World Institute for Nuclear Security

Security Exercises – Guard Force Performance Testing

Design Basis Threat Exercise

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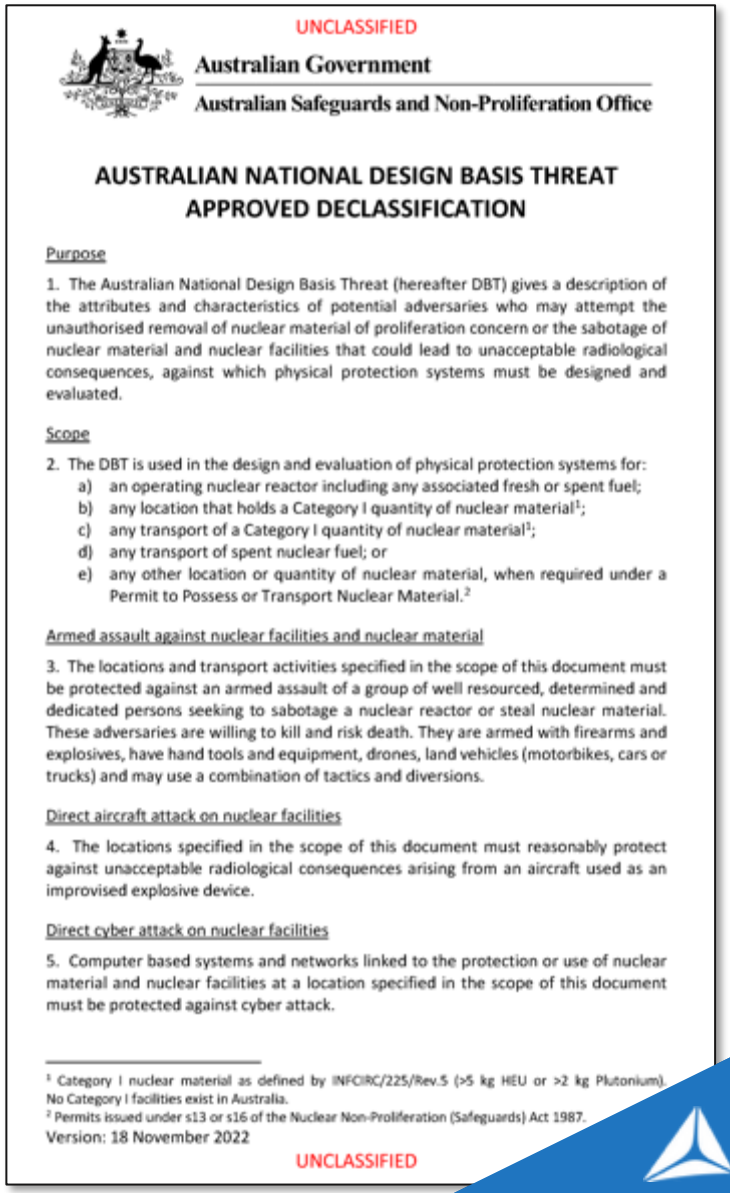
ANSTO

The Lucas Heights Campus

The Australian Design Basis Threat

The DBT

- Issued by the Australian Safeguards and Non-Proliferation Organisation.
- Must conduct one major exercise within the life of the permit.
- Supplemented with individual facility response exercises and tactical drills by our on-site response force (Australian Federal Police (AFP)).



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Australian Government

Australian Safeguards and Non-Proliferation Office

AUSTRALIAN NATIONAL DESIGN BASIS THREAT
APPROVED DECLASSIFICATION

Purpose

1. The Australian National Design Basis Threat (hereafter DBT) gives a description of the attributes and characteristics of potential adversaries who may attempt the unauthorised removal of nuclear material of proliferation concern or the sabotage of nuclear material and nuclear facilities that could lead to unacceptable radiological consequences, against which physical protection systems must be designed and evaluated.

