

Do you know where your inventory is?

by Joel Hershey, Director of Eclipse Fuel System Management for ECS

Since the beginnings of retail gasoline facilities in the United States, petroleum marketers have struggled to keep close tabs on all aspects of their petroleum inventory - not only what is in their tanks but even at the racks, what is being transported and delivered, and ultimately what gets dispensed or "sold" to the consumer.

So why is inventory so difficult to track? One would think **it's just simple math**, correct? The reality is, for many reasons, it's not that simple. When exploring the typical methods for tracking gasoline, we can find several challenges in obtaining good inventory information.

Beginning with the data acquisition, many marketers determine how much product they have in their current inventory by sticking or gauging their tanks. In many organizations, this is typically done by the store clerk, who "sticks" the tank daily with a dipstick and hopes the readings are accurate because he or she is using a good stick and is consistently reading to within 1/8 of an inch for recording purposes. If, however, the stick is slightly bent from one reading to the other, a discrepancy will occur. Factor in the possibility of different store personnel performing this task, inclement weather (have you ever tried to stick a tank when it's raining out?), or the possible use of the wrong tanks charts and you are left with the start of a problem which contributes to the slippery slope of inaccurate inventory measurement

Other marketers may be using an existing automatic tank gauge (ATG) for determining inventory levels which may "fix" some of the problems associated with "tank sticking." However, it is possible that accuracy of inventory readings may be impacted by tank tilt or poor programming of the gauge. Also, in many cases, the \$10,000 ATG on the wall is probably the least well-utilized investment on site. Most marketers are using it to record minimal data but primarily rely on the store clerk who is left to interface with, record, analyze and then transmit valuable data to a central office. The challenge of collecting this data from various locations and then transmitting this data is often cumbersome, time consuming, inefficient, and at times not very accurate. Most operators currently rely on the store clerk to reconcile the inventory and they only do it because it is part of the regulatory requirement for release detection.

Even with all the challenges just cited, the concept "it's just simple math" has a place in the process. Just be cautious. Begin by recording the opening inventory, deliveries, sales or throughput of product, and then identify your closing inventory reading. Complete the reconciliation process of comparing "book" inventory to "actual" inventory. It appears to be simple, but more than likely if you were to visit 100 stores, you may find that many of them would have incomplete and inaccurate reconciled reports exceeding the state allowable variance for Inventory Reconciliation (IR). In some states, the threshold is as low as ½ of one percent of throughput per recording time period. In fact in one state, this reconciliation is required every 7 days.

Why is my Reconciliation not matching?

There usually isn't just one answer to that question. Below are real case examples encountered after performing hundreds of site visits.

1. A surprising number of store managers and clerks didn't really know how to do it.
2. Some of the store staff were complacent and just didn't do it (infrequently find some never doing it).
3. Poor math skills.
4. Staff was using a bad stick
5. Staff was using the wrong tank chart.
6. Deliveries were recorded incorrectly.
7. Inventory data was not being read (closing readings and throughput) at the same time of day. This is very important for correct reconciliation.
8. Confusion of using Gross delivery vs. Net delivery (to be discussed).
9. Staff was using the incorrect forms (typically in the United States, you may be required to perform weekly, 10 day, or monthly reconciliation).
10. Blended systems with manifolded tanks skewed the data.
11. Some clerks were unsure of the allowable variance thresholds.
12. The reports were lost and could not be found.
13. On many occasions, the reports just sit in the store. They are typically not reviewed by management authorized to make meaningful business decisions.

What do irreconcilable differences mean to you?

Assume gasoline is priced at around \$3.00 and diesel is selling for around \$3.50 per gallon. In some cases, a gas station may be holding as much as \$100,000.00 of petroleum inventory. The staff has done the math and reconciled the data but the inventory is still showing a variance exceeding the state allowable. Additionally, from a financial perspective, this is costly. Some states allow 1% gross plus 130 gallons. If you're running a store with a throughput of 150,000 gallons a month, you are "allowed" an unaccounted for variance of 1,630 gallons. In economic terms, that equates to \$4,890.00 per month. That would cover the salaries of two clerks at the site.

By way of another example, consider that you are operating in a tightly regulated state and the allowable variance on your inventory is ½ of 1%. You have "regular" gasoline showing a 442 gallon shortage and you're allowed 119 gallons variance. The inventory is missing 323 gallons. To reconcile, the clerk will check the math and determine if everything adds up correctly. The clerk will look at the delivery ticket and normally use the gross gallonage for delivery. However, this time they see that the NET delivery is actually 326 gallons less. By using the NET numbers the problem has now disappeared.

Human nature is that most people want to make problems go away. Finding the numbers through a process that can "make it work" is a shortcut that happens and leads to real problems.

So what really happened?

There could be many reasons for shortages, and any of the following are suspect:

- Bad calibration (Meter Drift) of the dispenser meters (in essence giving away 200 to 300 gallons of gasoline to the motoring public). Dispenser calibration is usually performed by Weights and Measures and the standards are established by regulators for meters to be within plus or minus 6 cubic inches per 5 gallon dispensed. There are 231 cubic inches of volume in a gallon of gasoline. Given the tolerance resolution mandated by government and meeting certification, a station selling 100,000 gallons per month could be giving away over 500 gallons of gasoline and STILL BE IN TOLERANCE. This happens more often than people realize.
- Bad stick readings.
- Inaccurately captured sales data from the POS or totalizers.
- Use of wrong chart numbers from another tank.
- Sloppiness.
- Wrong tank chart.
- Leaking UST system.
- Distraction with other duties.
- Theft.

What really happened in the second example was that the delivery tanker planned to drop 6,700 gallons of product, but realized he couldn't force any more in the tank. He was then told to bring the extra 211 gallons to another store but no one else was aware of that (by the way, if the central office or if someone ordering and scheduling deliveries had accurate, up-to-date site inventory and delivery information, this probably would not have happened).

In this case, the product was just delivered to another site. But what if you didn't own the other site? As a solution, what if someone could provide an integrated system that could automate your manual processes by electronically capturing the tank inventory, sales throughput, deliveries and aggregate all your sites under one program? You would no longer be subject to the many variables that currently affect inventory management practices. Having the right information to make good decisions regarding the most precious aspect of your business- inventory- is critical to maintaining your profitability and regulatory compliance.

ECS has developed an innovative product called eclipse **AIR Fuel System Management** that can help you do just that. Joel Hershey, Product Manager for eclipse can be reached at **1-800-789-3530** to provide you more insight on how to better manage your inventory.