

**COMMUNICATION TO THE COMMON COUNCIL**

TO: The Common Council

DATE: April 9, 2014

FROM: The Department of Audit & Control

SUBJECT: Audit Report on Fuel Consumption

Attached is the Audit Report on Fuel Consumption, as well as the response from the Division of Purchase.

DEPARTMENT HEAD: Mark J.F. Schroeder

TITLE: Comptroller

SIGNATURE:

A handwritten signature in black ink, reading "Mark J.F. Schroeder", is written over a horizontal line. The signature is cursive and includes a large checkmark at the end.

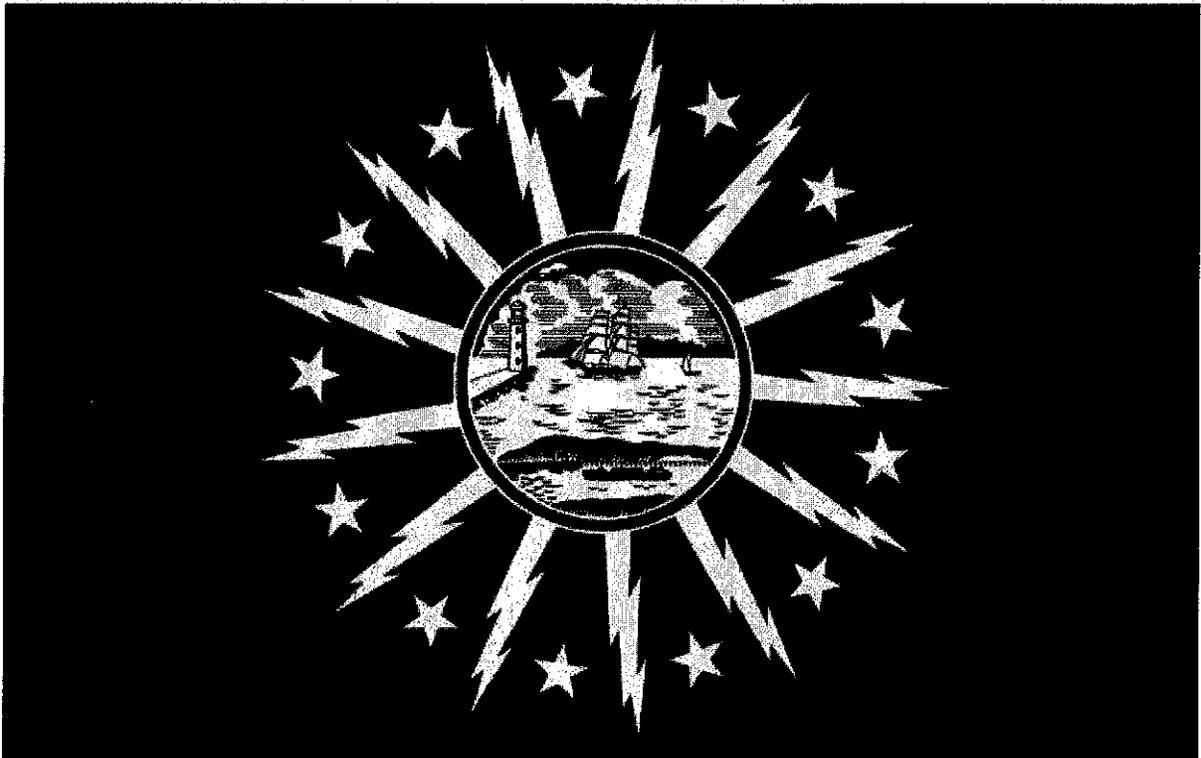
CITY OF BUFFALO  
DEPARTMENT OF AUDIT AND CONTROL

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AUDIT REPORT ON FUEL  
CONSUMPTION

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MARK J.F. SCHROEDER  
COMPTROLLER



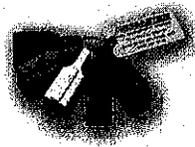
ANNE FORTI-SCIARRINO  
FIRST DEPUTY COMPTROLLER

KEVIN J. KAUFMAN, CPA  
CITY AUDITOR  
FEBRUARY 2014

**Background**

The City of Buffalo (the “City”) purchases diesel and unleaded fuel for City vehicles and equipment. The fuel is purchased using a pricing contract negotiated by New York State. Fuel is delivered into City owned tanks at 14 locations. The City uses FuelMaster technology to track fuel dispensed at the tank locations. There are over 1,800 authorized users and approximately 1,200 authorized vehicles and pieces of equipment. Authorized users include City of Buffalo employees and other entities that purchase fuel from the City, including the U.S. Marshals, Buffalo Zoo, Buffalo Civic Auto Ramp, Buffalo Olmsted Parks Conservancy, Buffalo Water Board and Solid Waste Enterprise Fund. Fuel consumption during calendar year 2012 was 745,000 unleaded gallons and 398,000 diesel gallons at a cost of \$3.5 million.