Scope

2. The DBT is used in the design and evaluation of physical protection systems for:
   a) an operating nuclear reactor including any associated fresh or spent fuel;
   b) any location that holds a Category I quantity of nuclear material[1];
   c) any transport of a Category I quantity of nuclear material[1];
   d) any transport of spent nuclear fuel; or
   e) any other location or quantity of nuclear material, when required under a Permit to Possess or Transport Nuclear Material.[2]

Armed assault against nuclear facilities and nuclear material

3. The locations and transport activities specified in the scope of this document must be protected against an armed assault of a group of well resourced, determined and dedicated persons seeking to sabotage a nuclear reactor or steal nuclear material. These adversaries are willing to kill and risk death. They are armed with firearms and explosives, have hand tools and equipment, drones, land vehicles (motorbikes, cars or trucks) and may use a combination of tactics and diversions.

Direct aircraft attack on nuclear facilities

4. The locations specified in the scope of this document must reasonably protect against unacceptable radiological consequences arising from an aircraft used as an improvised explosive device.

Direct cyber attack on nuclear facilities

5. Computer based systems and networks linked to the protection or use of nuclear material and nuclear facilities at a location specified in the scope of this document must be protected against cyber attack.

[1] Category I nuclear material as defined by INFCIRC/225/Rev.5 (>5 kg HEU or >2 kg Plutonium). No Category I facilities exist in Australia.
[2] Permits issued under s13 or s16 of the Nuclear Non-Proliferation (Safeguards) Act 1987.
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Planning and Scale

A significant event for ANSTO that drew support from many internal divisions including:

- Nuclear Security & Nuclear Safeguards.
- ANSTO Security Operations Centre (CAS).
- Emergency Response Team.
- Incident Controllers.
- Radiation Protection Services.
- High Reliability.
- Building Managers.
- ANSTO Maintenance Services.
- Information Technology.

Plus:

- AFP (on-site armed response force).
- NSWP (off-site armed response).
- NSWP Tactical Operations Unit (adversaries).

