

## “Into touch with one another”: The sustainment of an Australian nuclear forensic capability through collaboration

*“The history of science is rich in the example of the fruitfulness of bringing two sets of techniques, two sets of ideas, developed in separate contexts for the pursuit of new truth, into touch with one another”*

*J. Robert Oppenheimer*

A robust and sustainable nuclear forensic capability will generally not, and did not in Australia, fall wholly within the ‘business as usual’ capabilities of a single organisation. Instead, it will draw upon the capabilities of multiple organisations, with dedicated efforts needing to be made to bring and keep these capabilities “into touch with one another”.

Organisations which form key parts of Australia’s nuclear forensic capability include ANSTO and the Australian Federal Police (AFP). These organisations typically function within entirely separate contexts; ANSTO is a public research organisation and the AFP undertakes operational law enforcement. These contextual differences in turn give rise to distinct characteristics in domains ranging from techniques and processes to organisational cultures. In spite of these differences, ANSTO and the AFP were able to come together to develop a national nuclear forensic capability. Over time it has become apparent that such differences are, in fact, critical to the success of this capability. For example, the traditional forensic techniques of fingerprint examination, DNA analysis and digital forensics have been brought together with glove box engineering developed over decades in the nuclear industry to establish capabilities for the examination of traditional forensic evidence contaminated with radionuclides. As a further example, processes such as chain of custody which are integral to the operation of a forensic laboratory have been integrated into the practices of the nuclear laboratory, ensuring that the results of the characterisation of nuclear or other radioactive materials will be accepted as evidence by the courts. The strengths of the Australian nuclear forensic capability has been demonstrated in activities such as the Nuclear Forensics International Technical Working Group (ITWG) Collaborative Materials Exercise 6 (CMX-6).

However, it is vital to maintain awareness of the challenges, as well as benefits, which can be presented by these contextual differences and implement measures to manage them as required. In Australia, such measures have included staff with tertiary qualifications in forensic science within ANSTO’s nuclear forensics team, programs of cross-training for staff of both organisations and formal agreements between the organisations which establish mutual expectations. However, organisations must not in this process lose sight of the key capabilities that they bring to the collaboration; the cultivation and maintenance of ANSTO’s unique nuclear knowledge and the associated technical proficiencies is fundamental to the national nuclear forensic capability.

This paper will describe the Australian model for nuclear forensics, built upon collaboration between ANSTO and the AFP, and provide examples of the ways in which the organisations’ capabilities are kept “into touch with one another”.

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### Gender

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