
School transportation fleet managers can reduce their operating expenses by automating their reconciliation processes — from inventory data collection to compliance reporting — through a technology-driven program such as OPW's Phoenix® Fuel Management Software.

# The Numbers Don't Lie

*School Bus Fleets That Replace Manual Reconciliation Processes With A Technology-Driven Reconciliation Program Reduce Operating Expenses and Minimize Inventory Losses*

*By Bobby Hayes*

Many fleets, including school transportation fleets, were completely unprepared for the steep increase in fuel prices that began in 2008. The unexpected rise in fuel expenses decimated many operating budgets. As fuel costs continued to climb, fleets looked for ways to reduce costs by decreasing overhead and eliminating unnecessary fuel expenses in every instance possible.

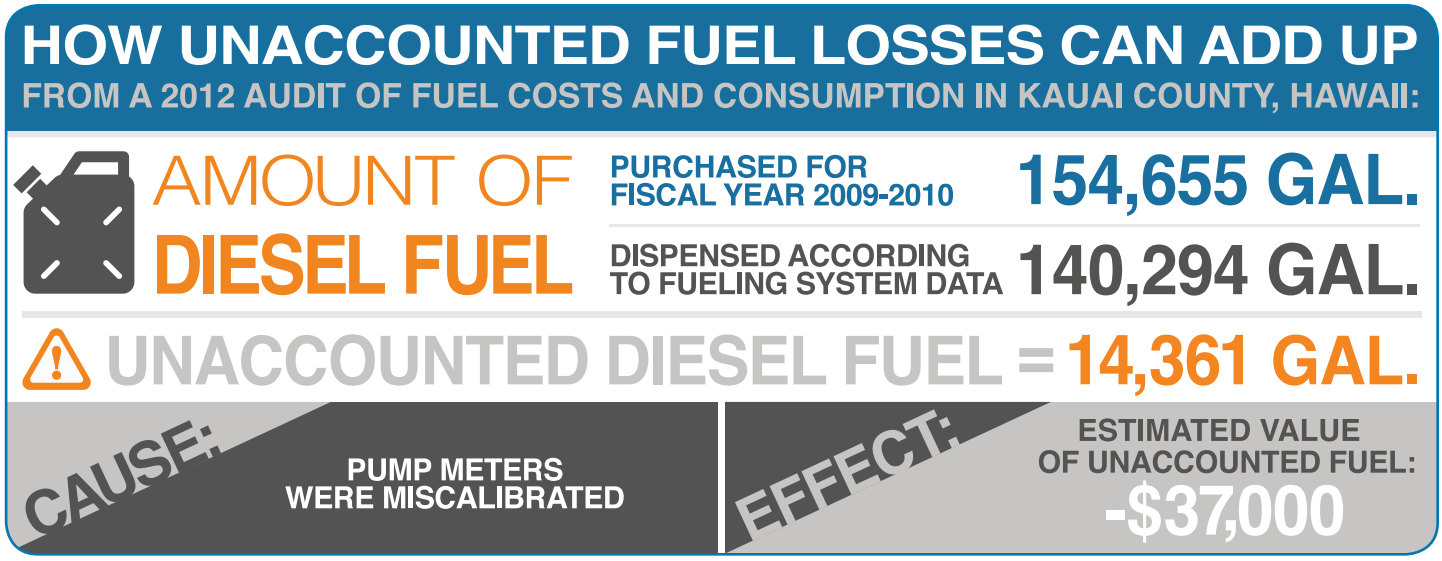
Although U.S. fuel prices have recently shown improved stability, fuel remains a leading expense for school fleets, where diesel engines are still the principle power source. Fuel management and consumption audits performed at the height of the fuel price spike, and which have continued through today, show that fuel inventory losses as a result of unplanned circumstances remain a challenge for many of today's fleet fueling operations. If left unchecked, these unaccounted fuel losses can wreak havoc on a fleet's fuel budget.

Due to manual reconciliation's potential for inaccurate calculations, fueling operations that perform manual Statistical Inventory Reconciliation (SIR) for inventory analysis are at risk of worsening their unaccounted fuel losses. In short, site operators cannot solve the source of the fuel loss if they don't realize it's happening simply because their math is off.

All fuel sites are vulnerable to fuel losses, which can result from — among other things — theft, shrinkage, fuel system leaks, short deliveries and meter drift. If these issues are not promptly identified and addressed as part of a reliable reconciliation procedure, the losses can quickly add up and drain a school fleet's operating budget.

For example, a 2012 audit of Kauai County, Hawaii, fuel costs and consumption showed that the county purchased 154,655 gallons of diesel fuel for fiscal year 2009-2010, but fueling system data showed that only 140,294 gallons were dispensed, for a total of 14,361 unaccounted gallons of fuel. With the national average of diesel fuel prices hovering around $2.57 a gallon in 2009, that difference equated to approximately $37,000 worth of unaccounted fuel.

