



Engage. Explore. Empower.
Connecting Visionaries in Radiation Safety, Science and Industry

MIRION
Connect **24**
Annual Users' Conference

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MIRION
TECHNOLOGIES

Breaking Rad: CBRN Hot Zone

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Mirion Connect | Annual Users' Conference 2024

Dallas, Texas

A background image featuring a large, dark, circular nuclear symbol (a circle with a triangle inside) superimposed on a dark, stormy sky with white, swirling clouds. The symbol is slightly off-center to the right.

35

Breaking

226

Rad



- **Summary of Exercise**
- **Instruments Overview**
- **Review**

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Summary of Exercise

- **Breaking Rad: CBRN Hot Zone** is short “make-it-fun” exercise designed to enhance the awareness of radiation safety using both live and simulated radiation sources in a simulated hazardous environment.
- Participants work in teams to prepare, assess, collect survey data in a simulated hot zone.
- Radiological monitoring of personnel and controlling contamination are emphasized through-out.

Instrument Overview

▪ Personal Monitoring

- DMC-3000 Electronic Personal Dosimeter
- DMC-3000TD Training Simulator
- AccuRad Personal Radiation Detector
- AccuRad SIM Training Simulator

▪ Portable Survey Instrumentation

- RDS-32 and CSP Contamination Probes
- RDS-32TD Training Simulator
- SPIR Ace Radioisotope Identification Device
- AP2C/4C Chemical Vapor Simulator

▪ Portal Monitors

- MiniSentry 2 Transportable Portal
- SPIR Ident Pedestrian Spectroscopic Portal

DMC-3000

- Loud, vibrating and dual ultrabright LED alarm
- Highly visible backlit display
- Simple 2-button navigation
- Additional modules (Beta, Neutron, Telemetry and Neutron Telemetry)
- Range to 1000 rem dose and dose rate
- Superior X-ray and gamma energy response (Hp(10) and Hp(0.07))
- Exceeds applicable IEC and ANSI standards
- Excellent immunity to electromagnetic interference
- Designed for ruggedness and durability



DMC-3000TD Simulator Training Device

- Simulates all features and functions of the DMC 3000™ device
- Uses original hardware for realism
- Supports all configurations
- Provides all alarms and faults
- Works with DMC-3000 accessories including Transmitter Module
- Works with manual or automatic dose rate input



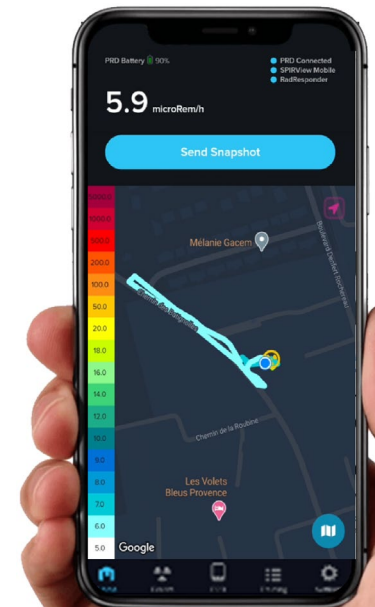
TWR Source



Simulator Control Center (SCC)

AccuRad Personal Radiation Detector

- Solid and durable, with an impact-resistant covering
- Simple to use – little/no training required
- Discreet, with a top-screen display for quick-glance reading
- Range to 1000 rem dose and dose rate
- Field replaceable batteries for more than 900 hours operation
- Radar directionality feature for source localization
- Low cost of ownership



AccuRad SIM

- Realism without the risk!
- Utilizes all the AccuRad features including:
 - Low-High-Danger thresholds and alerting
 - Trend and Search
 - Directional Radar
- Programmable RadSIM Source with dial for preset dose rate, activity or distance scenarios
- AccuRad Smartphone App connectivity for reachback and streaming event data
- Integrates with optional PlumeSIM for large scale CBRNE response exercises



AccuRad SIM



RadSIM Source

Instrument Overview

Personal Monitoring

AccuRad SIM



Hidden
RadSIM GS4-A
in suspicious luggage

Max 60m / 200ft
"Line of sight"
Radiofrequency
signal

Optional AccuRad Smartphone App
Reachback & Supervision

- SpirVIEW Mobile
- RadResponder
- Email, SMS



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RDS-32 & CSP Probes

- Wide range of dose and dose measurements
- External alpha, beta, gamma and neutron probes
- Telemetry version for wireless monitoring
- Large graphic screen, configurable backlight
- Automatic display rotation with tilt sensor
- High impact durable case construction, IP67 immersion proof
- Integrated Bluetooth for Smartphone App connectivity with reach back CBRNResponder