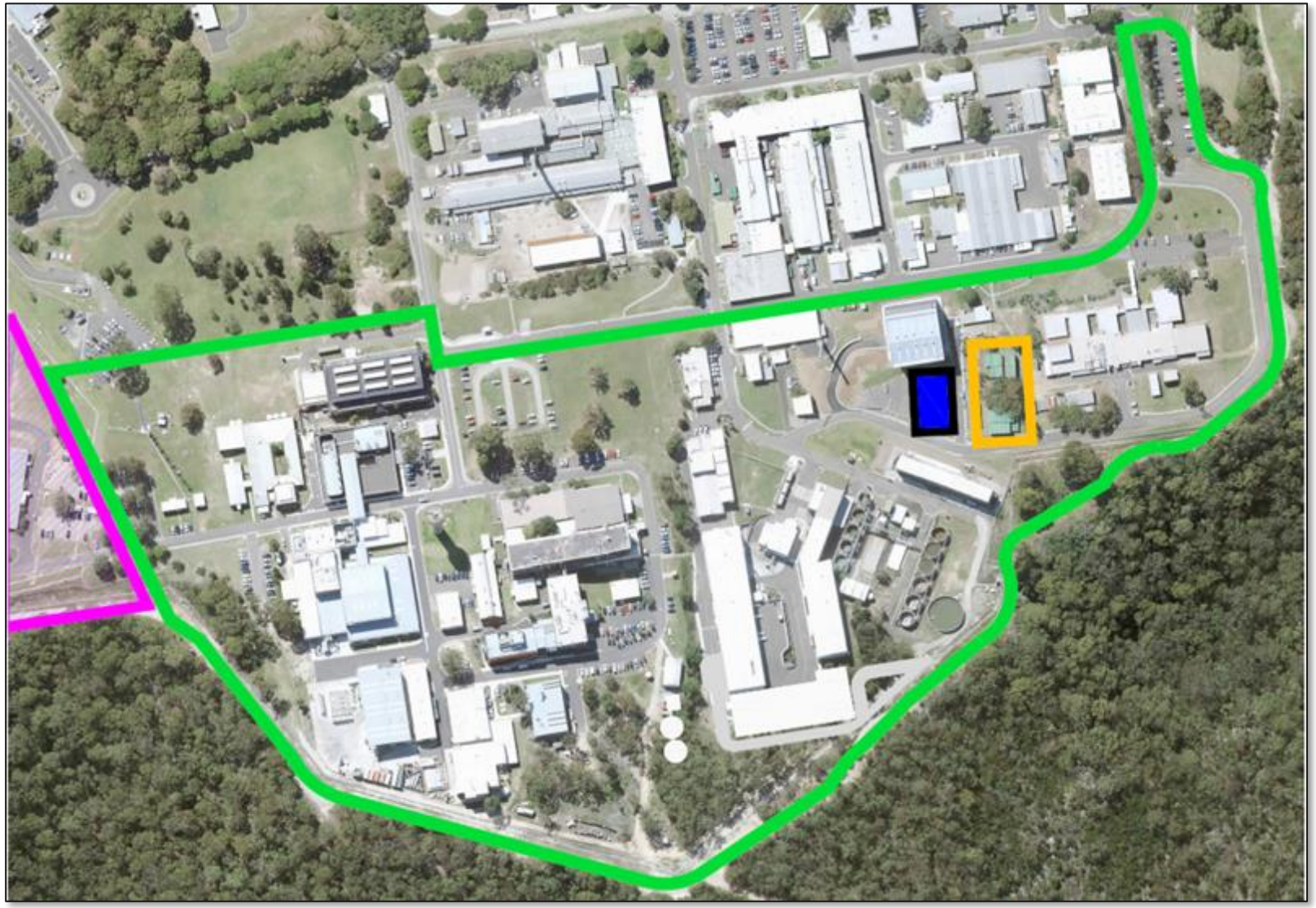
Exercise Shadow Viper 2024 – Concept of Operations

- A live simulation of a nuclear security incident at Lucas Heights.
- Assess the Command, Control and Coordination capabilities of all parties.
- Practice the CAS and AFP interoperability in a nuclear security incident.
- Practice AFP and NSW Police Force (NSWP) interoperability in a nuclear security incident.

Exercise Shadow Viper – Exercise Control

- Designated Exercise Controller.
- Exercise Deputy Controller for the Response & Resolution phases of the exercise was the on-site armed response force(AFP) Commander.
- Exercise safety officers and evaluators.
- Communicated the exercise control vocabulary.
- Clear roles and responsibilities.

