



Office of Counterterrorism
and Counterproliferation

Nuclear Incident Policy and Cooperation

Applications:

- Mobile and aerial search for lost or stolen radiation sources
- Background surveys and choke point monitoring at Major Public Events
- Portal monitoring at international border crossings and ports of embarkation/debarkation
- Maritime monitoring of small watercraft and marinas
- Aerial radiological survey of ground contamination

Highlights:

- Compact, lightweight modular design
- Operates as a stand-alone system or with a laptop computer
- Easy to install, easy to operate
- Ruggedized for vehicle, boat, or aircraft operations
- High sensitivity detectors
- Real-time radioisotope identification
- GPS capable with magnetic-mount antenna
- Position tracking on street map, aerial, or satellite imagery
- Audio voice and tone alarms via speaker
- Exportable GIS and spectral data via common formats
- Email option to send spectral data for expert analysis

For nuclear or radiological emergency assistance, please contact the U.S. Department of Energy, Emergency Operations Center 24/7 at +1 202 586 8100



U.S. Department of Energy, National Nuclear Security Administration
Office of Counterterrorism and Counterproliferation
Office of Nuclear Incident Policy and Cooperation

Spectral Advanced Radiological Computer System (SPARCS) Advanced Operator's Course



COURSE OVERVIEW

The Spectral Advanced Radiological Computer System (SPARCS) is an easy-to-install and easy-to-operate, multi-platform detection system for radiological emergency response. The SPARCS has been used by the U.S. Department of Energy emergency response teams for over 20 years to conduct a wide range of radiological search, survey and monitoring operations.

The system can be readily installed in a vehicle, boat, or aircraft to search for lost or stolen radiation sources, conduct background surveys and portal monitoring at Major Public Events, provide port-of-entry and border crossing surveillance, perform maritime surveys of small watercraft and marinas and conduct low altitude aerial search operations. The high sensitivity detectors provide excellent long-range detection which is required for wide area search or survey operations.

The system can be operated in a stand-alone mode or by a technician monitoring a real-time graphical user interface on a laptop computer. Various modes of data monitoring are available to include "bread crumb" position mapping on a street map, aerial photograph or satellite image, gamma-ray count rate strip chart or spectral waterfall graph, or a hotspot alarm window with voice annunciation. GPS is obtained via a low profile external magnetic-mount antenna.

Real-time radioactive material identification is available for selected radioisotopes and spectral data can be viewed and analyzed by experienced operators or emailed to experts for analysis. Positional tracking data can also be exported as shape files for use in Geographic Information System data products.



COURSE OBJECTIVES

- To provide first responders advanced training in large-area radiological search and survey operations
- To improve emergency response for nuclear or radiological accidents and incidents via hands-on engaging training
- The SPARCS Advanced Operator's course can be conducted in 3.5 days in English or with translation and includes classroom briefings, demonstrations, and hands-on training. Course also includes demonstrations, hands-on training, and field exercises with radiation sources. The course content can be customized to meet specific needs.

COURSE DESCRIPTION

- DOE facilitators are subject matter experts experienced in health physics, radiation protection, and emergency response operations from the U.S. Department of Energy national laboratories.
- The course typically lasts 3.5 days and the course can be conducted in English or through translation as required.
- The course utilizes field exercises and equipment demonstrations to engage participants and to reinforce training concepts. The course content can be customized to meet specific needs.

FOR MORE INFORMATION PLEASE CONTACT

Ann Heinrich, Director
 Office of Nuclear Incident Policy and Cooperation
 +1 (202) 586-8165 or Ann.Heinrich@nnsa.doe.gov

Quick Facts:

- Target audience: first responders and radiation protection professionals responsible for radiological emergency response operations
- Class size: 8–10 participants (2 SPARCS systems)
- Facilitators: 2–3
- Length: 3.5 days
- Focus: classroom lectures, equipment demonstrations, activities and field exercises

Specifications:

- Large-volume sodium iodide detectors
- SPARCS software compatible with any laptop
- Control unit – 18 x 30 x 16 cm, 5.4 kg
- Detector pod – 42 x 82 x 25 cm, 30 kg
- Power range – 10 to 40 VDC (compatible for vehicle to aircraft)
- Inverter – 110 to 220 VAC (for classroom training and pre-deployment checkout)
- User-configured static or dynamic detection algorithms
- USB memory drive data storage
- Detector gain stabilization via embedded natural K-40
- System self-diagnostics check every 15 minutes
- Exportable geo-referenced data compatible with GIS

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