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Developing Traditional Forensic Science Exploitation of Contaminated Exhibits Recovered from a Nuclear Security Event

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Previous investigations of materials recovered from illicit trafficking events have highlighted the benefit of encompassing both nuclear forensic science and traditional forensic science studies to maximise exploitation and interpretation [1]. While nuclear forensic science focuses on the characterisation of the recovered unknown radionuclide material, traditional forensic science provides classical law enforcement with investigative, associative and reconstruction links. The ability to perform traditional forensic science examinations can prove to be challenging due to the specialist instrumentation required, which is rarely housed in the laboratories which support nuclear forensic science studies.

In response to this challenge, the UK funded the construction of a dedicated laboratory at a nuclear licenced site to enable the safe handling of exhibits contaminated with radionuclides [2]. The laboratory is well equipped with modern instrumentation enabling a broad range of examinations to be performed on exhibits contaminated with radionuclides. Forensic scientists from the traditional disciplines have been, and are being, trained to work within the dedicated laboratory under the supervision of technical experts from the nuclear licenced site, thus enabling them to perform the studies and examinations they would routinely perform in their "home" laboratories.

Whilst traditional forensic science techniques are well established in the normal laboratory environment, undertaking them within a glovebox can provide unique challenges and difficulties not usually experienced by the traditional forensic scientist. This paper discusses the recent example of the ongoing method development and validation studies within the CFAC (Conventional Forensic Analysis Capability) laboratory at AWE. These studies ensure that, if required to support a nuclear security event, the traditional forensic science examinations to be performed in the CFAC laboratory are to the current good practice required by the international forensic science community.

References

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