

Hazardous Materials Tracking Center Developed to Improve Security for Shippers & Transporters

By Thomas Moses
President, Spill Center®

The federal government does not believe we have seen the end of terrorism on our own soil. Hazardous materials shipments are viewed as high risk since they can easily be used as weapons of mass destruction. The U.S. Department of Transportation, warning that transport vehicles might be targeted by terrorists, recommends increased vigilance for hazmat shipments. The DOT considers enhanced tracking of volatile and poisonous materials among the best ways to improve freight security. But the volume of hazmat in transit at any one time makes the job of providing heightened security a major challenge. Shipments of regulated hazardous materials average about 800,000 a day in the U.S., roughly three billion tons of hazmat a year, the DOT estimates.

To make matters worse, very little coordination exists among emergency response agencies at the local, state or even national level – a situation that could seriously hamper response efforts in the event of a terrorist attack or a major hazmat spill. The response time for state police after being notified of a hazmat spill is 27 minutes, according to the Center for Technology Commercialization. Anything that can improve response timing would be seen as welcome relief by public and private responders as well as hazmat shippers and transporters.

One solution developed by Spill Center is an advanced Hazmat Tracking Center. It incorporates wireless voice/data communications, satellite tracking technology, automatic routing of alerts to

authorities, and online access to highly specialized data banks. The results are real-time monitoring of hazmat shipments, increased load security, and enhanced incident response anywhere in the U.S.

Security Software Interfaces With Tracking Technology

At the heart of the Hazmat Tracking Center is proprietary software that continuously monitors data transmitted from onboard truck computers and other asset tracking devices. When unusual activities are detected, alerts are automatically sent to law enforcement, emergency response agencies, and other addressees on customized distribution/notification lists. Called Aries Messenger, the patent-pending software is a programmable automated agent that can predict problems with freight in transit based on data values and patterns. The program compares incoming data with values in customized data tables. It searches for matches that indicate an on-road emergency or developing incident that requires an immediate response. Matching values trigger an alert, which is sent in the form of a fax, page, e-mail or text-enabled cell phone message.

If a monitored shipment is delayed, a route changed for an unknown reason, or if a vehicle unexpectedly approaches a location identified as a vulnerable terrorist target, notification of law enforcement and defense agencies is automatic. Vehicle location, speed, trailer connection, status of doors and

tank valves, and other data from on-board sensors are monitored by Aries Messenger. Sudden deceleration, off-route status, or loss of communications from a vehicle can trigger alerts that are automatically routed to the Hazmat Tracking Center, which serves as the hub in a communications network, and other predetermined addressees. Aries Messenger is linked through the Hazmat Tracking Center to specialized databases containing participating shippers' bills of lading; government mapping data; public, private and for-hire response resources; and other information that is accessed through Spill Center's proprietary data structure.

Predicts Problems in Transit Based on Matching Patterns

Aries Messenger can be programmed to send messages or alerts whenever matching values are found in the data table, such as when a vehicle reaches a given waypoint at the scheduled time. Or it can be programmed to send messages when matching values indicate an irregular situation, such as when a vehicle is behind schedule for an unexplained reason. Certain combinations of incoming data might indicate a truck has been hijacked. In one scenario, a truck's on-board computer sends data indicating that the vehicle, carrying a material which is poisonous by inhalation, is speeding on US-71 in Bentonville, Arkansas, in the vicinity of a stadium or a school. This pattern – a speeding truck, containing highly toxic material, in a populated area – poses a threat. Aries Messenger would generate an alert message to a list of key trucking company personnel and appropriate authorities. Even if the driver is incapacitated, the alert message would be transmitted. No driver input is required.

Aries Messenger can be programmed to alert any person, agency or organization as required. In the event of an accidental hazmat spill, the driver can use a spill macro, which is an on-board computer form developed by Spill Center, to send information about the incident to the Hazmat Tracking Center's secure website. That alerts staff members to activate the company's pre-filed Spill Contingency Plan, which includes detailed claim-handling and contact instructions. The center's staff members also verify that the appropriate authorities and transportation company contacts have been alerted and can locate and coordinate deployment of additional response assets if required.

The Spill Contingency Plan was developed by Spill Center specifically for trucking companies carrying hazardous materials. Recognizing that an immediate, effective response is critical to minimizing costs and limiting liability related to these incidents, Spill Center has compiled and maintains a comprehensive, nationwide database of hazmat response contractors. The database includes detailed information on each contractor's response capabilities, personnel, equipment assets and insurance coverages. This proprietary information tool has been used extensively by Spill Center to coordinate the mobilization of spill response assets since 1990.

Software Interface Adaptable To Any Tracking Technology

The Hazmat Tracking Center concept was developed in cooperation with QUALCOMM, the leading supplier of mobile data systems to the U.S. trucking industry. According to Chris Wolfe, president of QUALCOMM Wireless Business Solutions, companies that purchase mobile communications – or are looking to

do so – expect their suppliers to continue bringing new capabilities and additional value to their investments. He observes that simple vehicle tracking and voice communications are quickly becoming commodities and that integration and the ability to share data are what bring the greatest value to companies that have successfully implemented mobile communications within their fleets.

