset replacement inventory list.
- Vehicle /equipment replacement schedules.
- Parts inventory counts; cyclical inventory.
- Maintenance and fuel usage costs available to all departments.
- On-demand status of vehicle repairs.
- Scheduled email notifications for upcoming preventative maintenance.
- Notifications to partner vendors for stock reorders.
- Tracking technician time.
- Automated service appointment requests.
- Tank inventories.
- Warranty tracking.
- Full integration with other enterprise-level systems (e.g., finance, purchasing).
- Full integration with partner vendors.

In addition, a follow-up audit should be conducted within 6 months to 1 year to ensure that implemented controls are effective.

Background

In November 2010, a Fuel Management Study prepared by a consultant working for City Management was released detailing the City of Cape Coral's Fleet Fuel Management Processes for fiscal years 2006-2010. Its conclusions indicated that there were internal control weaknesses and poor management accountability over fuel (receiving, disbursement, tracking, and monitoring, as well as record-keeping and reconciliation). The Study also asserted that there were significant increases in the usage of fuel for that timeframe and it was reported by the Consultant that there was a discrepancy between the amount of fuel purchased and the amount of fuel used.

Data for this November 2010 Fuel Management Study was obtained from the SCI Distributors, LLC (SCI) FMS, the H.T.E. and J.D. Edwards (JDE) financial accounting applications, interviews with the Fleet Repair Center staff, supervisors, managers and the City's Lean Government office. Financial data was extracted for fiscal year 2010 only. Fuel data was extracted from the primary fuel database table within the SCI FMS application for fiscal years 2005-2010. There was no investigation made into the financial applications for the fiscal years 2005-2009.

In November 2010, SCI was engaged by the City Manager to conduct a forensic analysis of the FMS application and database relative to the City's purchase and use of fuel. Statistics presented in their report came from the primary fuel database table within the SCI FMS application. As part of the audit, we received a SCI Report that has not yet been made available to the City Council or the public. ([Exhibit 1](#))

We were advised by Fleet that, in 2006, upgrades to the FMS were requested to convert the existing FMS to wireless. The purchase was approved by Council at the January 30, 2006 meeting. However, the system did not meet Underwriters Laboratories (UL) criteria. There was a second request made in 2009 for an upgrade. No upgrade occurred.

The vendor has made several recommendations to upgrade the FMS application and contract a software support agreement. In addition, the vendor expressed concerns over the management of the FMS application.

Detail Report

Methodology

We interviewed the contracted consultant who prepared the Study and City staff from Fleet, Finance, ITS, Procurement and Lean Government departments. Our interviews also included a Forensic Computer Specialist with the Cape Coral Police Department (CCPD) and the SCI Chief Executive Officer (CEO) and Programming Support Specialist.

We utilized data provided to us from various City departments. We obtained data for our review from FMS and from the H.T.E. and JDE financial accounting applications. We utilized data from a copy of the FMS database, which we obtained in late January. Both the financial and fuel data were extracted for fiscal years 2005-2010. Financial information was extracted from H.T.E. (City's financial application for the fiscal years 2005 – 2009) and from JDE (for September 2009 and fiscal year 2010).

We did not examine the operation of the fuel cell or mobile trucks nor did we review the fire station sites.

We can state that we have had great difficulty obtaining any fuel data on which we could place reliance and although we will provide data in this report we do so with qualifications. Therefore, we recommend caution when using this data to draw conclusions.

We were recently advised that as of May 9th, the City is now fully using the JDE financial accounting application for fuel usage. The H.T.E. financial accounting application is no longer in use for any fuel transactions.

The audit was performed in accordance with general auditing standards for the professional practice of Internal Auditing. At the start of this audit engagement, it was stated that it was not our purpose to discover or search for fraud or abuse. However, compliance to the Government Auditing Standards requires that if during the course of an engagement, information comes to the auditor's attention indicating that fraud, illegal acts, or abuse may have occurred, then the auditor must extend his audit steps and procedures as necessary to determine whether fraud or abuse has likely occurred and if so, determine its effect on the results of the engagement. The purpose and scope of the audit are shown in [Exhibit 2](#).

Internal Controls

Internal control in its broader sense is defined as a process affected by an organization's directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories:

- Effectiveness and efficiency of operations
- Reliability of reporting
- Compliance with applicable rules, laws and regulations

We found that internal controls over the fuel acquisition, delivery, management and disbursement process were weak or non-existent.

For this audit, control areas reviewed included the following:

- Organization
- Fuel Management System
- Security
- Software Support Agreement
- Fuel Verification and Reconciliation Controls
- Compliance to Florida Department of Environmental Protection (FDEP) Regulations

Organizational Controls

Organizational control is about how well an organization is managed. The organizational structure of an entity provides assignment of authority and responsibility, empowerment and accountability and appropriate lines of reporting.

There were some weaknesses found.

