

# **STRENGTHENING GLOBAL NUCLEAR SECURITY THROUGH COUNTERTERRORISM TRAINING, EQUIPMENT ENHANCEMENT, AND BEST PRACTICES**

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## **Abstract**

The U.S. Department of Energy/National Nuclear Security Administration (DOE/NNSA), Romanian National Commission for Nuclear Activities Control (CNCAN), Safeguard, Physical Protection, Mining Section, and International Atomic Energy Agency (IAEA), worked together to build a training program to strengthen the capabilities and capacities of the radiological and nuclear response teams. These enhancements were implemented by conducting training on best practices for major public event security and performing new equipment upgrades and subsequent training on the best practices to utilize these new capabilities within the overall security plan of a major public event. This culminated with the very successful use of these enhanced capabilities during the informal European Council Summit on May 9, 2019. This paper will outline the steps taken to develop this enhanced capability and will discuss future steps to ensure the responder community continues to learn and grow from experiences in nuclear security.

## **1. INTRODUCTION**

Nuclear security is a nebulous and extremely complex security concern during operations like a Major Public Events (MPEs). On the one hand the likelihood of a radiological or nuclear security event happening is very unlikely but the consequences could be extremely catastrophic. These consequences are not limited to just loss of life or physical damage to property and/or infrastructure but also include the potential psychological effects on a population that is affected. Many security practitioners still deem many other threats that are more likely but have much less catastrophic risks to be a higher priority on the training and resource scale. This results in challenges for the nuclear security practitioners to be able to justify training time, money and other resources to continue to evolve with the ever-expanding threat. The mutual understanding of this complex threat environment allowed us to develop a training plan, equipment delivery timeline and execute these events prior to the informal European Council Summit in May 2019.

MPE's remain a viable target for organizations that wish to harm innocent people for a variety of reasons such as discrediting a sitting government, cause terror, or to promote an ideology. Most of these events have international participants, interest or both. Some examples of MPE are major sporting events like the FIFA World Cup or Olympics and major government conferences like the United Nations General Conference. However, events like the visit by the Pope are seen as a MPE in most situations as well because of the vast international interest in these events. The high-

profile of these events means that there would be a catastrophic impact on the host nation and huge implications for global security if they were attacked in any fashion. Those effects would be even more devastating if radiological or nuclear material was used.

Because of the global implications of the security of these events, many nations and organizations are working together to develop best practices to thwart these threats. This can be through cooperative training, equipment enhancements, other resources or a combination of all of these pillars. This paper will discuss how CNCAN, the IAEA and the NNSA worked together over nearly 24 months to conduct training, equipment enhancement and other resources to prepare for a the Romanian hosted informal European Council Summit in May 2019 that included nearly 30 heads of state.



*Informal Summit of Heads of State or Government of the European Union, Family photo, Sibiu, May 9th, 2019.  
Photo credit: AGERPRES FOTO / ANGELO BREZOIANU*

## 2. NATIONAL WORKSHOP ON NUCLEAR SECURITY MEASURES FOR MAJOR PUBLIC EVENTS

To begin the partnership in preparing for nuclear security operations to support an MPE Romania made a request to the IAEA for a workshop on Nuclear Security at MPE. The IAEA subsequently accepted the request and asked other member states if they were able to support the workshop request from the requesting member state. In this case the United States was able to support this request.

Romania then hosted an expert team from the DOE/NNSA and IAEA for a training on best practices and nuclear security concepts for MPEs. The trainees came from across the Romanian security spectrum and were experts in security operations, chemical, biological, radiological and nuclear (CBRNE) threats as well as emergency management. Some of the Romanian agencies represented were the CNCAN experts, the Ministry of National Defense, the General Inspectorate of the Romanian Police, the General Inspectorate of Emergency Situation, the General Inspectorate of Romanian Gendarmerie, and the National Institute of Nuclear Physics and Engineering (IFIN). This showed the importance that Romania placed on this workshop and developing a whole of government action plan in regard to nuclear security operations during an MPE.

The International Radiological/Nuclear Training for Emergency Response (I-RAD)/MPE Course provides first responders, law enforcement officers, facility security officers, radiation protection specialists, and emergency managers with practical information to effectively respond to radiological incidents and accidents at major public events, such as the Olympic Games or World Cup tournaments. The lectures cover radiation properties and health effects, radiological hazards, radiation detectors, radiological search and identification, facility baseline radiation surveys, radiation portal monitoring, mission planning and response operations, radiation alarm interdiction and adjudication, and source recovery. Radiation detection equipment demonstrations and hands-on training with a wide range of radiation detection instrumentation that the training team brings to the course are incorporated into the lectures. Participants apply the information that they learn in the classroom lectures, equipment demonstrations, and hands-on equipment training during a full day of field exercises conducted with radiation sources at a major public event facility.

This workshop focused on the roles of the responders within the nuclear security context and how this radiological and nuclear specific security effort fits into an overall security plan during major public events. Because many of the responders have limited understanding of radiation effects and the as low as reasonably achievable (ALARA) principle much of the first day is spent on radiation basics and detection architecture. We then progressed into nuclear security operational and planning factors for developing a nested nuclear security plan that will be a part of a larger and more robust all hazard security plan for the MPE. This is the area that many of the first responders in our workshop excel because of their roles in these broader security plans and the workshop is able to enlighten the group to the small nuances that go into planning for detection, response, and adjudication to radiological and nuclear threats.

