

# **SERDP PROJECT OF THE YEAR**

## **WEAPONS SYSTEMS AND PLATFORMS**

### **ALTERNATIVE FOR PERCHLORATES IN INCENDIARY MIX AND PYROTECHNIC FORMULATIONS FOR PROJECTILES**

DR. TREVOR T. GRIFFITHS  
QinetiQ Ltd.  
Sevenoaks, Kent United Kingdom  
44-1959-515347  
ttgriffiths@qinetiq.com

CO-PERFORMERS: Prof. Edward L. Charsley, Mr. James J. Rooney, and Ms. Hayley M. Markham (University of Huddersfield); Mr. Paul D. Howe and Dr. Stuart Dobson OBE (Birchtree Consultants Ltd.); Mr. Heath M. Malcolm (Centre for Ecology & Hydrology Edinburgh)

Perchlorate is an emerging contaminant of significant environmental concern throughout the nation. Sources of perchlorate include the military, which uses it as a high energy oxidizer in rocket propellants and pyrotechnics. When used in ammunition incendiary systems, pyrotechnic compositions containing potassium perchlorate are formulated to mark an impact point or act as ignition sources for flammable liquids.

Dr. Trevor Griffiths and his research team developed environmentally benign, perchlorate-free incendiary and pyrotechnic mix formulations for projectiles such as those used in tanks and howitzers. Thermal studies and aging trials were conducted. Performance tests included burning rate studies, thermal analysis, and gun firing trials. The results demonstrate that perchlorate can be eliminated from incendiary compositions without degrading performance or aging characteristics.

These perchlorate-free alternatives will enable the Department of Defense to reduce human health and environmental risks while continuing essential training activities.

*For more specific information about this project, stop by Poster #106.*