



# Asset management: Take advantage of the latest developments in tracking technology

Today's tracking and monitoring systems of hazardous material containers increases safety, helps suppliers keep in-touch with their products, and pumps up the bottom line.

Pressure, mainly from the Senate floor, is growing for the mandatory monitoring and tracking of hazardous materials in transit. This is due to the growing preference of terrorists to use truck bombs in their attacks. Suppliers need to make a serious review of available shipping solutions to be ahead of the game.

Today's solutions can also provide a good return on that investment through added values such as reduced insurance premiums, increased asset utilization, and incident prevention.

There has been opposition to these types of systems for some time, mainly from the American Trucking Associations (ATA) and other organizations representing HAZMAT transporters, including agricultural, chemical, petroleum, and nuclear materials. These opponents criticized proposed measures as unnecessarily burdensome and expensive. Their opposition has been characterized as "either incorrect or shortsighted." I tend to agree.

In studies aimed at understanding the problem and proposing a solution it was concluded that GPS devices alone did not represent the "silver bullet" for HAZMAT security because they can experience high false-alarm rates and usually don't work well indoors or in heavily forested areas.

### The Freight Transportation Security

Consortium commented: "GPS is just one piece of the puzzle, and we can't even get that right. Unfortunately, we fear that something really terrible has to happen with HAZMAT trucks down the road before the federal government will take appropriate action."

### Mobile tank solutions

So what solutions are available and how will they be introduced?

In the industrial gas industry, telemetry has already been used extensively to monitor storage tanks for inventory management for years. There is now a push to install similar remote monitoring and tracking systems on mobile tanks.

Applying this technology to mobile tanks would not only help manage the supply chain,



The DataOnline Haz-Pass® system can monitor and track hazardous material containers as they travel the world.

it would also to help secure products in transit. In addition, it would also allow vehicles to follow their scheduled routes more efficiently, maintain timetables, and permit suppliers to monitor the conditions of the product throughout the delivery cycle.

One example is a product called Haz-Pass® (an amalgamation of the terms "HAZMAT" and "EZ-Pass") recently launched by DataOnline. It can be used to monitor and track mobile hazardous material containers worldwide.

The system is currently used to monitor and track ISO containers that travel the world carrying cryogenic products such as hydrogen, helium and LNG.

This technology is different from typical GPS devices that only report the location of the asset. This type of technology also monitors additional process variables like level, pressure, and the temperature of cryogenic products.

### Meeting certifications

Because of the inherent explosive nature of hazardous materials all the associated equipment a supplier employs – including sensors and

wiring – have to be certified for a Class I Div 1 environment.

Available technologies like Haz-Pass® meet those certification requirements and can overcome the hostile environments that HAZMATs encounter in their journey over road, rail, and sea. Buyers should look for devices that offer such tamper proof designs that can survive the rigors of custom inspections, security checks, and whatever else Mother Nature might throw at their ISO containers in transit.

A device like the Haz-Pass®, for example, has its X-proof sensors connected to an ATEX-rated enclosure that houses all the other associated electronic and communication devices for both GPS and GSM communications. It also employs an X-proof glass window. Even its dual-mode antenna is mounted safely inside the enclosure.

Where no local power is available, a battery-driven solution is mandatory. Suppliers also need to keep in mind that many of their assets may not be serviced for several years. This means power systems will be pushed to their limits. Therefore, state-of-the-art battery

► technology should be chosen to ensure reliable and continuous operation for at least five years.

**How remote devices work**

These remote devices can be considered industrial grade computers, built to be robust and highly reliable. They are typically fitted with a cell phone radio to communicate. Because GSM (Global Standard for Mobile communications) is the most common cell phone technology in the world and is supported in most countries it is the technology of choice when the asset's journey is across countries.

Sensors can be connected to the remote device to measure any desired condition of the asset, or its cargo, such as pressure, level, or temperature, while it is in transit. A GPS receiver is also fitted to provide global positioning at any time. The data is then transmitted over the wireless network and back to the servers of the monitoring service company. Once it is at the server it can be used in their 3<sup>rd</sup> party online applications or directed back to the end users systems for use in their own Asset Management system.

**Monitoring gas containers at sea**

Assets at sea is a leg of the supply chain that is receiving a lot of attention recently. Here, the supplier's challenge is to find the right communication solution for onboard containers on ships. Satellites appear to offer the obvious answer, but in a lot of situations the assets are either stacked up on board, or because of some other obstacle, shrouded from the sky so that they cannot obtain a clear "line of sight" to a satellite.

DataOnline attacked this problem by applying a solution already in use on many cruise liners today. When someone wants to make a call at sea they use an onboard GSM network that extends the use of a regular cell phone to the ship.

We are using this technology in a new product called DataOnboard, to add GSM networks to container ships and other commercial vessels to extend the GSM network for the ocean part of the journey for HAZMATs.

The importance of this technology was recently highlighted when an LNG ISO container was venting uncontrollably. They had to literally push it into the sea on the command from the captain. This was an expensive exercise for all concerned.

These types of situations could be diagnosed through remote monitoring well before this sort of knee-jerk action is taken by crew members. Most current solutions to potential risks today are basically manual. Crew members provide observations and in some instances actually take readings from gauges fitted to the tank, and then



*Integrated electronics and communications in a class 1 div 1 enclosure, together with a suite of x-proof sensors provide for an easy to install, robust, reliable and certified solution to track and monitor HAZMATs.*

“...remote devices can be considered industrial grade computers, built to be robust and highly reliable.”

email the information to suppliers from the ship. This is certainly not the ideal solution.

**Future developments**

Currently, the Haz-Pass<sup>®</sup> system comprises sensors, a monitoring device, and web-based application software. The software includes online maps supplied through Google's Mapping services.

The next development will be to create a complete homeland security service available to local authorities to police the transportation of hazardous materials as they travel through, or are delivered in, a particular region.

For instance, a Haz-Pass<sup>®</sup> device could be fitted to a HAZMAT vehicle, either permanently, or upon entry into a state or country. All vehicles equipped with a Haz-Pass system would be registered with an online monitoring service. This service, either run by the local authority or a 3<sup>rd</sup> party, could monitor, track, report, and act on any change or developments involving the movements of the HAZMATs.

The local authority would then be able to account for all hazardous vehicles, or a particular hazardous material, moving within its region. Exception reporting and notification to the appropriate authorities could provide alerts in instances like the non-reporting of a vehicle's location. This means if a vehicle moved into a restricted area, or an area outside its given itinerary, the appropriate authorities would immediately know.

Police, for example, could be equipped with scanners to carry out spot checks on HAZMATs and determine if the vehicle was in compliance – i.e. the correct driver was operating the vehicle, the product was in a safe state, and the vehicle was following its scheduled trip.

Suppliers should seek out systems with such capabilities that cannot only make this a safer world, but provide a good return on investment as well. **SGR**

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