A key position was vacant that would manage Fleet operations. While an interim manager was assigned to oversee Fleet, we were advised that he also had responsibilities for Facilities Management, Real Estate and Project Management and was a project manager by profession. Experienced Fleet supervision should ensure that internal controls are implemented and achieved.

Segregation of duties was not enforced. We found that a central person in Fleet had a majority of the key duties with full administrative rights to the FMS application, which included ordering and reconciling fuel deliveries, authorizing and recording fuel transactions, processing, and reviewing transactions. As a precaution to reduce the risk of error, waste, or wrongful acts and the risk of not detecting such problems, no single individual or team should control all key stages of a transaction or event. Best practices dictate that duties and responsibilities should be assigned systematically to a number of individuals to ensure that effective checks and balances exist. Rotation of employees may help ensure that one person does not deal with all the key aspects of transactions or events for an undue length of time.

Policies and procedures are designed to influence and determine all major decisions and actions, and all activities take place within the boundaries set by them. Procedures are the specific methods employed to express policies in action in day-to-day operations of the organization. We did not find definitive fuel management and usage policy and procedures.

Interviews revealed that more training could have been provided to ensure that Fleet employees had a better understanding of the fuel management system. All users of the FMS should be trained properly in using the system to its fullest. Managers need more focus on the decision-making and analysis features of the system while the administrative/operational staffs need more focus on how to perform their jobs. But all the users must be trained in its basics, overview of the system and its working, how an action by an employee triggers a host of events not only in the system but throughout the organization, how automation will help, what processes are changed and so on.

In an effort to correct these issues, City Management has implemented the following:

- Reorganization of Fleet operations and responsibility to Finance to ensure proper and independent checks and balances. All City-wide fuel management is now under the City Finance Department.
- An assignment of a Fleet Superintendent to oversee Fleet operations.
- Reassignment of individual duties and responsibilities for fuel ordering, delivery and payments to respective Finance and Fleet staff.
- Preparation and implementation of Administrative Regulation #24, issued May 26, 2011, to establish the policy and procedures governing the use and distribution of fuel by City vehicles and equipment. This administrative regulation covers all City facilities.

We were advised that training was recently provided by the software vendor for Fleet staff.

Fuel Management System (FMS) - Application/Database

The City utilizes the FMS purchased from SCI Distribution, LLC in 2001 and installed in 2002. The FMS system is written in SQL (With Access Drivers) and is a DB2 database structure.

The application was designed to capture pertinent data (date, time, gallons disbursed, user's personal identification number (PIN), vehicle or equipment number, mileage, hours, fuel type, etc.) to assist controlling fuel costs and usage. The version reviewed was V5.48.

The application technology is antiquated (both software and hardware) and has limitations. This version of FMS is not fully automated and relied on manual input. Users could enter misinformation (e.g., odometer readings) that could distort system data and respective management reports.

Evidence that data in FMS was not fully reliable was reported in the City's Take Home Vehicle Audit, published in March 2009. It was noted that the driver of a vehicle is required to enter the current mileage of the vehicle into FMS at the time of fueling and that Fleet Management

uploads the information into H.T.E. monthly from the FMS. The City auditor noted that the odometer readings on the reports were sometimes erratic and in one case this made it impossible to determine the actual mileage driven during the year. This also made miles per gallon calculations incorrect. Overall utilization reports for the fleet were based on miles driven and therefore may have been distorted. The City auditor recommended that Fleet Management periodically generate exception reports listing vehicles where miles per gallon fall outside a reasonable parameter. If erroneous entries are identified, the employees and their supervisors responsible for these vehicles should be notified to enforce compliance and accuracy. These conditions were not corrected.

It had been suggested that the FMS application version used by the City had a working mileage restriction logic feature. We were advised by the software vendor that the mileage restriction logic feature was not available on the existing FMS version due to constraints with the Fuel Shield devices at the pumps and that this feature was now available in a newer Wi-Fi version.

We were advised that there was a stoppage of the mileage calculator. The vendor stated that the job responsible to calculate the distance was working but it was not updating the mileage because a store procedure was missing. The vendor could not state whether the problem was caused by an upgrade or any alteration of coding.

In our review we found that historical transaction data is removed from the active database in FMS when a record is deleted. The method regularly employed by staff to deactivate a PIN or fuel ring number has been to delete it from the active database. This process of deletion caused all historical transaction data associated with either the PIN or fuel ring number to be moved from the primary Refuel Table (active database) to the Refuel Delete Table and thereby this data was excluded from system generated utilization reports. As a result system generated utilization reports reflected incomplete information and significantly distorted data regarding fuel in and fuel out.

Also, when the responsibility for the cost allocation for a vehicle is transferred to a new department within the FMS, all historical transaction data associated with that vehicle is transferred to the new department as well. Therefore FMS system generated historical usage data is unreliable.

We learned that the controller at Fire Station # 5 had not worked properly since July 2010. There was no data transferred to the server. In April 2011, ITS successfully imported July 2010 – December 2010 data from Fire Station #5 into the database. However, this transaction information was not included in the 2010 fuel records. Therefore, the fuel comparison may be skewed by this amount. We were advised that all fueling stations are functioning as required reporting all fuel transactions immediately to the FMS PC, and then to the database when polled by the server.