As fleet-fueling operations continue to re-evaluate their financial standings in order to adapt to current market conditions, they are deploying loss-prevention and efficiency-enhancing strategies. This article will illustrate how an automated reconciliation process that is facilitated through comprehensive fuel management software can reduce unaccounted fuel losses while significantly increasing operational efficiencies, reducing labor costs and improving site safety.




Source: "Audit of Fuel Costs, Consumption and Management" from www.kauai.gov

## The Challenge: Manual Reconciliation Is Costly

The majority of fleet fueling sites continue to practice manual SIR to track and report inventory levels. However, manual inventory tracking and reporting is expensive, tedious and fraught with potential for human error.

Manual reconciliation requires vigilance, discipline and tremendous attention to detail from the personnel charged with performing the task. To obtain accurate inventory data via manual reconciliation methods, a site operator must record inventory measurements — which includes every fuel product on site, the amount of water in each product's tank, the amount of fuel sold or dispensed and the amount of fuel deliveries — every day that the fuel site is in operation. Measurements need to be collected at the same time each day so that no dispensing or deliveries occur between the time when the volume in the tank and the volume dispensed is measured. Once the data is gathered, the fuel site operator must calculate the variance — the difference between the amount of fuel reported being delivered and being dispensed — through formulas that are reminiscent of long-form income tax preparation: "subtract the value of column O from the value of column N to get the value of column P." Manual reconciliation calculations are typically executed longhand or with the assistance of a spreadsheet.

Variance is not only a benchmark for the accuracy of inventory data collection, but it is a measure of the overall fitness of a fuel system. Many states require fuel sites to report their variance as part of their leak detection documentation. The U.S. Environmental Protection Agency's (EPA) standard for reconciliation is 1% of a site's throughput, but many states have tighter regulations than the EPA. For example, fuel sites in Maryland can't have a variance greater than 50 gallons over 8 days. In Connecticut the total variance must not exceed 0.5% of sales volume.

Failure to meet state-mandated variance thresholds typically result in compliance fines and expensive corrective actions, including third-party tank tests. In addition,

other variance remediation efforts performed by fleet fueling sites are sometimes misguided and potentially unnecessary expenses. Without data-driven evidence supported through electronic reporting, site operators speculate at the root causes for unacceptable variance levels and, frequently, rely on historical or anecdotal knowledge to guide their corrective actions. Many fuel site operators will pay to calibrate their dispenser meters without knowing for sure if meter drift is the reason for the variance. From the third-party service required to perform the calibration, to the equipment downtime needed to calibrate meters, to the cost of obtaining a Weights and Measures approval, these expenses are costly and sometimes completely unnecessary.

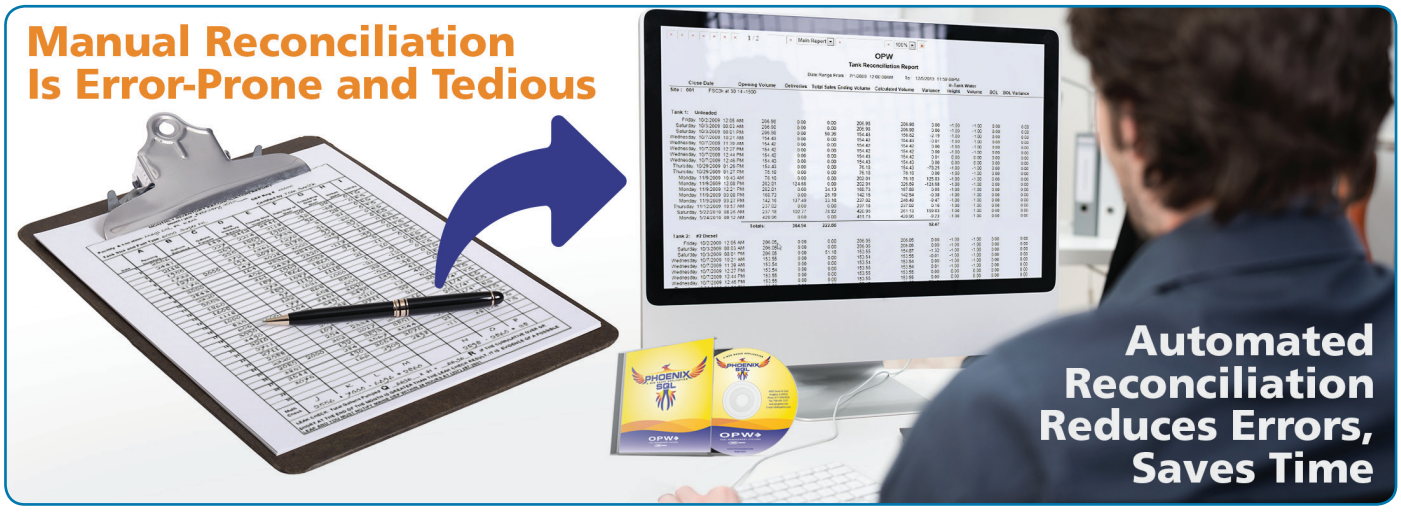
In addition, fleets that are unable to quickly "trend" SIR data frequently run out of fuel because they are unable to detect patterns in fuel consumption. A tank void of fuel can lead to submersible pump motors failure, excessive dispenser filter replacement and damage to school buses from fuel contaminated by the sludge on the bottom of the tank.

