Radiation Protection Group takes 'quantum leap' in surveying

By Michael Dillon
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The Radiation Protection Group of Thermo Analytical Hanford, Inc. recently began operating an innovative system designed to perform radiological surveys in areas not accessible to vehicle-mounted equipment. The new system allows for the use of real-time survey data.

The Man-Carried Radiological Data System (MRDS) was developed by GeoResearch of Billings, Mont., in accordance with specifications provided by Thermo Analytical radiological specialists. "The MRDS provides a quantum leap in survey efficiency and productivity," said Conan Wade, senior manager of Thermo Analytical Hanford's Site Investigative Surveys.

The MRDS uses global positioning satellite technology integrated with radiation detection instrumentation to measure, record, and map radiological conditions for reporting and analysis.

The backpack system, consisting of a global positioning satellite link, a laptop computer and hand-held radiation detectors, may be used alone as a recording and navigation unit or in conjunction with a supervisory monitoring station (base station).

The MRDS is more efficient than the Ultra-Sonic Ranging/Data System (USRADS), which was used previously to survey areas inaccessible to the RadTractor, the mainstay mobile surveying system. With the USRADS, signals were sent from the backpack unit and picked up by nearby transceivers.

"With USRADS, a team of three technicians was used to measure and stake the survey area, set up transceivers within the grid, and perform the survey. With MRDS, one technician can initiate the system, establish differential correction information from an unmanned base station, and perform the survey," said Wade.

"You now have one technician equipped to get more done in one day than what was taking three technicians two days—and the price of a unit is about 20 percent of what a USRADS system costs."

The MRDS system was recently used to complete a 400-acre surface survey of the 100-DR-2 Operable Unit in order to meet a Tri-Party Agreement milestone. While the majority of the area was surveyed with the RadTractor, MRDS was used to complete a three-acre portion that was inaccessible to the tractor because of rough terrain and dense sagebrush.

The MRDS will be used to survey many sensitive areas of the Hanford Site, including the future Environmental Restoration Disposal Facility site—several square miles of heavily vegetated terrain—and various island areas of the Hanford Reach.