In January 2011, the City had a calibration check performed on 7 fueling locations. The results indicated that the pumps were under-dispensing for the most part and required calibration adjustment. In addition, meter replacement parts were needed for several locations. At the time of the audit fieldwork, the parts were not replaced.

ACL Analysis of Database - Inaccurate/Deleted Records/Gaps in Line Sequence Numbers

We performed an analysis of the fuel management system database using ACL audit software. Fuel data was downloaded from the FMS database via a direct ODBC¹ connection. A copy of the database was made and the ACL audit software was then used to analyze it for accuracy and completeness.

Our analysis results revealed that we could not provide reasonable assurance that the FMS database is fully reliable.

To analyze the FMS software program and database further, we requested assistance from the CCPD Forensic Computer Specialist. The Specialist is knowledgeable with SQL, has numerous Microsoft Certifications (Microsoft Certified Systems Administrator, Microsoft Certified Technology Specialist, and Microsoft Certified Database Administrator), and was a recipient of Microsoft's Most Valuable Professional (SQL) award.

The application utilizes multiple tables to store various types of data. A primary table is the Refuel Table, which contains the records of fuel transactions, both purchased additions and fuel disbursement. The application uses this table to generate management reports and historical usage reports. There is also a table called the Refuel Delete Table. This table captures and stores transactions that have been deleted from the Refuel Table. Data in this table is not included in the system generated management reports and historical usage reports.

Each time a transaction occurs, the system assigns a line item sequence number, which is unique to each transaction and provides a control to ensure total population of the database. We particularly discussed these line item sequence numbers with the CCPD Specialist because there were gaps in the number series in the Refuel Table even after the Refuel Delete Table transactions were considered.

He indicated that data flow interruptions may cause some transactions to fail when they are attempting to be recorded. When they fail, the sequence number assigned to them is "used" and dropped. They may (or may not) be re-entered and picked up as the next sequence number. Therefore, these gaps, which may appear to be deleted or missing records, could actually be dropped identifier numbers. However, the Specialist did agree that it is possible for a record to be deleted and it could be hidden by these gaps, but felt that it is highly unlikely.

The Specialist also believed that there was no evidence of any crime (unauthorized changes). The only users that could actually make an inappropriate change, resulting in a permanently deleted record, are those who have the necessary Microsoft SQL software, the knowledge to use it and have access to the software database and an understanding of the database. This combination of requirements would make any inappropriate change difficult.

¹ Short for *Open DataBase Connectivity*, a standard database access method developed by the SQL Access group. The goal of ODBC is to make it possible to access any data from any application, regardless of which database management system is handling the data.

We found data had been deleted from three tables, corrupted in two tables (Tank Deleted and Pump Deleted) and there were anomalies in the fuel table data. Some data in each year from FY 2006 through 2010 appeared to be missing or inaccurate.

Our database extract found the Refuel Deleted log to have 77,460 records. After reconstructing the fuel tables to combine the Refuel Deleted log records with the main Refuel Table (active database), we found that there were still a total of 48,993 gaps in the sequence identifier numbers that could not be found and may have been caused either by a missing transaction or by a dropped sequence identifier number. Databases have one field in each major table that automatically assigns a sequential number to each record as it is added to the table. This field ensures that all records that were entered into the table are listed and have not been lost or permanently deleted. The gaps in these tables mean that we cannot provide assurance that all transactions are accounted for.

Anomalies in Fuel Table

With the ACL Software, we were able to analyze Gallons per Card Number used. This reporting showed some anomalies in the fuel table after combining the main Refuel and Refuel Deleted tables. **Figure 1** shows the anomalies that appear in the combined Fuel Table. They were removed from the totals shown in Figure 3.

<i>Card Number</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2010</i>	<i>TOTAL</i>
4263	55,256				
465		11,452			
5928		75,605			
5928			9,385		
207400000000				2,224,199	
TOTAL	55,256	87,057	9,385	2,224,199	2,375,897

Figure 1

Security Controls

Security controls over the FMS and fuel dispensing were not adequate.

Prior to the start of the audit fieldwork, City Management, in an effort to tighten security controls on the FMS, performed their own audit on all active fuel user Personal Identification Numbers (PINs). A request via email was made on February 17th by the interim Fleet Superintendent to all City Departments to review their active employees requiring a PIN number for the purpose of fueling any vehicles during the normal performance of their duties and who need access to fuel on a daily/weekly basis. Any staff, requiring fuel on an occasional basis (i.e., less than once every 90 days), were omitted. We were advised by City Management that this was accomplished.

Prior to ITS assuming responsibility of the FMS Administrator functions in November 2010 (e.g., network and security administration), the FMS application was not an Enterprise Group application. The back-up retention policy for FMS was only 2 months. ITS defines various applications to be in different levels of groupings, having specific protocols policies and procedures that are assigned to each grouping. One grouping is called the Enterprise Group. The Enterprise Group mandates that back-ups are retained for a year. Now that it has become an Enterprise Group application, back-up retention requirements have changed to one-year.