SIR is also a significant drain on resources needed to gather and calculate the data. Even at small fuel sites, SIR requires daily oversight, which can be particularly burdensome for small staffs; larger operations with multiple sites could require a coordinated team of personnel to perform SIR. In the case of small staffs struggling to cover the duties of coworkers on vacation, employees may not be sufficiently cross-trained to perform SIR accurately or they fail to perform the inventory analysis altogether, causing the site to fail its compliance audit. Manual reconciliation also can be a safety issue — requiring personnel to be in the path of vehicle traffic while collecting inventory data.

Data collected through manual SIR is only as good as the personnel and equipment gathering the data. Unfortunately, the tools used to obtain inventory measurements — wooden gauge sticks — aren't exactly high-tech. The sticks, which are lowered into the tank to measure product levels, provide inconsistent readings (most data recordings are recorded to the nearest 1/8 of an inch). Gauge sticks also are widely misused. Site operators often continue to use deteriorated sticks long after they should have been retired, or modify the stick through mechanical extensions to make measuring easier.

And the problems don't end there. Supply deliveries are especially difficult to evaluate through manual reconciliation because real-time tank gauge and dispenser data reconciliation is nearly impossible. Consistent timing of data collection is essential. Math errors and problems with spreadsheet formulas also increase the opportunity for inaccuracies.

In the event an operator calculates an unacceptable level of variance through manual reconciliation methods, determining the cause of the variance can be cumbersome at best. Oftentimes, it takes 30 to 60 days to simply identify a loss is occurring, and that's before resources have been assigned to troubleshoot the source of the loss. Imagine the time required to review 30 days of camera footage in order to expose a fuel thief, not to mention the amount of inventory that is lost while the investigation takes place.

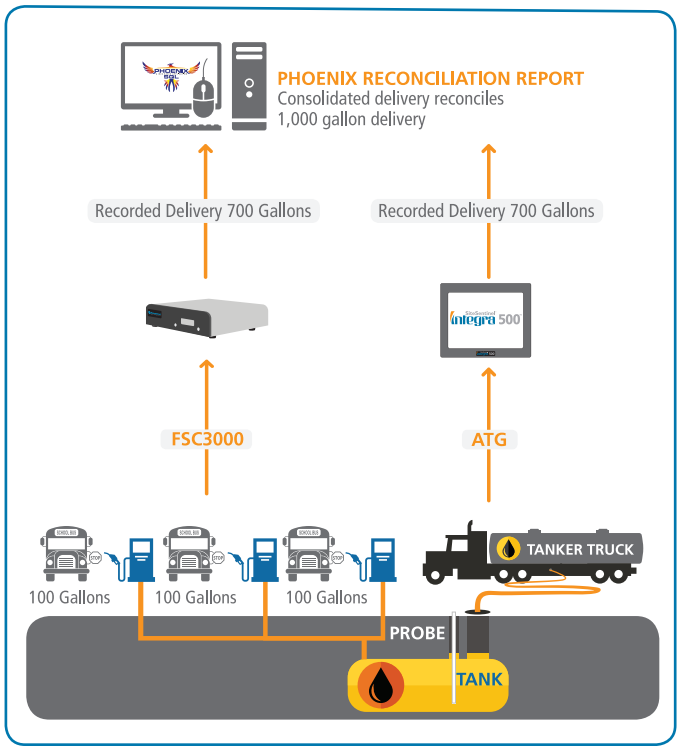



A technology-driven reconciliation solution such as OPW's Phoenix® Fuel Management Software eliminates manual reconciliation's time-consuming and error-prone processes.

# The Solution: Automated Reconciliation Reduces Expenses

As school transportation fleet managers look for ways to offset continuously escalating operating costs, they are becoming increasingly educated about the financial vulnerabilities caused by manual SIR practices. A software-based, automated site reconciliation and data management program provides operators and administrators with the tools needed to eliminate the data inaccuracies and expenses resulting from manual statistical inventory analysis.

When used in conjunction with a compatible tank gauge and fuel site controller, OPW's Phoenix® Fuel Management Software provides total site reconciliation, completely eliminating the need to perform manual SIR. The fuel management software automates data gathering, collecting and reporting processes, and with proper configuration, minimizes the opportunity for data inaccuracies.