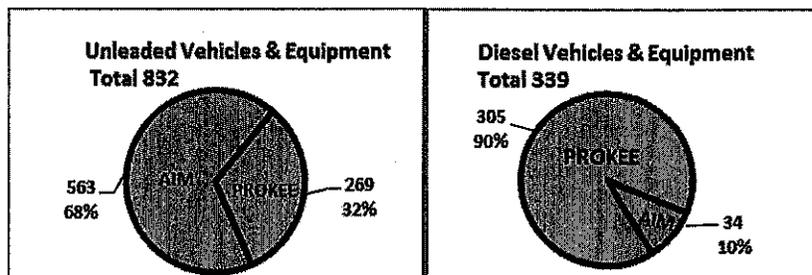
The City of Buffalo has used FuelMaster technology to monitor fuel usage by the City fleet for over ten years. The system is designed to prevent dispensing of fuel by unauthorized users.



A key called a Prokee is assigned to an authorized vehicle. The key is inserted into the FuelMaster Fuel Management System which is located on the Fuel Island. Once the key is inserted the person pumping must enter their unique user ID.

This combination, a valid Prokee and a valid user ID, activates the fuel pump. The transaction information (Vehicle ID, User, Tank Location, Date, Time, Type of Fuel, Amount of Fuel Dispensed, Agency, Odometer) is recorded in FuelMaster and is subsequently downloaded into the FuelMaster database. Prokees are also used to track fuel dispensed into small equipment. The Prokee can be programmed to limit the amount of fuel pumped per day and per transaction. The limits are customized to the equipment.

In the spring and summer of 2013 the City deployed new FuelMaster technology. A Majority of Prokees were replaced with Automotive Information Module Units (“AIM”). The AIM Unit connects to the vehicle’s onboard diagnostic computer and transmits vehicle data through a radio frequency to the Fuel Management Unit (“FMU”). The AIM Unit eliminates many of the manual steps needed with the Prokee technology. Vehicle ID and mileage are now transmitted via radio frequency to the FMU. The AIM technology eliminates manual entry errors and increases internal controls over the fuel. It is assumed the potential risk of fuel misappropriation is greatest for unleaded fuel due to the greater potential for use in personal vehicles. The higher percentage of AIM units deployed in unleaded vehicles has strengthened controls over the City’s fuel consumption.



## **Audit Objectives**

The overall objectives of the audit are to determine whether the City has adequate controls to safeguard fuel purchased and assure fuel is used only in authorized vehicles and equipment.

To achieve the objectives the following tests were performed:

1. Determine if gallons of fuel pumped are consistent with tank capacity of vehicle.
2. Determine if odometer readings recorded in the FuelMaster database are consistent with fuel consumption.
3. Verify if authorized vehicles in the FuelMaster System are city assets.
4. Determine if only active employees have access to fuel.
5. Compare quantity of fuel purchased with fuel consumed.
6. Review FuelMaster Agency Reports for Calendar Year 2012 for accuracy and reasonability.
7. Determine if the City is utilizing the New York State contract prices for fuel purchases.
8. Determine if the City is in compliance with the fuel contract.
9. Identify organizations which fuel vehicles and equipment at City tank locations and determine if the City is reimbursed for the cost of fuel consumed.

## **Audit Findings**

### **1. Gallons Pumped related to Vehicle Fuel Tank Capacity**

50%, or 25 of 50 vehicles in the test sample had instances where the amount of fuel pumped into the vehicle exceeded the fuel tank capacity of the vehicle. These transactions equate to 3.7% or 5,625 gallons of total transactions tested. All of the exception transactions occurred before the installation of the AIM units. There were no instances of a vehicle equipped with an AIM unit pumping fuel in excess of tank capacity.

The Purchasing Department theorized these anomalies represent instances where two vehicles fueled using the same Prokee due to convenience or temporary misplacement of the assigned Prokee. There is no control over the vehicle receiving fuel with the Prokee; the only control is that the user is authorized.

