

NASA RANGE SAFETY PROGRAM 2005 ANNUAL REPORT

Evaluating the AreaRAE Gas Monitoring System

The NASA Aerospace Medicine and Occupational Health office is evaluating the use of a real-time gas monitoring system to supplement hydrogen chloride dispersion models generated for shuttle launches. The AreaRAE, manufactured by RAE Systems, Inc., is currently being evaluated. The monitoring system consists of a set of portable RF-linked hydrogen chloride gas monitors that can be deployed to selected launch viewing locations. The units operate in the license-free 902 to 928 megahertz range and transmit data to a centrally located base station within a two-mile range.



During the launch of STS-114, the AreaRAE units were used with some success. Hydrogen chloride measurements were remotely relayed to Environmental Health personnel supporting the launch. Additionally, the data from remote measurements were logged for post incident analysis.

The expectation is that the units will provide real-time information to emergency response planners, enabling them to implement the best response strategy in the event of a shuttle accident. The same units, equipped with nitrogen dioxide gas sensors, may also be used for downwind monitoring during nitrogen tetroxide transfer operations for both shuttle and expendable launch vehicle fueling activities. NASA/KSC personnel are currently conducting field evaluations of the system to better understand the capabilities and limitations of the RF-linkage system. The units will be in place for the next shuttle launch.