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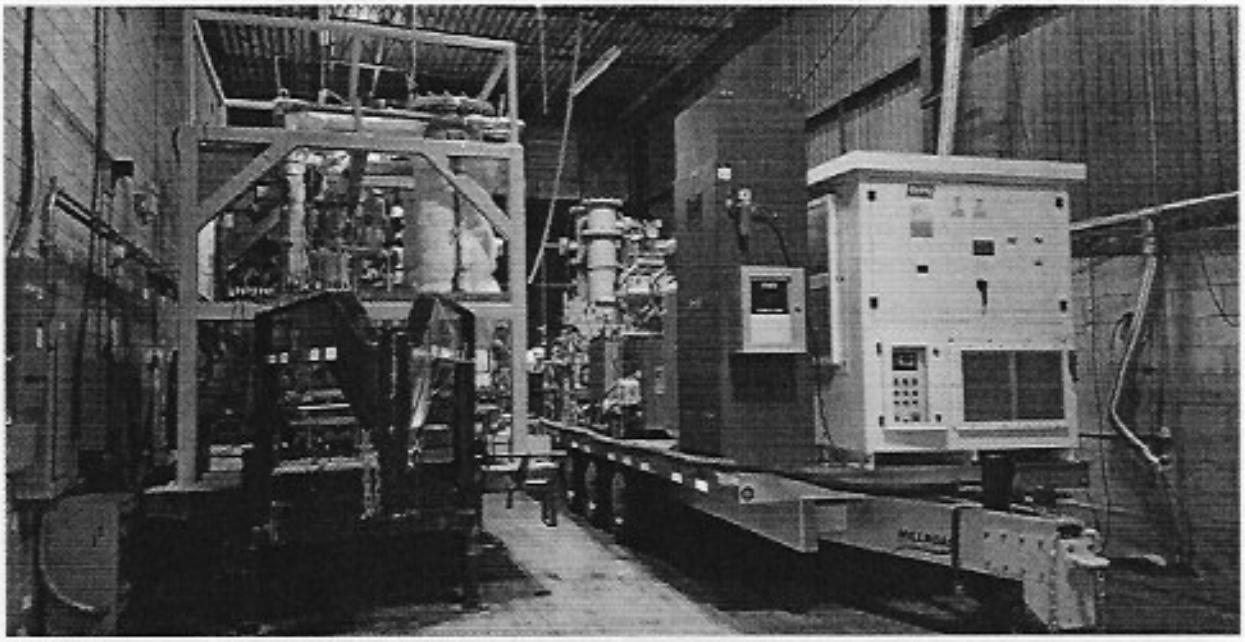
Defense Advanced Research Projects AgencyNews And Events

System to Turn Deadly Chemicals into Harmless Dirt Makes Advances

Soil-based scrubber successfully removes chemical warfare agent simulants in recent tests

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A DARPA program that is developing a field-deployable system for onsite neutralization of bulk stores of chemical warfare agents (CWA) has successfully demonstrated a novel waterless soil-scrubbing technology that safely neutralized toxic chemicals simulating sarin, soman, and mustard agents. Created under the Agency's Agnostic Compact Demilitarization of Chemical Agents (ACDC) program, the technology demonstrated greater than 99.9999% removal of the simulants, without creating any hazardous waste by-products.

The soil-scrubbing technology was tested in conjunction with the Tactical Plasma Arc Chemical Warfare Agents Destruction System (PACWADS), a thermal treatment system already under development for use by U.S. military Services. That system uses a high-temperature plasma torch to convert highly toxic chemicals into relatively benign components, and then uses a water-based capture process to eliminate the last traces of contaminants.

For the ACDC experiment, the PACWADS was modified to eliminate the water scrubber and connect instead to DARPA's soil-based scrubber system, which captured and converted the toxic CWA decomposition products and resulting acid gases into non-hazardous salts. An ability to use local soil from the site where CWA stores have been discovered eliminates the logistical burden of supplying water to such sites, which are anticipated to be remote, and then having to transport resulting liquid wastes to a treatment facility. The soil used in the DARPA process remains non-hazardous and could be safely returned to the environment.

"We were very impressed with fast work by DARPA-supported researchers to develop the soil-based scrubber to test with the PACWADS," said Tyler McQuade, DARPA program manager. "These successful tests validated a critical component of the ACDC concept—a water-free, non-hazardous,