The internal controls associated with the Prokee system are extremely weak, as unauthorized vehicles could receive fuel without being detected.

### **2. Data Anomalies related to Odometer Readings**

The Prokee user must manually enter odometer data into the FMU each time fuel is dispensed. The odometer data was inconsistent on all Prokee vehicles tested. The odometer readings were not sequential. The erroneous data may reflect a Prokee used on a vehicle other than the assigned vehicle. If the user enters in the odometer reading of Vehicle Y using a Prokee for Vehicle X, the data is flawed. Inaccurate odometer entries skew miles per gallon data,

eliminating the usefulness of this measure. When the AIM Unit was installed, all odometer readings were sequential, thus increasing accuracy and reliability.

### 3. Authorized Vehicles in FuelMaster

A sample of 65 vehicles and pieces of equipment with FuelMaster IDs were cross referenced to the City's fixed asset ledger. 55 vehicles were listed as City assets. One piece of equipment had a value too low to be listed as a fixed asset. The remaining 9 vehicles and equipment were owned by third party customers who purchase fuel from the City. It appears vehicles authorized in FuelMaster are City owned assets or other vehicles properly authorized to receive fuel.

### 4. Fueling by Authorized Personnel

The Purchasing Division provided the following description of internal control over authorized users: *"New users to the FuelMaster System are approved by the appropriate department head and forwarded to the Director of Purchase for review and approval to be added to the FuelMaster System. An authorized user number is assigned to each person who is required to fuel a City vehicle. On a monthly basis, the MIS Department sends to the Division of Purchase a listing of terminated/retired employees and also employees who have changed departments. The FuelMaster authorized listing is updated and terminated/retired employees are removed."*

User IDs in the FuelMaster database were compared to employment status records. Any transactions where the individual pumped fuel beyond their official inactive date were identified. Only three of approximately 300,000 transactions occurred where fuel was pumped by a person who should have been denied access, resulting in fuel misappropriations of 21 gallons or 0.0005% of total fuel. Aside from this statistically insignificant amount, it appears that only proper personnel are dispensing fuel.

### 5. Fuel Purchases versus Consumption

Noco Energy Corporation confirmed delivery of 1,142,512 gallons of fuel to the City of Buffalo during 2012. This amount agreed with City financial records. The FuelMaster Database recorded 1,154,921 gallons consumed during 2012.

A comparison showed approximately 12,000 fewer gallons purchased than consumed. The fuel tanks have a capacity of 44,000 gallons. An acceptable variance is less than or equal to the fuel tank capacity. The variance of 12,000 gallons is within a reasonable tolerance. The chart below depicts this comparison.

2012 Gallons Purchased and Consumed				
Product	Gallons Purchased	Gallons Consumed	Variance Gallons	%
Diesel	397,639	406,133	(8,494)	-2%
Unleaded	744,873	748,788	(3,915)	-1%
<b>Total</b>	<b>1,142,512</b>	<b>1,154,921</b>	<b>(12,409)</b>	<b>-1%</b>

## **6. FuelMaster Agency/Department Reporting**

There are a number of management reports available which summarize FuelMaster data. A Detailed Monthly Transaction Report listing gallons of fuel consumed by individual and vehicle is sent to management level employees within each division/department for review. If management notices any abnormal activity they can request more information from the Director of Purchasing and inquire of the individual that has the abnormal activity. Once the report is given to the reviewer no further action is required, such as a sign off verifying receipt and review of report.

## **7. New York State Contract Pricing**

The City purchases fuel through NOCO Energy Corporation based on New York State Contract pricing. The price per gallon on NOCO invoices was compared to the New York State published price based on the invoice/delivery date of the fuel. The fuel price was obtained from the New York State Office of General Services website:

<http://www.ogs.ny.gov/asp/purchase/snt/fuels/index.asp>. The invoice price per gallon matched the published price for the entire test sample.

## **8. Compliance with Contract Terms**

New York State Gasoline Contract PC65522 was awarded to NOCO Energy Corp. for the contract term effective September 2011 through September 2013. The contract states "*Agencies should ... make certain that receiving personnel are available at time of delivery*" page 22. The Director of Purchasing indicated there is no physical observation of fuel deliveries. However, he indicated "*The Division of Purchase verifies the FuelMaster starting and end of day volumes along with the deliveries via a 10 day running reconciliation report required by the Department of Environmental Conservation. All NOCO delivery tickets are computer generated delivery tickets from onboard metering equipment. The metering equipment installed on each delivery truck is calibrated to the NYS Weights and Measures annually with certification. The delivery tickets are cross checked to the invoices submitted to ensure the pricing and volumes match.*"

## **9. Gas Sales to Third Parties and Enterprise Funds**

The City provides fuel to the Buffalo Zoo, Police Athletic League, Buffalo Olmsted Parks Conservancy ("Olmsted"), Buffalo Civic Auto Ramps, Buffalo Water Board, The Solid Waste Enterprise Fund and the U.S. Marshals.

