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Advancement in Australian CBRN training facilities giving frontline responders a realistic awareness of working in the 'hot zone'

With the current credible terrorism threat level at 'probable', Australian state and federal police agencies continue to prioritise CBRNe (Chemical, Biological, Radiological, Nuclear, and high yield Explosives) interagency training for frontline responders. The ANSTO Nuclear Forensics team have provided the RN component of the interagency workshops for Australian law enforcement over the last decade by delivering hands-on demonstrations of current radiation field detection technology and radiological crime scene processes, in realistic 'hot-zone'scenarios. Partnering with our law enforcement agencies to deliver this essential service allows emergency teams to keep up to date with their knowledge of radiological detection equipment and their familiarity with best practice in the management of a radiological crime scene, furthering their ability to prepare strategic responses to radiological threats.

With the recent addition of a new, world-class fire and rescue training facility located on the outskirts of Sydney, emergency responders have been provided with the opportunity to run large-scale multi-agency exercises. The facility was completed in 2019 to become the new Fire and Rescue NSW Emergency Services Academy headquarters, with access being extended to other state and federal emergency services for training purposes. The facility includes staged scenes such as rubble following an earthquake, the aftermath of a car crash, a petrol station, an underground railway line, a railway station and a five-storey building with combustible cladding, allowing many CBRN scenarios to be simulated.

In 2020 and 2021, the NSW Police Forensic Evidence and Technical Services Command (FETSC) organised week long CBRN workshops at the academy. The workshops were designed as a development opportunity for staff, team leaders and other technicians working within the forensic framework to exercise response to large scale hazardous scenes. The course included external cooperation from multiple agencies such as Forensic and Analytical Science Service (FASS), NSW Department of Health, NSW Ambulance, Public Order and Riot Squad (PORS), Fire and Rescue NSW, and ANSTO. Three days of the workshop included practical exercises involving separate chemical, biological, and radiological scenes, followed by a full day scenario involving multiple hazards and life threating situations.

ANSTO's involvement in the FETSC CBRN training course was giving instruction on best practices for radiological crime scene management, through both theoretical and practical modalities. ANSTO provided a presentation outlining general radiation awareness, an introduction to nuclear forensic science and radiological crime scene operations as well as a practical demonstration on the use of personal dosimeters, radiation detectors, shielding and transport equipment. For the hazardous scenes involving all CBRN components, ANSTO staff were the RN subject matter experts (SME) and provided a 0.37Bq Cesium-137 source to simulate a live threat. Fluorine-18 was also utilised to provide real-world experience operating in a contaminated environment.

With our experience in safely transporting and handling industrial sealed sources and our access to a supply of radioactive material for use in mock crime scenes, we ensured that trainees received first-hand experience using their own specialised detectors in a simulated 'hot zone'. ANSTO's expert guidance and supervision, created a safe environment for our partner agencies to experience and learn about detection of a real radioactive source while leveraging infrastructure developed for fire and rescue training.

Primary authors: KEIGHRAN, Nikki; Mr GORALEWSKI, Jack

Co-authors: Mrs TOOLE , Kaitlyn; Ms TOCH , Anny; Mrs BULL , Tegan

Presenters: Mr GORALEWSKI, Jack; Mrs TOOLE , Kaitlyn

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