



*Delivering benefits  
for nuclear security*

## CASE STUDY

# Nuclear security and border monitoring

The illicit movement of radioactive material poses a major risk to national and international security and continues to drive government policy around the world.

The ability to quickly and accurately detect and locate radiological threats transported among the immense volume of routine cargo shipments is essential for nuclear security and to minimise disruption to the flow of commerce.

### THE CHALLENGE

Current detection methods rely heavily on passive gamma-ray detectors, without imaging functionality. These are typically configured in the form of fixed portal monitors deployed at ports of entry, as well as mobile gamma radioisotope identification devices for secondary screening.

These detection systems are tasked with addressing the often competing demands from:

- **Nuclear security** - accurate threat identification, with no tolerance for failing to identify a present threat.
- **Commerce** - fast screening, with minimal delay to the flow of commerce.

Current systems are challenged by false positive and nuisance alarms, resulting in time consuming, manual secondary screening.



Checkpoint search where multiple vehicles can be screened in a single acquisition. The panorama shows the location of two hidden <sup>137</sup>Cs sources of radiation.



## Enhanced secondary screening

CORIS360<sup>®</sup> can enhance nuclear security outcomes with reduced impact on commerce, by quickly performing secondary screening of people, vehicles and cargo containers.

CORIS360<sup>®</sup> is a novel, patented approach to identify and locate radiological signatures quickly and accurately in a safe, non-invasive manner. The system locates gamma signatures across a broad energy range and over a wide field of view. CORIS360<sup>®</sup> also detects the presence of neutrons.

Combining radiological imaging functionality with neutron detection capability delivers significant nuclear security benefits.



CASE STUDY

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## Fast gamma imaging with neutron detection

CORIS360® provides:

- 360° x 90° field of view gamma imaging enabling multiple people, vehicles and containers to be scanned at any one time
- Fast imaging and data collection to minimise disruption to commerce
- Identifies and locates radioactive sources, quickly differentiating between radioactive sources of concern and naturally occurring radionuclides
- Ability to image multiple threat signatures from a single acquisition
- Simple graphical user interface with optical overlay to aid interpretation
- Ability to detect the presence of neutrons
- Eliminates the manual labour and personnel radiation exposure from scanning with a handheld device

*CORIS360® delivers value. Better data improves decision making for anyone working in radioactive environments.*



### Intelligent

Optimised sampling to identify and localise radiation sources



### Fast

Compressed sensing delivers faster results



### Full energy range

Image across the full energy range. Ability to detect presence of neutrons



### Large field of view

See more in one acquisition



### Precision

Better data for improved decision making



### Safe

Remote operation reduces worker exposure



### User-friendly

Easy to interpret and versatile with customisable detectors



### Cost effective

Faster imaging saves time and resources



## Contact us

For further information on CORIS360® including case studies and technical reports please visit:

### Website

[www.coris360.com](http://www.coris360.com)

### Email

[coris360@ansto.gov.au](mailto:coris360@ansto.gov.au)

### Phone

+61 2 9717 3311



Australian Government



CORIS360® is a product of ANSTO, the Australian Nuclear Science and Technology Organisation, with over 60 years of experience in meeting the nuclear needs of industry.