As a result of a telephone conversation with the consultant, it was revealed that a software product, WebEx, was installed on the FMS computer. WebEx is used for web conferencing as well as remote administration. Although we did not physically confirm the installation, we asked ITS if they installed this software remote administration. We also inquired if there was any way to check who the users were. ITS was not aware of this software being loaded, but according to Fleet, it had been several years since it was last used. ITS quickly removed the software, from the FMS PC.

Applications often have different privilege levels for different groups of users. The method by which a user is identified for the specific privilege levels applicable to him or her is known as authorization. In FMS V5.48, different user levels were not created nor were privileges assigned on a need-to-have basis. There were many assignments as a super-user, where application users had complete administrative rights (add/change/delete) over the data. In addition, while activity was entered into an audit table, there was no periodic review of the activity to ensure transactions were not inadvertently or deliberately modified or deleted.

Fuel Dallas keys² were not accurately accounted for. We were advised that there were 70 keys previously assigned. In addition, the use of fuel logs recording distribution of fuel from Fuel Dallas Keys was not required by all departments.

During interviews we were told that some vehicles and equipment were found to contain missing or unfastened fuel rings. We did not examine vehicles for missing or unfastened rings.

We found that physical security controls could be enhanced. While there were fences and gates around the two main fueling faculties, the gates were unlocked and there were no security cameras evident. Physical access should be limited to authorized individuals who are accountable for the custody and/or use of the resources. Accountability for custody is evidenced by the existence of receipts, inventories, or other records assigning custody and recording the transfer of custody. Restricting access to resources reduces the risk of unauthorized use or loss. The degree of restriction depends on the vulnerability of the resource and the perceived risk of loss or improper use, and should be periodically assessed. When determining an asset's vulnerability, its cost, portability and exchangeability should be considered. We were advised that this area is being actively pursued by the City.

² The iButton is a computer chip enclosed in a 16mm thick stainless steel can. Because of this unique and durable container, up-to-date information can travel with a person or object anywhere they go. The steel iButton can be mounted virtually anywhere because it is rugged enough to withstand harsh environments, indoors or outdoors. It is small and portable enough to attach to a key fob, ring, watch, or other personal items, and be used daily for applications such as access control to buildings and computers, asset management, and various data logging tasks.

In an effort to correct security weaknesses, the City ITS department has also implemented the following:

- We have learned that the City has purchased a newer version of the FMS application to ensure better security controls. We have not investigated the new security features at this time.
- Administrative Regulation #24, issued May 26, 2011, centralizes City-wide fuel management under Finance and now addresses City policy on controls and accountability of rings, Dallas keys, PINs, etc.
- The PIN database has been validated to include only active authorized employees.
- The City ITS department had removed all users and reassigned users with proper privileges (e.g., Administrator Group, Reporting, and Power Users).
- As per Fleet, the number of Fuel Dallas keys has been reduced from 70 to 28.
- City Management has advised that all vehicles have been inspected and fuel rings refastened or replaced where needed. The equipment inspection and validation process is pending. We did not examine vehicles for missing or unfastened rings.
- We were advised on June 1st that the installation of security cameras is currently being discussed.

Software Support Agreement and Service Level Agreement (SLA)

The City did not have a software support agreement with the vendor for FMS. A Software Support (Maintenance) Agreement may cover customers licensing software and buying maintenance services, and usually explains services, revisions and upgrades, corrections, personnel, key man requirements, deliverables, software license grant, license type, security measures, escrow agent, escrow agreement, escrow release, deadlines, ownership, title, risk of loss, acceptance, fees, maintenance services fees, invoices and taxes, records and audits, warranties, disclaimers, limitation of liability, indemnification, term and termination, force majeure, publicity, etc.

ITS has its own service level agreement (#IT-SLA-07) for FMS, effective March 10, 2011. This SLA is an agreement between ITS and authorized representatives from the user departments. The SLA documents services that ITS must furnish in order to support the various business applications along with specific mutually agreed performance levels for the services provided. The purpose of the SLA is to ensure that the proper elements and commitment are in place to provide optimal data processing services for the business functions. ITS will publish performance metrics against SLA targets on a quarterly basis. The SLA will be reviewed formally on an annual basis.

Fuel Verification and Reconciliation Controls

We attempted to reconcile the fuel deliveries to the H.T.E. financial application by obtaining bills of lading (BOL) and fuel delivery invoices to verify that the fuel delivery matched what was entered into FMS and ultimately H.T.E. We learned that there were weak or non-existent controls over the ordering, receiving and reconciliation of fuel purchases. For the City Hall and Fleet fueling depots, bills of lading were not received to ensure that the delivery amount (gallons) was in agreement with what was ordered or that the delivery price per gallon met the contract price.

