

Multispectral Solutions, Inc.
Progress Report
Call Sign WD2XSW
File Number 0 163-EX-RR-2007

Multispectral Solutions, Inc. (MSSI) received an extension to the above referenced experimental license on September 20, 2007. An application for renewal of the license was submitted on September 23, 2008 to permit additional testing of real time location system at Cherry Point Refinery in Blaine, Washington.

Currently, up to 5000 tags are being used by employees and contractors at Cherry Point to evaluate the performance of MSSI's localization system and associated software. Occupational Safety and Health Act (OSHA) and Washington Industrial Safety and Health Act (WISHA) regulations mandate control over entrance to a facility by maintenance, contractor, laboratory, or other support personnel. These safe work practices shall apply to employees and contractor. Most solutions on the market today have a throughput limitation of approximately 100 tags per second severely limiting their use for refinery safety. In addition, competing tags have very limited battery lifetimes (a few weeks) making their long term use impractical.

The on-going trials clearly demonstrated the value of system in improving the safety of operations within the refinery. The trials also demonstrate the need for using tags with higher power such as that approved under the experimental license. Higher power tags are necessary due to the need to locate personnel in an around the extremely high multipath environment of the refinery. The presence of metal tanks, pipes, grates, etc. makes localization extremely difficult without adequate tag transmitter power.

The other benefit of higher powered tags is the reduction in infrastructure complexity and cost. The trials showed that the infrastructure required to locate personnel was significantly reduced by about a factor of four because the greater communication range of the tags reduced the requisite number of receivers. This implies that the system will scale to the remaining operating units within the refinery.

As the system is being used and evaluated under daily operating conditions, refinery management is evaluating a roll out of the system to the entire facility. It also requires an effort to determine how a safety system based on real time location will affect its procedures and processes with regards to safety and evacuation management. Testing on the safety system for evacuation management has proven very successful on the scale of deployment, but the scalability of the deployment is important to make sure that the MSSI localization system is viable for refinery wide evacuation and emergency management.



Figure 1. Challenging Refinery Environment

In summary, the experiments of the Sapphire system are very successful and serve as the basis for meeting the rigorous demands of personnel safety in heavy industrial environments. It is important to continue the trial to scale the system to remaining portions of the facility. MSSSI believes that its work at Cherry Point clearly serves the public interest in that it will permit Sapphire systems to operate more effectively and reliably in protecting human life in high-risk industrial settings, without increasing the risk of interference to authorized services.