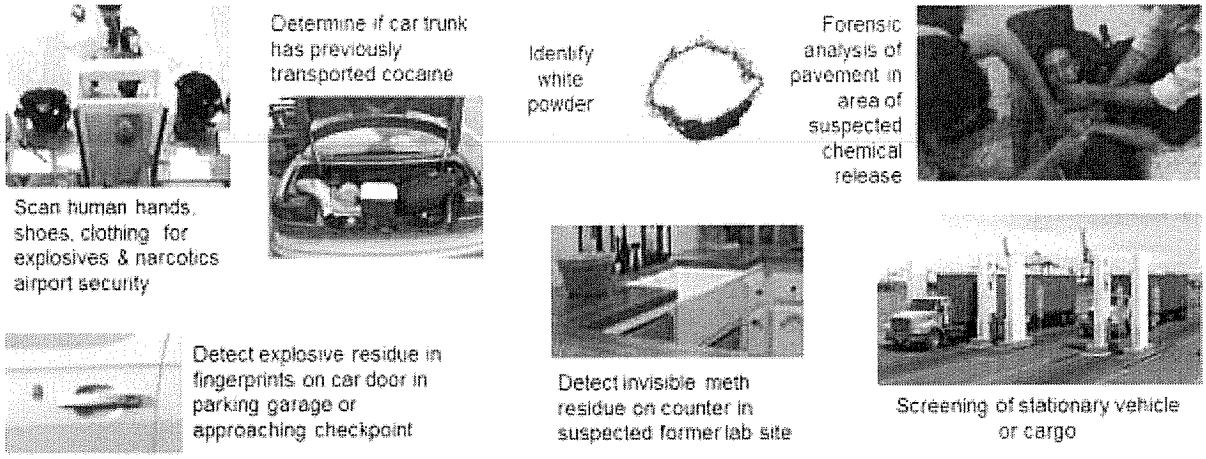
15

IARPA Wants A Magical All-In-One Chemical Detection Tool

They might have to go to Middle Earth to get it

By Kelsey D. Atherton Posted April 8, 2015

Figure 1: Representative SILMARILS Applications



SILMARILS applications

IARPA

America's Intelligence Advanced Research Projects Agency is filled with a bunch of nerds. At the very least, they've got a Lord of the Rings fan in their acronym-making department. Their latest project, open for solicitations last week, is called the "Standoff ILluminator for Measuring Absorbance and Reflectance Infrared Light Signatures," or SILMARILS. Named for the fictional crystal jewels of *Silmarillion* fame, SILMARILS is a device that will illuminate and discover trace chemicals from almost 100 feet away.

With SILMARILS in hand, a range of agencies will be able to look for a wide variety of dangerous and/or illegal substances. The IARPA solicitation is a formal request from the agency for businesses to submit ideas for a human portable device. From the solicitation:

Primary chemical classes and specific representative examples that are of interest in the SILMARILS program include, but are not limited to:

Explosives: Nitro-based compounds such as TNT and RDX, newer formulations such as acetone peroxide, and home-made explosives such as fertilizer bombs.

Chemical weapons and poisonous or toxic chemicals: Chemical weapons such as sarin or tabun, newer non-traditional agents, and toxic chemicals that may be intentionally or unintentionally released such as hydrogen cyanide or ammonia gas.

Narcotics: Illicit drugs such as cocaine, heroin, or methamphetamine, or legal but abused drugs such as Vicodin or Hydrocodone.

Pictured examples of this include scanning hands at a TSA checkpoint for trace chemicals from explosives, detecting meth residue on countertops, and "identifying white powder," among others. There are already many different devices that do some of the tasks that IARPA wants for SILMARILS, but not a single machine that does it all. As described, SILMARILS will do this with multiple approaches, including infrared spectroscopy as well as algorithms and extensive signature libraries that can cross-check what's detected against what's known.

As for the fiction-inspired name? In the text, the Silmarils burn the hands of any evil being who tries to posses them. That's pretty apt.