Executive Summary

NASA Dryden Flight Research Center spearheaded a successful pilot dubbed *ChemSecure* that tested the use of radio-frequency identification tags and intelligent sensors. This set the stage for a real-time network aimed at improving the management of hazardous materials to enhance security and safety and response time, while significantly reducing on-going supply chain costs. This sixty day effort was made possible due to the partnering and expertise brought forth by NASA Dryden, DoD, and leading private sector companies including Oracle Corporation and Intermec Corporation.

The real-time network assisted us in correlating the RFID data which provided identity with intelligent sensor information. We utilized the sensor-based information to provide our organization with an incredible amount of intelligence about operations and enforce our business processes. Our team spent time perfecting ways to capture, manage, analyze and respond to the information being collected and turn that into intelligence and provide insight into what is happening within our organization.

The project team was interested in flexible deployment solutions that maintained application independence. The capability to capture, manage, analyze, access and respond to data from sensors such as RFID, location and temperature was essential. We had to be certain of integrated support, and replacing existing information management systems was not an option. Today Dryden utilizes a chemical management system that tracks detailed records of all hazardous materials and waste, the people that use them and the processes in which they were used. The system captures container and employee information utilizing bar code technology which is a manual error-ridden process and with Dryden facing budget reductions introducing RFID creates opportunities never before available that will lead to successful processes re engineering.

We were able to demonstrate with RFID and sensor-based information the following activities:

- Uninhabited Aerial Vehicle surveillance and monitoring
- Observations of certain state changes
- Break ins
- Chemical thefts
- Chemical incompatibility
- Zone control
- Communications and Information Management
- Enhanced audit capabilities
- Storage locations
- Unauthorized events
- Storage life cycles for improved decision making and auditing
- Reduce human error
- Unauthorized events
- Identification and Assessment
- Progressive alerts
- End to end visibility
- Supplying critical data to first responders and decision makers
- Storage life cycles for improved decision making and auditing.
- Ensuring personnel are properly authorized and trained to work with the chemicals to reduce human error.
- Limiting unnecessary exposure to materials and personnel.
- Application independence
- Business Activity Monitoring

- Business Rules Manager

The project team has vision with lofty goals and wants to deliver an integrated, real-time information network for government agencies such as the Department of Homeland Security and Environmental Protection Agency. We are building relationships external to Dryden:
–Tom Ridge, Former Head of DHS, Savvi Corporation
–Dr. Charles E. McQueary, Under Secretary for Science and Technology, DHS
–Dana Arnold, Office of the Federal Environmental Executive
–Mark S. Reboulet, AIT office Wright Patterson AFB
–Wesley Nicks, Cal-Cupa
–Deborah Kopsick, Environmental Protection Agency

We would appreciate the opportunity to meet with you in order to discuss what groundwork we have done in support of phase II.

Web Resources
http://www.nasa.gov/lb/centers/dryden/news/NewsReleases/2004/04-63.html
http://www.oracle.com/corporate/press/2004_dec/open03.html
http://www.intel.com/business/bss/technologies/rfid/?id=ibenews_bd

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