Security for the Uranium Industry –
A challenge for operators and the regulator

Geoffrey Shaw
Assistant Secretary
Australian Safeguards and Non-Proliferation Office
Overview

- Introduction - uranium in Australia
- The protection of uranium - Australia’s national interests
- Australian regulatory framework - ASNO
- Australian uranium industry - threats and vulnerabilities
- Scalable threat model and scalable standardised protective security measures
- Lessons learned
- Summary
Uranium in Australia

- Worlds largest uranium resources – holds 38% or the world’s reasonably assured uranium resources recoverable at less than US$80/kg

- 7 of the 20 largest uranium deposits are in Australia — Olympic Dam, the world’s largest deposit (SA), Jabiluka & Ranger (NT), Yeelirrie (WA), Valhalla (Queensland), Kintyre (WA) and Beverley/Four Mile (SA)

- During 2008 Australia exported approx 10,000 tonnes of UOC and valued at AUD $749 million.
URANIUM MINES: IN-SITU

BEVERLEY

HONEYMOON
Protection of Uranium –
Australian National Interest

• Australia views uranium as more than a tradable commodity; it is also a strategic commodity

• Australia, in deciding appropriate levels of protection applied to uranium mines and UOC consider its national interest best served by applying effective controls

• Australia interprets “effective controls” as requiring adequate material accountancy and physical protection measures applied to UOC and at the mines
**Uranium Mines – Safeguards Reporting Obligations**

**INFCIRC/153**
- Para 33 – not required to report material in mining or ore processing activities
- Para 34(a) – required to report quantity, composition and destination of uranium ore concentrate exports

**INFCIRC/540**
- Art. 2.a(v) – report locations, operational status, estimated annual production capacity and current annual production of mines
- Art. 4.a(i) – provide Complementary Access
  - 6 CAs to Australian mines
Protection of Uranium – International Obligations

- CPPNM doesn't strictly apply to UOC at mines apart from requirement for protection “in accordance with prudent management practice”

- Art 1 of Australia's NPT safeguards agreement requires Australia to ensure that no nuclear material under its jurisdiction be diverted from permitted uses – that is, application of “effective controls”

- AP provides for complimentary access to mines
COMPLEMENTARY ACCESS AT OLYMPIC DAM
Australian regulatory framework –
Australian Safeguards and Non-Proliferation Office (ASNO)

- National authority responsible for the administration of the *Nuclear Non-Proliferation (Safeguards) Act*, including permits for possession and transport of nuclear material – safeguards and physical protection
  - DG ASNO responsible to Minister for Foreign Affairs

- ASNO’s mandate covers nuclear materials (U, Th, Pu), not general radiological materials.
Australian regulatory framework – Mines permit conditions

- Physical protection requirements set in permits issued individually to uranium miners rather than fixed in regulation
  - Permit conditions balance performance-based and prescriptive requirements

- Permits require the formation of a security plan
  - Describes the steps taken to achieve the basic physical protection objectives
  - Protection against theft and sabotage
  - Location and recovery of missing material
Australian uranium industry – threats and vulnerabilities

- Risk of theft from uranium mines may be relatively low, it can not be discounted entirely
  - adverse consequences for the theft of any quantity of UOC from a uranium mine, or in shipment

- Threat of sabotage
  - e.g. highly flammable solvents in the process cycle
  - UOC in transport
Scalable threat model – risk based approach

- ASNO adopts a qualitative risk management standard used by Australian Government agencies for all security risk management.

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Scalable threat model – assessing the threats and risks

- In order that the protection of UOC remains relevant it must be measured against the current threat for a given period
- A system of scalability must be devised to allow for treatment of rising threats and their associated risks
  - Measures must be capable of being implemented rapidly in response to elevated security risks
- Scalable measures are usually procedural
  - E.g. more patrols, increased access control, increased security personnel
  - Difficult to increase physical and technical measures at short notice
The UOC scalable threat model comprises four security alert levels and corresponding protective security levels:

- **LOW** provides base line security measures under normal operation conditions.
- **MEDIUM** introduced when attack is assessed as feasible and could well occur and able to be sustained for extended periods.
- **HIGH** introduced when attack is assessed as likely and able to be sustained for periods up to several months.
- **EXTREME** introduced when attack is assessed as imminent or occurring and be able to be sustained for several weeks.
LESSONS LEARNED

• Beneficial to arrive at adequate security standards though a consultative rather than a prescriptive process

• Setting standards in permits provides necessary flexibility to set tailored security requirements and be responsiveness to legislative and policy changes
  – Performance-based approaches accommodates changes in miners operational requirements

• Constructive dialogue

• Regular inspections
SUMMARY

• Australia considers it necessary to ensure adequate physical protection measures are applied to the uranium mining operations and UOC.

• In setting the physical protection requirements for the miners and others, ASNO established a risk based scalable threat/security model:
  - allows for advance plans and procedures to be implemented at very short notice to mitigate against elevated security risk.

• ASNO would be pleased to provide additional information to those interested in Australia’s experiences.