Defined the Exercise Area



Phase One

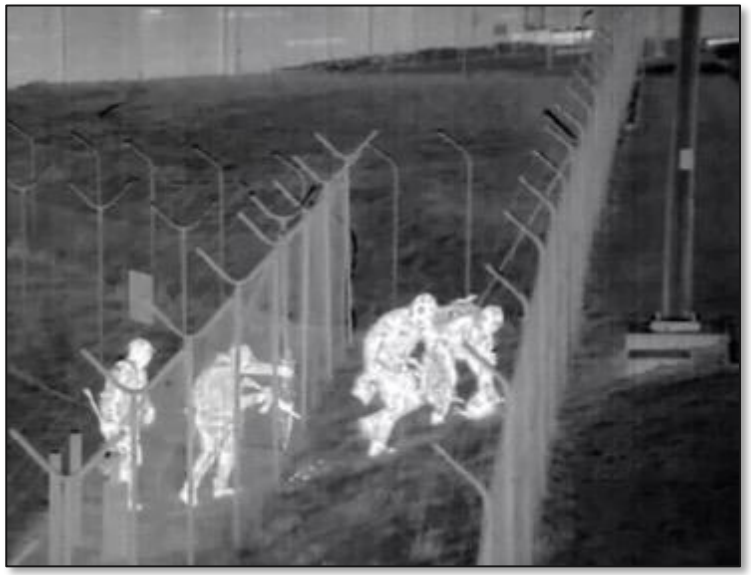
Reconnaissance

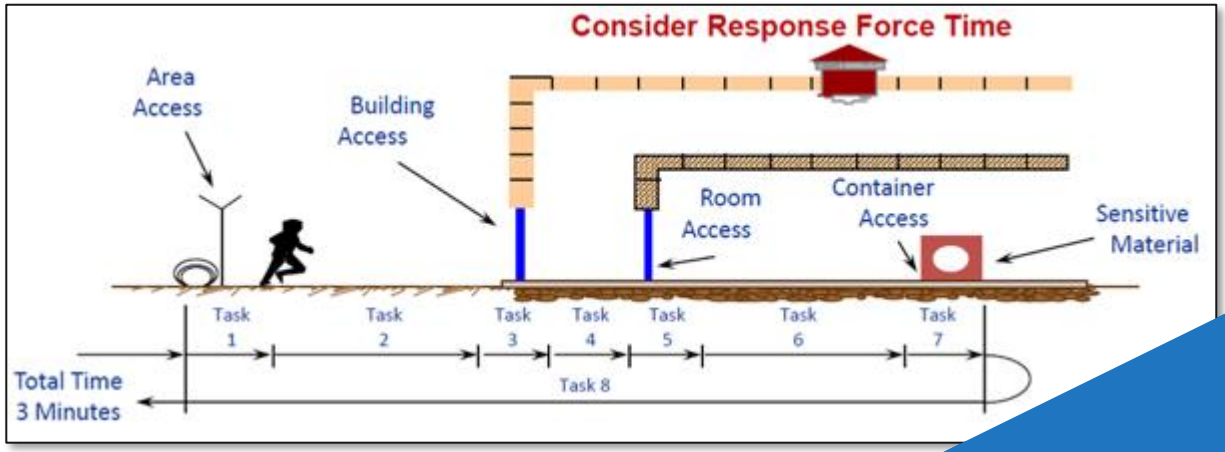
- Designated target material and building.
- Passive insider assistance.
- DBT Adversary (NSWP Tactical Operations Unit) conducted covert surveillance of the target building in preparation for incursion.

Phase Two

Incursion and assessment

- Adversaries entered the facility and moved to target building and breach.
- CAS - detected, alerted and tracked.
- AFP initiated response.
- Adversaries accessed target building cell room and obtained target canisters.





Phase Two

Incursion

- 3 adversaries with assault rifles and a variety of had-held battery operated tools.

Phase Two

Incursion

Double cross or red herring?

Phase Three

Response and Handover

- AFP established a cordon around the target building and contained the adversaries.
- AFP Sgt alerted & briefed external responders, included ANSTO IC.
- IC briefed ANSTO Chain of Command.
- Simulated response from NSWP commenced with the first car (NSW-1) to arriving approx. 9 mins after notification.
- NSW-1arrived at ANSTO and handover from AFP to NSWP commenced.
- A further 3 NSWP GD cars attend at staged intervals.
  - NSW-2 (11 mins after call)
  - NSW-3 (15 mins after call)
  - MSW-4 (20 mins after call)
- NSWP senior officer deployed resources to assist with cordon.

Phase Four

Resolution – the Escape

- The adversaries used smoke to provide cover, and now had a ‘hostage’.

The Debrief

The Good, Bad and …

- Honest, timely feedback.

What Next?

Embracing Technology

- PathTrace and Scribe3D – pathway analysis and a high-fidelity attack and defence platform.
- AI integration.

Threat monitoring and Informed Assessments

- Constant learning.
- Informative partnerships with our intelligence community, and LEAs.
- Constant review and assessment of threat vectors, risks and vulnerabilities.
- Utilising commercial products such as Strider, Dimensions and ASPI.

Australian Government

ANSTO

Thank you for listening.

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