OPW's Phoenix® Fuel Management Software has the ability to account for any fuel dispensed while a fuel delivery is in progress, ensuring real-time, accurate inventory information.

## *Advantages of Automated Reconciliation*

- *Real-time data collection and calculation provides up-to-the-moment inventory information that is both comprehensive and accurate*
- *Centralizes inventory data management, which is especially beneficial to multi-site fueling operations*
- *Can isolate the fuel delivery data from the dispensed data in real time*
- *Programs designed to simultaneously poll multiple TCP/IP-based fuel control systems dramatically reduce data collection times for multi-site fueling operations*
- *Enhanced odometer checking reveals obvious, incorrect mileage entries such as single, sequential or repeated numbers*
- *Multi-level access and security features enable cross-training, accountability and "tiered" access*
- *Electronic archives simplify data retrieval and management*
- *Export data to third-party database, spreadsheet and fleet maintenance programs for further processing*
- *Versatile reconciliation software packages are designed to be compatible with multiple tank gauge brands*
- *Best-in-class reconciliation software packages streamline tank-strapping configuration procedures by eliminating the "double work" of inputting tank-strapping data into the tank gauge and software*

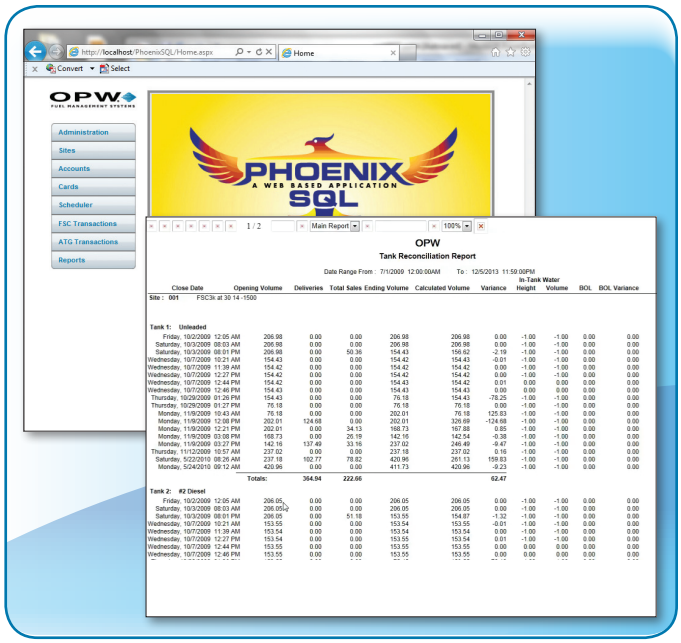
*Fuel management software, which is used as part of an integrated fuel management solution, can frequently capture return on investment in less than a year. As the only petroleum equipment manufacturer in the industry that provides both fuel control and tank monitoring equipment, OPW leads the industry in integrated, cost-saving fuel management solutions. OPW's Windows-based Phoenix Fuel Management Software features more than 60 reporting functions and simplifies reconciliation reporting through automatic and on-demand transaction polling processes.*

By transferring the data collecting, calculation and reporting tasks from site personnel to a technology-driven solution, reconciliation software packages — such as those available from OPW — offer many benefits in addition to cost savings, error reduction, simplified compliance reporting and improved site safety. For instance, Phoenix provides instant visibility into fuel volumes and anticipated consumption, allowing managers to better leverage the timing and pricing of fuel deliveries. Phoenix also can export vehicle mileage data to fleet management programs, enabling fleet managers to optimize their preventive maintenance programs.

## Conclusion: Investing in the Future

Budget transparency is critical for today's school transportation fleets. With expenses continuing to mount, adminstrators need to carefully monitor fuel assets. Squandering money through unaccounted fuel losses and costly reconciliation procedures will deplete capital resources. By instantly reconciling dispensing and tank gauging data to provide accurate, real-time inventory calculations, OPW's Phoenix Fuel Management Software can eliminate many expenses associated with the cumbersome manual reconciliation process, helping to quickly identify the source of fuel losses and reducing management overhead.

As gas prices have demonstrated a measure of stability recently, today's school fleets are looking to make equipment investments that may have been delayed since fuel prices began consuming their operating budgets in 2008. As a one-time capital purchase, fuel management software represents a strategic acquisition for school fleets. By adopting a technology-driven reconciliation solution, school bus fleets will position themselves to weather future economic challenges with greater ease and prime their fleet to generate incremental savings for years to come.




OPW's Phoenix Fuel Management Software's Tank Reconciliation Report synthesizes delivery, volume, in-tank water level, variance and more, eliminating the need to manually gather, calculate and report tank reconciliation data.

## About the Author:

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