In addition, there was no validation that the reported fuel delivered was actually the fuel received. Fleet did not perform industry-accepted measurements (e.g., stick readings) of the tank storage before and after bulk deliveries.

Approvals for payment were based upon the invoice printed 3 business days after delivery. The gallon amount on the invoice was used as the delivery amount for entry into the FMS and accounting software systems.

While the fuel management system can provide various reports for evaluating trends and the reasonableness of fuel consumption and usage, management did not use them to oversee that transaction data was complete and accurate.

Transactions and significant events should be verified before and after processing (e.g. when fuel is delivered, the number of gallons supplied is verified with the number of gallons ordered). Afterwards, the number of gallons invoiced is verified with the number of gallons received. The inventory is verified as well by performing measurements. Records should be reconciled with the appropriate documents on a regular basis (e.g. the payments are reconciled with the invoice, the cost per gallon is reconciled to the contract cost per gallon).

The City Manager and Finance have since implemented controls to ensure proper ordering, receiving, delivery, reconciliations and payments ([Exhibit 3](#)).

- Verification of daily fuel prices from a reliable fuel index (TransMontaigne) before ordering fuel.
- Bills of lading are now received as well as sign-offs by Fleet staff and the fuel supplier.
- Deliveries to the smaller City tanks are now made in-house and no longer by the supplier.
- Independent reconciliation of invoices by Finance before payment.
- The installation of auto-leveling sensor devices, on the four large tanks at City Hall and Fleet fueling facilities to automate the measurement process.
- Discussion and investigation into the need for an automated and system generated report that would provide summary level information of database changes that occurred

within the previous month; to validate database accuracy and alert to any undesirable (tampering, etc.) changes that may have occurred.

In addition, Finance is currently verifying that the cost of fuel per gallon was correctly charged by the fuel supplier as specified per the State contract.

We have been told that currently fuel usage or cost allocation data is now being uploaded from FMS directly to JDE ensuring that FMS and JDE data will be in agreement. Fuel purchases, however, are still entered into JDE and subsequently also entered into FMS. This presents a possibility that the two databases may not agree. Management is considering a procedure, which has not been finalized, for establishing a regular reconciliation process between data captured in the financial accounting software system (JDE) and the data maintained in the FMS database.

FDEP Compliance

Lee County is responsible for inspections to the Cape Coral storage tanks over 550 gallons (above-ground storage tanks or ASTs). For the Cape, the main storage tanks at City Hall and Fleet would be applicable to the criteria. Both store 12,000 gallons of fuel (7,000 unleaded and 5,000 diesel). Lee County did not recall any violations for any of the Cape locations where they have regulated tanks.

The State has a website called OCULUS (<http://dwmedms.dep.state.fl.us/>) where verifications could be made for respective facilities. We downloaded and reviewed reports that appeared relevant. Reports indicate that City of Cape Coral ASTs were in compliance.

Variance between Gallons of Fuel In and Fuel Out

Since the FMS database was the only source of fuel data by the gallon, we attempted to determine fuel gallon usage. We recalculated the fuel transactions data by combining the Refuel Table and the Refuel Deleted tables and adjusting for anomalies. While our ACL results showed increases and decreases in fuel deliveries and usage, we found that the differences between fuel in and fuel out were less than what was previously reported.

Data Recalculated

Figure 2 shows data from the “Summary by Fuel Types” table presented in the SCI Report (This data only includes the Refuel Table and does not consider the historical transactions inadvertently moved to the Refuel Delete Table.)

<i>In Gallons</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>Total</i>
Fuel In	480,323	613,904	772,701	758,438	751,236	603,917	3,980,519
Fuel Out	247,541	444,272	516,394	587,328	713,243	606,067	3,114,845
Difference	232,782	169,632	256,307	171,110	37,993	-2,150	865,674

Figure 2

Figure 3 shows total gallons from the database using the Refuel Table, the Refuel Deleted tables and adjusting for anomalies. See (Exhibit 4) for fuel out details.

<i>In gallons</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>Total</i>
Fuel In	543,815	705,077	772,704	796,986	759,575	760,332	4,338,489
Fuel Out	506,924	676,858	813,617	766,000	749,420	851,216	4,364,035
Difference	36,891	28,219	-40,913	30,986	10,155	-90,884	-25,546

Figure 3

Our comparison showed that the recombined fuel in and fuel out numbers in FMS were relatively close in total.

Fuel Purchased vs. Fuel Costs Allocated – Financial Accounting Systems Data

We also, with great effort, gathered data from the financial reporting applications used by the City and found that the difference between payments made for fuel (purchases) and fuel cost allocated to user departments was \$31,693 (**Figure 4**).