Aries Messenger plugs directly into the wireless tracking equipment manufactured by QUALCOMM and other leading companies using unique connector interfaces. The connectors are based on each manufacturer's automated processing interface or API. They allow the automated agent to access data streaming in from mobile transmitting equipment, regardless of the manufacturer. Connectors have been developed to interface with most tracking systems installed on vehicles without requiring an upgrade in hardware. Aries Messenger offers security advantages to anyone who uses tracking devices – on trucks, trains, planes or vessels at sea. It can even be used to monitor and analyze data coming from containers with extremely high-value loads. The software integrates seamlessly into a company's tracking system and continuously monitors data from all vehicles, containers, or packages equipped with tracking devices.

With the Aries Messenger software interface, transportation company personnel can eliminate the need to monitor incoming data for trouble codes or messages from the fleet. Without an automated agent, the company would not know a problem exists unless it queried each truck or load to determine that it is running, on route or on schedule. In a large company with hundreds of hazmat loads in transit at any given time, the job would be extremely difficult. Who is

going to query all those loads, and how often would be sufficient? Aries Messenger continuously checks for problems and notifies everyone on the list whenever one occurs.

Offers Value for Public and Private Responders

Aries Messenger, combined with Spill Center's unique data structure, also provides a significant advantage to private and public sector agencies and organizations wishing to exchange data. Spill Center offers an Electronic Inventory Management System, featuring wireless, handheld computers with inventory macros for fire services and other emergency responders. The Internet-based system allows participating agencies to share information about location of assets, personnel and other resources via a secure website. Response vehicles equipped with tracking devices can be located in real time.

At the end of every shift, the driver of a hazmat vehicle, for example, would use a handheld device with a touch screen to take an inventory of the supplies and gear on the truck, as well as the trained personnel attached to his unit. The inventory update is uploaded – using the same wireless handheld device – to a secure database, which is maintained by Spill Center for 24/7 password-protected access. This system offers the traditional inventory replenishment alert capabilities, but it also enables the hazmat unit to become a vital part of a broad emergency response network. Any authorized user – at the local, county, state or federal level – could query the system to find the location of assets needed for a particular incident. That real-time information could prove to be critical in the aftermath of a terrorist attack.

Last year Spill Center applied for a patent on an advanced communications

system, the Electronic Emergency Response Management (EERM) System. The system was demonstrated for the first time at the U.S. DOT's Fall COHMED Hazmat Training Conference in Massachusetts in October 2001. Developed to save critical time during hazmat emergencies and to improve incident management, the system can provide fast access to information needed to expedite response and remediation of hazmat spills.

The EERM System and the new Hazmat Tracking Center incorporate Spill Center's proprietary spill management program, experienced staff of compliance associates, and extensive online resources. These systems, integrated with real-time vehicle-tracking data and automatic alert routing, provide spill generators with increased control in the handling of their valuable equipment and cargoes, while giving emergency responders access to critical information they need to expedite response and remediation of hazmat spills.

Charles L. Whittington, president and owner of Grammer Industries, a hazmat hauler based in Grammer, Indiana, is a strong supporter of the Hazmat Tracking Center concept. Grammer Industries specializes in hauling anhydrous ammonia, nitric acid, hazardous liquid waste, and other hazardous materials. Ninety-nine percent of the loads transported by the tank truck fleet are hazardous. Having already invested in mobile communications from QUALCOMM, and as a client of Spill Center, he recognizes the value of this integration within his operation. Mr. Whittington said his company owes it to its customers, employees and the general public to operate in the safest manner possible. He observed that he sees great potential in

integration efforts like the Hazmat Tracking Center because they enhance safety and security by building upon what the company is now using to operate efficiently and provide superior customer service.

While mobile communications technology isn't new, the integration of real-time data with a system dedicated to the management of emergency response and remediation is a unique and beneficial application to both industry and the public interest. The Hazmat Tracking Center can serve as a valuable tool in the government's efforts to increase homeland security against terrorist attacks. It was designed to [Haz-Mat Response](#) increase security for shippers and transporters throughout the U.S., while improving the response timing of emergency responders.

Spill Center, founded in 1990, specializes in hazmat incident support for shippers and transporters. Services include environmental/safety regulatory compliance; spill contingency planning; emergency spill response management; and claims resolution, negotiation and settlement. Spill Center records show that the largest and best-managed hazmat haulers are typically capable of detecting, managing and reporting as many as 350 spill/release events per month system wide.

*Aries Messenger software and support services are owned and operated by Aries Messenger, Inc., a subsidiary of Spill Center. **For more information:** Contact Tom Moses at Spill Center, 22 Kane Industrial Dr., Hudson, MA 01749. Tel. 978-568-1922 (x222). Fax 978-568-1945. E-mail: tmoses@spillcenter.com. Information is also available at the Aries Messenger website: www.ariesmessenger.com.*