The Buffalo Zoo and the U.S. Marshals have paid for all gallons consumed. Police Athletic League was not billed for 161 gallons of fuel consumed. Olmsted does not pay for fuel as part of an agreement to operate and maintain several City parks.

The Water Board and the Buffalo Civic Auto Ramps are invoiced for fuel consumed on a monthly basis. The Solid Waste Enterprise Fund is charged through a journal entry on a quarterly basis. The journal entry is based on gallons consumed by vehicles and equipment assigned to the Solid Waste Enterprise Fund. The journal entry has supporting documentation

scanned into the financial software as a record. The documentation lists the monthly fuel expense but does not include the number of gallons.

### **Audit Recommendations**

#### **1. AIM Technology Deployment**

The Prokee technology offers limited internal control over fuel consumption and allows for data input errors. The Prokees reduce the ability to use the FuelMaster System to its full capability. It is recommended that the City deploy the AIM technology on all vehicles due to significant improvement in internal control offered by this technology. Planned conversions to AIM units were reduced on large equipment due to interference with radio transmission between the AIM Unit on heavy metal vehicles and the Fuel Management Unit on the pump. The City should work with the vendor to explore possible solutions to overcome this obstacle to full deployment.

#### **2. FuelMaster Odometer Controls**

There are still a large number of vehicles and equipment which use a Prokee. FuelMaster has a control requiring input of an accurate odometer reading to dispense fuel. The reading must be sequentially higher than the previous reading to turn the pump on. This control is not in use. It is recommended that this control be used to increase accuracy of manually entered odometer readings. This also should reduce instances where fuel is pumped into a vehicle not associated with the Prokee being used.

#### **3. Fuel Receiving Recommendation**

City of Buffalo personnel should be present when fuel is delivered into the tanks as per contract. Delivery slips should be compared to the tank readings to check accuracy of delivery amounts. The individual who checks the accuracy should sign the receiving slip verifying fuel delivered and should then record receipt of fuel directly in the financial software ("MUNIS"). By acknowledging receipt within MUNIS, the internal control of the 3-way match among the purchase order, the invoice, and receipt of goods is evident, and payment can be made.

#### **4. Fuel Master Report Recommendation**

The Detailed Monthly Transaction Reports provided to management should be given to an appropriate supervisory level employee who is familiar with the users and with the operation to assess whether the amount of fuel consumed is reasonable. The supervisor should determine if dates fuel pumped and equipment used are consistent with the individual's work schedule and assignments. There should be signature verification each month by the supervisor acknowledging the review and reasonability of the data in the report. Any abnormalities should be documented, investigated and results of any investigation should also be documented. The acknowledgment and results of any investigation should be provided to the Director of Purchasing.

Annually each user should certify that all fuel consumed was used only for City business. Additionally, an annual reconciliation of fuel purchase and fuel consumed should be performed to verify all gallons of fuel are accounted for.

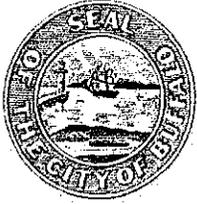
**5. Minimal Use of the Manual Override Key**

The Manual Override Keys are held by the Superintendent of Auto Supplies in Inventory and Stores and the Maintenance Equipment Supervisor at the Police Garage. It is recommended that use of the manual override key be held to a minimum. In instances where it is operationally necessary, the gallons pumped should be reported to next level of Supervision. The documentation of Vehicle, User, Odometer and Agency data can all be eliminated by using the manual override key, thus circumventing internal controls in place and creating an opportunity for fraud and theft.

**6. Third Party Gas Consumption and Enterprise Fund Recommendations**

The Buffalo Zoo, Buffalo Civic Auto Ramps, Police Athletic League and U.S. Marshals billing should continue to be invoiced on a monthly basis. Additionally Police Athletic League should be billed immediately for the 161 gallons of unbilled fuel. The Solid Waste Enterprise Fund quarterly journal entry should include documentation listing the monthly fuel expense and the number of gallons.