	Total Funds Paid for Fuel	Total Cost Expensed	Variance Fuel Paid/Fuel Used
2005	\$1,324,739	\$1,326,005	-\$1,266
2006	\$1,768,333	\$1,770,486	-\$2,153
2007	\$1,888,679	\$1,871,681	\$16,998
2008	\$2,869,142	\$2,775,134	\$94,008
2009	\$1,745,009	\$1,830,137	-\$85,128
2010	\$2,102,162	\$2,092,928	\$9,234
Totals	\$11,698,064	\$11,666,371	\$31,693

Figure 4

To perform this comparison, we extracted fuel data from both the JDE and H.T.E. financial accounting applications utilized by the City. We must qualify that there are certain disclaimers to the completeness and accuracy of the data extracted and these should be considered before any reliance is placed on this information. The Fuel Usage data from the financial systems is gathered from the FMS database. The Fuel Purchase information is driven by actual payments made to vendors.

- Data from the FMS application may not be complete due to aforementioned missing identifier numbers, deletions, and/or anomalies.
- Fuel allocations to departments may not be accurate because FMS software allows historical data to be moved with vehicle transfers.
- Fuel credit card purchases were being journalized and data associated with these purchases could not be easily retrieved. We were advised by Finance that, prior to this year, Wright Express fuel expenses (credit card purchases) were being journalized. Wright Express was set up to debit the City's bank account directly for its invoices and the Accountant would process the transaction through a Journal Entry. There was no method to run a report to get all monies paid to Wright Express. The data we used was extracted from the department expense account details.

A more complete breakdown of this data may be seen in [Exhibit 5](#).

Fuel Payments

SMF Invoices

To reconcile fuel deliveries, we requested fuel invoices for the period 2005-2010. Finance readily provided the fuel invoices for FY 2007-2010, which were attached to the fuel tax returns used to report fuel tax to the State Division of Revenue. FY 2005 invoices were no longer retained (retention requirement expired) and FY 2006 invoices were not ready available (stored at an external warehouse).

Our review found that fuel invoices appeared to be missing from the Fuel Tax Return records, based upon past use. For example, deliveries (gallons) in November 2006, August 2007 and November 2009 appeared significantly less than the same months in other years.

Further investigation proved that these invoices were indeed missing from the Fuel Tax Return but they were present and accounted for in the H.T.E. financial application and were in the General Ledger. We were advised by Finance that in the past they were not reconciling the Fuel Tax Return invoices to the General Ledger Fuel purchase transactions. This means that there was no population control over what was reported on the Fuel Tax Returns. Finance has indicated that they have changed their process and are now reconciling these invoices.

City Vehicle Inventories

Vehicle Inventories

It was mentioned in the Fuel Management Study that the annual number of insured vehicles in the City's fleet has been declining since 2007 while the transportation fuel gallons have increased.

We obtained lists of the insured vehicles from the City's Risk Manager for the period 2006 – 2010. Because trailers were included in the listings, we compiled a summary of insured fuel-dependent vehicles ([Exhibit 6](#)). Based on the number of insured vehicles, we found a significant increase in vehicles in FY 2007 and 2008, which would contribute to increased fuel usage.

City staff suggested that possible reasons for the increase in vehicles were:

- New fire stations being constructed.
- Three new parks were opened and additional grounds maintenance staff were added along with the vehicles to transport their equipment.
- City staff was still servicing single family building permits from FY 2004-2006 permits into FY 2008.
- The City's utility system grew because of the utility extensions, which created the need for additional staff and vehicles to service the lift stations, lines, and new facilities.

Figure 5 shows the correlation between the increase/decrease in full time positions (FTPs), vehicles and the total dollar cost paid for fuel. The overall trend of FTPs is down while the overall trend in the number of vehicles and the dollar cost paid for fuel is up. Spikes in the dollar cost paid for fuel in 2008 and 2010 are partly due to increases in the cost per gallon during those periods.



Figure 5

SCI Study

SCI indicated that they conducted the study based upon the following:

- the fuel management system installed at the City,
- data from the system,
- SCI's knowledge of the industry, and
- specifically, the operation of the fuel system in the City.

SCI emphasized that their findings were based only upon facts from the system information and ongoing support. SCI did not determine accountability or responsibility for any parties in or out of the City. They attempted to provide a data analysis of the fuel usage. The collected fuel transaction data presented was from March 2005 to October 2010. SCI also indicated that they did not recalculate Refuel Table transactions by re-entering data from the Refuel Delete Table to achieve their results.

SCI noted that all Fuel In records were based on manual entries and Fuel Out records were from the FMS fuel controllers and that the Fuel Out records may be modified by any authorized staff after a transaction was complete.