Instrument Overview

Portable Survey Instrumentation

RDS-32TD Simulator Training Device

- Wide range of dose and dose measurements
- External alpha, beta, gamma and neutron probes
- Telemetry version for wireless monitoring
- Large graphic screen, configurable backlight
- Automatic display rotation with tilt sensor
- High impact durable case construction, IP67 immersion proof
- Integrated Bluetooth for Smartphone App connectivity with reach back CBRNResponder



TWR Source



Simulator Control Center (SCC)

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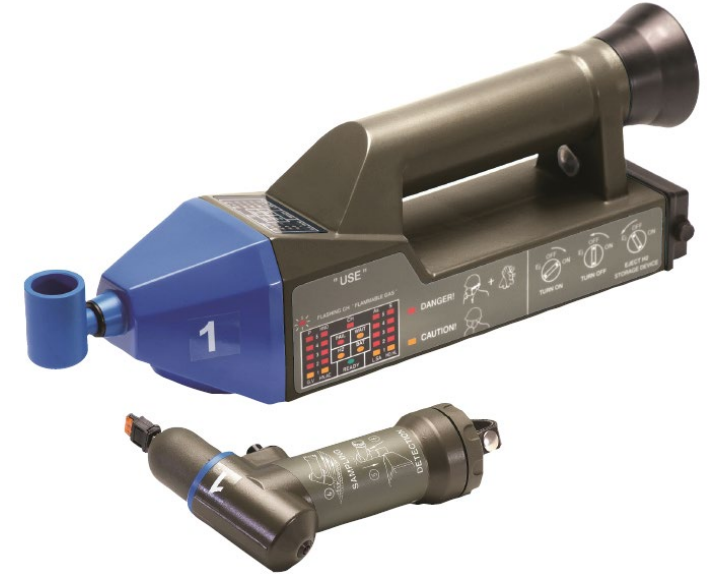
SPIR Ace Radioisotope Identification Device

- Ultra fast and accurate search and nuclide identification
- Identifies heavily shielded materials, unbalanced mixes, and Special Nuclear Materials masking scenarios
- Sourceless LED background stabilization
- Source localization with directional radar
- Library of over 80 Radionuclides in 5 categories
- Remote display and control to web page via WiFi
- Externally connected contamination probe.
- Live data transmission and reachback, including to CBRNResponder and streaming to SpirVIEW Mobile™ software



AP2C / AP4C Chem Vapor Simulator

- Training simulator for detection of chemical vapors, toxic industrial substances or false positives
- Simulates
 - Chemical Warfare Agents (CWA)... Sarin, Tear gas, Mustard
 - Toxic Industrial Chemicals (TIC)... ammonia, chlorine
 - False Positives
 - Contamination
 - Effects of Wind Direction and Temperature



**Remote
Controller**



**Long Range
SIM Source**



**Point Contact
Source**

MiniSentry 2 Transportable Portal

- Gamma portal monitor for rapid deployment and emergency response
- Quick and easy setup with auto start-up
- Detection of 1 μCi ^{137}Cs (according to FEMA-REP-21)
- Simple clean/contaminated status indicator
- Weight less than 43 kg (95 lb)
- Three measurement modes available (walk-through, enter-wait, count-rate)
- Powered by battery (>65 hours autonomy¹), USB or 100/240V



SPIR Ident Pedestrian

- Detection-by-Identification: dynamic radionuclide identification
- Modular portals for pedestrians, luggage, mail, vehicles, trucks and trains
- Protection of borders, airports, seaports and critical sites such as buildings, industrial sites, nuclear plants, warehouses
- High dose rate detector for large sources, for personal protection and saturation management



Pedestrian G2L
(2x4x16")



Module G3
(3x3")

Scenario Discussion: **The Scene**

- Local PD respond to a residence; reports of wild party, strange sounds, sights and odors.
- Backroom discovered with lab equipment, scattered containers, DOA John Doe, and suspected foul play.
- CBRNE surveillance (survey meter) detect higher than normal background radiation levels with powdery substances scattered through out.
- The HAZMAT Response Team (HRT) has barricaded entry to the facility and established a Hot Zone in the backroom.
- The HRT will further assess the conditions to support investigation and eventual remediation.

Group Review



Thank You for Participating!