Buffalo Olmsted Parks Conservancy should be provided with Detailed Monthly Transaction Reports and follow the authorization and verification procedures documented in Recommendation 4.



**CITY OF BUFFALO**  
**DEPARTMENT OF ADMINISTRATION,**  
**FINANCE, POLICY AND URBAN AFFAIRS**  
**DIVISION OF PURCHASE**



BYRON W. BROWN  
MAYOR

WILLIAM L. SUNDERLIN  
DIRECTOR

DONNA ESTRICH  
COMMISSIONER

March 18, 2014

Kevin Kaufman  
City Auditor  
Room 1225 City Hall  
Buffalo, NY 14202

Re: Final Audit Report of Fuel Consumption

Dear Mr. Kaufman:

I have reviewed your final report and audit recommendations. Per City Charter 7-7, I would like to comment on each of the audit recommendations.

**1. AIM Technology Deployment**

The Division of Purchase agrees with this recommendation. Every effort has been made during the phase 1 deployment of the AIM 2 gas rings into every vehicle possible. More than 600 vehicles have been outfitted with this technology. New vehicles added to the fleet will be incorporated with the AIM 2 gas rings. The Division of Purchase will continue to look at installation methods for the City of Buffalo's heavy duty diesel fleet to install the AIM 2 gas rings.

**2. FuelMaster Odometer Controls**

The entering of the incorrect odometer reading on vehicles that use the Prokee system can result in the incorrect calculation of average mileage and other metrics. The Division of Purchase and departmental supervisors continues to review monthly usage reports and report inconsistent odometer readings manually entered. Some heavy equipment does not have odometers but use hour meters to track vehicle usage.

**3. Fuel Receiving Recommendation**

The Division of Purchase/Inventory and Stores utilizes a three part check on receipt of fuel that is more efficient and less labor intensive than having an attendant sign a paper delivery receipt printed from the fuel delivery truck on the amount of fuel distributed. Fuel deliveries are metered through a calibrated flow valve certified by NYS Weights and Measures.

Each detailed receipt shows the time, date, driver, fuel location, amount of fuel and type of fuel. The Division of Purchase/Inventory and Stores completes a running 10 day reconciliation of all deliveries and fuel pumped from each site as required by the DEC. Any variances are noted and investigated. The Division of Purchase/Inventory and Stores gets a printed delivery receipt that is automatically generated

from the City of Buffalo's Veeder Root tank monitoring system (installed at every fueling site) that shows each individual delivery. These receipts are checked against the delivery ticket and invoice for verification.

**4. FuelMaster Report Recommendations**

Monthly detailed reports are given to each department head/supervisor. The reports request each supervisor to carefully review all transactions for authorized users and usage. Supervisors will report any anomalies to the Division of Purchase/Inventory and Stores. It is not feasible to get signed acceptance reports from the each department nor is it feasible to have an annual certification of the more than 2,000 city employees who are authorized to get fuel. An annual reconciliation of fuel purchased and consumed was recommended and will be performed.

**5. Minimal Use of Manual Override Key**

The Division of Purchase is in agreement with the minimal use of this override key. There are currently only 4-5 manual issue keys in the system with instructions on the minimal utilization. It is only to be used in situations where a driver cannot get fuel via the Prokee or AIM 2 gas ring system. The supervisor first checks for mechanical problems with the vehicle fuel system or operators usage method. If the manual issue key is used, the Vehicle identification, agency number along with the authorized person using the manual issue key is entered into the FuelMaster console. This information is compiled and reported/monitored during the month.

**6. Third Party Gas Consumption and Enterprise Fund Recommendations**

The Division of Purchase re-bills authorized third parties for the use of the City of Buffalo's purchased fuel. During February 2012, two City of Buffalo vehicles that were titled to the City of Buffalo were transferred to the Police Athletic League (PAL). During the transitional time until April 20, 2012 it was discovered that approximately 133 gallons of fuel did not get re-billed to PAL. Upon this error an invoice was generated on February 28, 2014 in the amount of \$421.41 to the PAL organization. All subsequent invoicing starting May 2012 was correct.

Buffalo Olmstead Parks Conservancy will be provided detailed monthly billing statements with a request for review and certification of fuel usage by the cognizant supervisor.

Best regards



William L. Sunderlin, C.P.M.

Cc: Donna Estrich – Comm. of Administration and Finance  
Maureen Eck- Audit  
Ann O'Donnell - Audit