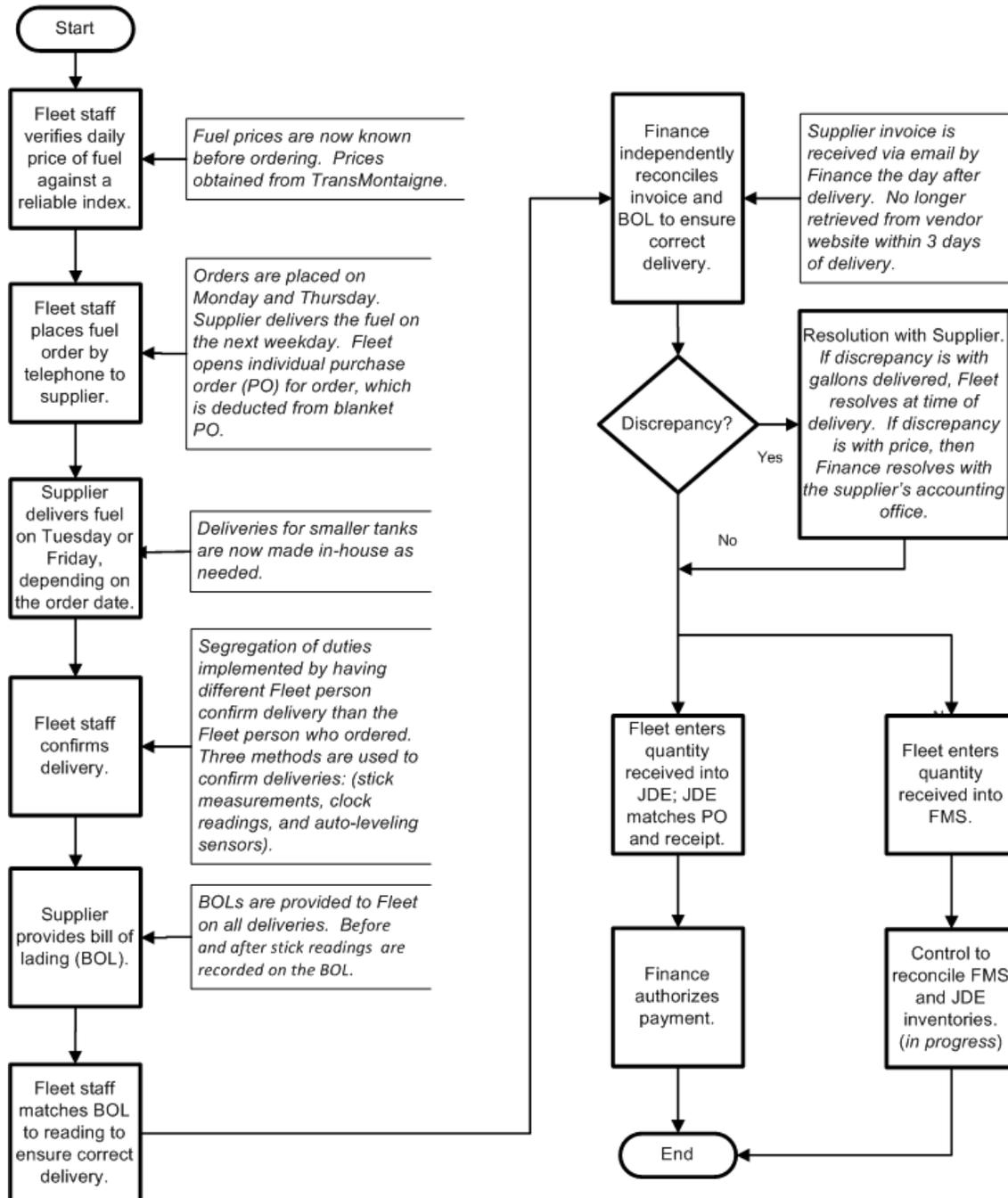
Audit Purpose and Scope

The purpose of this engagement is to provide assurance to the Council and City Management that the data asserted in the Fuel Management Study presented to Council on November 15, 2010, was based on sufficient and reliable evidence and to evaluate further the control and governance processes over the acquisition, management, and disbursement of fuel within the City.

The scope of the audit included:

- Use of the Audit Command Language (ACL) software to analyze the fuel system data base for accuracy and completeness
- Review of the procedures and records for deliveries and distribution of fuel
- Review of City of Cape Coral financial records for fuel receipt, payment and allocation of cost
- Review of controls for separation of duties in processing fuel transactions
- Review of physical inventory records of equipment requiring fuel
- Review of records for fuel volume usage and mileage per vehicle
- Review of records of personnel issued access codes or keys to fuel pumps
- Review of security controls
- Interview a sample of employees with authorized access to fuel pumps
- Review of operations for compliance with City policies and procedures

City Of Cape Coral Fleet Maintenance
 Fuel Management Process - Order/Delivery/Payment
 Effective May 2011



**Table Showing Combined Refuel and Refuel Delete Tables
(In Gallons)**

Pump	2005	2006	2007	2008	2009	2010
CHD1	22,500	28,680	36,548	39,249	10,466	7,554
CHD2	13,365	24,335	29,875	26,001	43,529	46,068
CHP1	136,790	140,838	119,265	207,851	206,716	127,829
CHP2	148,022	252,400	312,849	189,301	182,078	251,117
FLD1	19,257	30,722	38,753	36,803	27,118	61,154
FLD2	21,116	27,834	19,418	33,955	54,168	19,550
FLP1	60,923	73,586	75,798	111,959	93,240	62,796
FLP2	48,136	70,683	77,293	58,143	62,844	101,174
Mobil T	59,992	89,294	85,292	27,414	31,539	145,507
SERVICES	17,612	5,538	9,886	17,129	14,028	8,556
STATION 1	4,983	5,278	3,578	3,028	3,981	5,143
STATION 5	3,779	7,420	7,044	8,669	7,982	*2,227,167
STATION 6	3,767	4,547	3,419	3,638	4,525	3,798
STATION 7	1,937	2,760	3,986	2,859	3,395	3,623
STATION 9	0	0	0	0	3,760	4,379
Totals	562,180	763,915	823,002	765,999	749,368	3,075,415

