



## **CTOS—Center for Radiological/ Nuclear Training at the NNSS**

### **Mission**

The Nevada National Security Site (NNSS) CTOS program mission is to develop and deliver the most realistic and highest quality training in support of homeland security using extensive radiological expertise with the unique assets of the NNSS.

### **Background**

The U.S. Department of Energy, National Nuclear Security Administration (NNSA) is a member of the National Domestic Preparedness Consortium. CTOS develops and conducts training courses for U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency/National Preparedness Directorate National Training and Education Division and the Domestic Nuclear Detection Office. CTOS continues to provide expertise and training to the state and local emergency response community. This partnership of nationally recognized public universities, DHS, and NNSA has created a well-coordinated and fully integrated training program of the highest caliber. In recent years, the various CTOS programs have met the training and education needs of more than 13,000 emergency responders per year in state, local, and tribal governments, protecting the nation from a potential radiological or nuclear weapon of mass destruction (WMD).

### **Courses**

The NNSS CTOS program develops and delivers training for emergency responders to take immediate, decisive action to prevent or mitigate terrorist use of radiological or nuclear WMDs, such as Radiological Dispersal Devices (RDDs) and Improvised Nuclear Devices (INDs). Training and course materials are provided at no cost to eligible participants. Courses are conducted at the NNSS, municipality-hosted locations, and online. Upon successful course completion, participants become eligible for continuing education units sponsored by the University of Nevada, Las Vegas. For a list of all mobile, resident, and online courses, visit the CTOS website at: [www.ctosnnsa.org](http://www.ctosnnsa.org).



*Responders mapping a simulated hot zone.*

### **Nevada National Security Site**

The NNSS is a massive outdoor laboratory, national experimental center, and training facility located 65 miles northwest of Las Vegas, Nevada. Originally established for testing nuclear weapons, from 1951 to 1992, the NNSS was the location of 1,021 nuclear detonations and numerous radiological dispersal tests. Since the 1950s, the NNSS has been conducting training and exercises using



radioactive materials and contaminated environments. Today, the 1,375 square miles of secluded and secure land at the NNSS provide a safe environment for training in realistic WMD scenarios.

## Actual Radioactive Material

The CTOS courses, except for the awareness-level and online courses, are performance-based using multiple types of radioactive material, most of which use special nuclear materials such as uranium and plutonium. Courses are designed so that participants receive only minor radiation doses (lower than a chest X-ray or a typical round-trip airline flight across the United States). The radiation levels are sufficient to learn techniques required in an actual incident involving much higher radiation levels. Each participant operates and employs radiation detection and measurement instruments throughout the course. Participants train with radioactive material in classroom practice, scenario-based drills, and performance evaluations.

## Radiological/Nuclear WMD Incident Exercise Site (T-1 Site)



*Layout of the Radiological/Nuclear WMD Incident Exercise Site (T-1 Site). For more photographs, visit the CTOS web site: [www.ctosnnsa.org](http://www.ctosnnsa.org)*

1. Ground Zero of Actual Nuclear Detonations
2. RDD in Downtown with Busses and Cars
3. RDD at Airport with Planes and Trucks
4. RDD at Train Station with Locomotive
5. Rail Station/Classroom
6. Industrial Site/Clandestine Laboratory
7. Attacks on Tractor Trailer Transport Vehicles
8. Airliner Debris Field
9. Participant Staging Area
10. Contaminated Restaurant and Strip Mall
11. Residences/Safe Houses
12. Railroad Tunnel
13. Crashed/Damaged Vehicles

The Radiological/Nuclear WMD Incident Exercise Site (T-1 Site) at the NNSS is like no other training ground in the United States. Four nuclear devices were detonated at this location between 1952 and 1957. The small amount of nuclear fallout remaining from these detonations is now below the surface of the soil, providing a realistic and safe training area today. The soil at the T-1 Site emits low levels of radiation, simulating widespread radiological contamination from an RDD or IND, yet poses minimal risk to participants. Adding to the realism, radioactive debris created during the nuclear detonations, such as twisted steel fragments and sand melted into radioactive glass (trinitite), is still scattered throughout the T-1 Site. Industrial, sealed radioactive sources are also placed in exercise areas to create higher levels of radiation as needed for training objectives. The T-1 Site covers more than 10 acres of training venues, providing a realistic and vast exercise area with elevated radiation levels.

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