This training also contributed to the development of the national nuclear response plan being drafted by the Romanian National Commission for Nuclear Activities Control. This plan was implemented during the MPE and help ensure that this often-overlooked sector of the security planning was accounted for to ensure the most complete security plan possible. The national framework for managing response to nuclear security events was part of the Romanian National Cooperation Plan. This plan ensured the coordination between the Emergency Response Plan, the Transportation Plan, the National Response Plan in case of Terrorist Attacks, and the legal procedures for evidence collection and prosecution. The national Cooperation Plan was developed and is implemented by the National Commission for Nuclear Activities Control (CNCAN), the Ministry of Interior (MAI), the Ministry of Health (MS), the Ministry of Public Finances – National Tax Administration Agency (ANAF) through the General Directorate of Customs (DGV), the Romanian Intelligence Service (SRI), the Special Telecommunications Service (STS), the National Veterinary Health Authority and Food Safety (ANSVSA), the Ministry of Environment-National Agency for Environmental Protection (ANPM) and Environmental Protection Agencies (APM), the “Horia Hulubei” National Institute of Physics and Nuclear Engineering (IFIN-HH), and the Institute for Nuclear Research Pitesti. This whole of government approach was utilized during the informal EU summit and the Pope visit to Romania in 2019.

### 3. SPECTRAL ADVANCED RADIOLOGICAL COMPUTER SYSTEM (SPARCS) EQUIPMENT DELIVERY AND TRAINING



*SPARCS System*

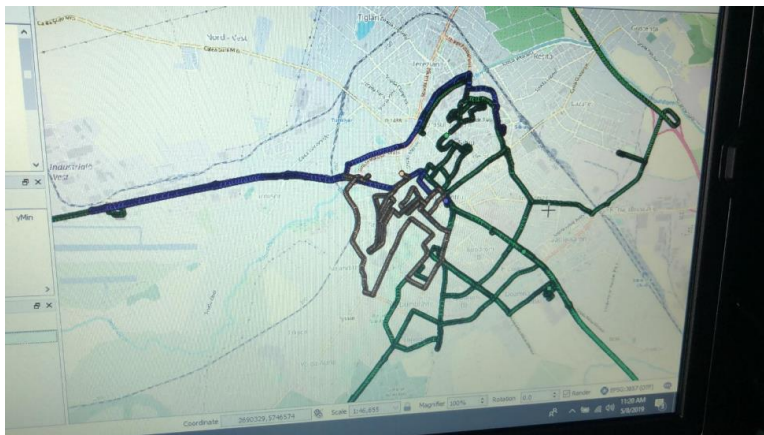
*Photo credit: National Nuclear Security Administration*

Romania hosted an expert team from the DOE/NNSA that delivered the SPARCS equipment, conducted training on the equipment, and shared best practices for the operation and application of this detection equipment. These mobile detection systems were an enhancement to the overall security posture of the Romanian government. This training focused on the Romanian technical experts who would be managing and analysing the complicated data that would be streaming in real time during a security operation. These experts were radiological and nuclear scientist and other technical experts that would operate and analysis the data from the SPARCS equipment.

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.



*SPARCS Installed during pre MPE operations  
Photo credit: Sorin Repanovici*



*SPARCS survey map using the embedded CABIN software  
Photo credit: Sorin Repanovici*

#### 4. INFORMAL EU COUNCIL SUMMIT

As stated in the IAEA Nuclear Security Fundamentals, the responsibility for nuclear security rests entirely with each State. Romania has a strong and sustainable nuclear security regime assuring the protection of persons, property, society and the environment from a criminal or unauthorized act with nuclear security implications involving nuclear and other radioactive material.

Romania hosted the Informal European Council on May 9, 2019, in Sibiu, Romania. For the first time in Romania, the National Commission for Nuclear Activities Control (CNCAN) was invited to implement Nuclear Security Measures for the Summit. As the nuclear regulatory authority, CNCAN assumed the role of coordinator of all activities related to nuclear security.





*Radiological and Nuclear Operations and Assessment during the MPE  
Photo credit: Sorin Repanovici*

CNCAN became part of the Inter-Ministerial Committee for Security “ROMANIA – EU 2019”. CNCAN coordinated the nuclear security plan with the Protection and Guard Service (SPP), the organization with overall responsibility for coordinating security at the event. With the support of the SPP, the nuclear security plan was an integral part of the overall security plan. Between May 31 to June 2, 2019, Pope Francis travelled to Romania for an Apostolic Visit and lessons learned during the EU Summit will be implemented during the Pope’s visit.



*Equipment Cache used during the MPE  
Photo credit: Sorin Repanovici*

## 5. SUMMARY

The U.S. DOE/NNSA and the Romanian National Commission for Nuclear Activities Control jointly worked together to develop a training plan that considered the best practices from both countries experience in nuclear security as well as the training planned in conjunction with the delivery of enhanced equipment. This training plan culminated with the successful completion of the informal European Council Summit with no radiological or nuclear incidents.