*Fire Station #5 had hardware problems during FY 2010. This anomaly, along with some others, was found during the ACL analysis. It was removed for the final results below.

**Table Showing Combined Refuel and Refuel Delete Tables less Anomalies
(In Gallons)**

	2005	2006	2007	2008	2009	2010
Refuel	246,525.62	443,221.00	515,852.80	584,268.70	707,678.40	725,280.30
Refuel Deleted	315,653.96	320,693.60	307,149.70	181,730.94	41,741.70	2,350,134.70
Subtotals	562,179.58	763,914.60	823,002.50	765,999.64	749,420.10	3,075,415.00
Anomalies	-55,255.60	-87,056.70	-9,385.30			-2,224,199.40
Totals	506,923.98	676,857.90	813,617.20	765,999.64	749,420.10	851,215.60

Fuel In and Fuel Out

	Fiscal Years						Cumulative 2005 -2010
	2005	2006	2007	2008	2009	2,010	
Payments Made for Fuel:							
Source of data:	Vendor Activity Listing Reports from accounting software database - H.T.E.			From accounting software database H.T.E. and JDE		From accounting software database - JDE	
SMF	\$1,301,506	\$1,720,669	\$1,835,619	\$2,739,406	\$1,666,885	\$2,074,577	\$11,338,662
Evans	-	-	-	\$63,822	\$56,019	-	\$119,841
Wright Express	\$23,233	\$47,664	\$53,060	\$65,914	\$22,105	\$27,585	\$239,561
Total Payments Made for Fuel	\$1,324,739	\$1,768,333	\$1,888,679	\$2,869,142	\$1,745,009	\$2,102,162	\$11,698,064

Fuel Charged to Departments:							
Source of data:	Selected General Ledger Reports for ALL accounts across all funds from accounting software database - H.T.E.				From accounting software database - JDE		
Unleaded expense allocated to all departments and funds.	\$955,136	\$1,265,913	\$1,389,009	\$1,994,465	\$1,277,962	\$1,502,447	\$8,384,932
Diesel and Dyed Diesel expense allocated to all departments and funds.	\$370,869	\$504,573	\$482,672	\$780,669	\$552,175	\$590,481	\$3,281,439
Total Cost Expended Throughout the City (all departments/all funds)	\$1,326,005	\$1,770,486	\$1,871,681	\$2,775,134	\$1,830,137	\$2,092,928	\$11,666,371
Variance Between Payments Made for Fuel and Fuel Charged to Departments	(\$1,266)	(\$2,153)	\$16,998	\$94,008	(\$85,128)	\$9,234	\$31,693

Note: Payments made to Wright Express were not verified. Purchases made from Wright Express via charge cards. These purchases were made in the police and fire departments.

Vehicle Inventories
Source: Listing of insured vehicles

Fiscal Year	Fire Trucks	Police Cars	Light Trucks	Medium Trucks	Heavy Trucks	20 Pass. Bus	Private Passenger	Motor -cycle	Garbage Truck	Total
2005-06	18	213	251	30	51	6	89	0	1	659
2006-07	24	273	409	38	65	6	43	2	1	861
2007-08	34	348	424	104	86	10	56	7	0	1069
2008-09	30	315	354	119	82	9	39	6	0	954
2009-10	26	299	331	110	78	9	38	11	0	902

CITY OF CAPE CORAL
CITY MANAGER'S OFFICE
MEMORANDUM

TO: Margaret Krym, Interim City Auditor
FROM: Gary King, City Manager 
DATE: June 16, 2011
SUBJECT: Management Response - Audit 2011.07 Fuel Management Review

City Administration concurs with the Audit Findings of the City's fuel management system and process. The Audit reinforces the observations and conclusions that we reported on November 13, as part of our internal review that was conducted in the fall of 2010. Administration agrees that the City's fuel management policies, practices and procedures were chronically inadequate to administer our fuel resources, especially given the significant value and wide use of this asset.

As acknowledged in the Audit Recommendations, we have already addressed many of the control weaknesses and risks that were present in our management program, by implementing appropriate management controls and information system improvements, as well as by providing proper separation of duties. We also have an action plan in progress that will address the remaining open items in the near future. Included in that plan is an initiative to evaluate the potential replacement of the fuel management system with an enterprise-level fleet management system, should the city continue to provide fleet maintenance as an internal service.

GK