Nuclear arms control and disarmament verification

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October 2023

Introduction

verification & nuclear arms control

essential part of

- START, . . . , New START
- INF
- HEU Purchase Agreement
- Plutonium Management and Disposition Agreement

verification & nuclear disarmament

concepts still missing

International Activities

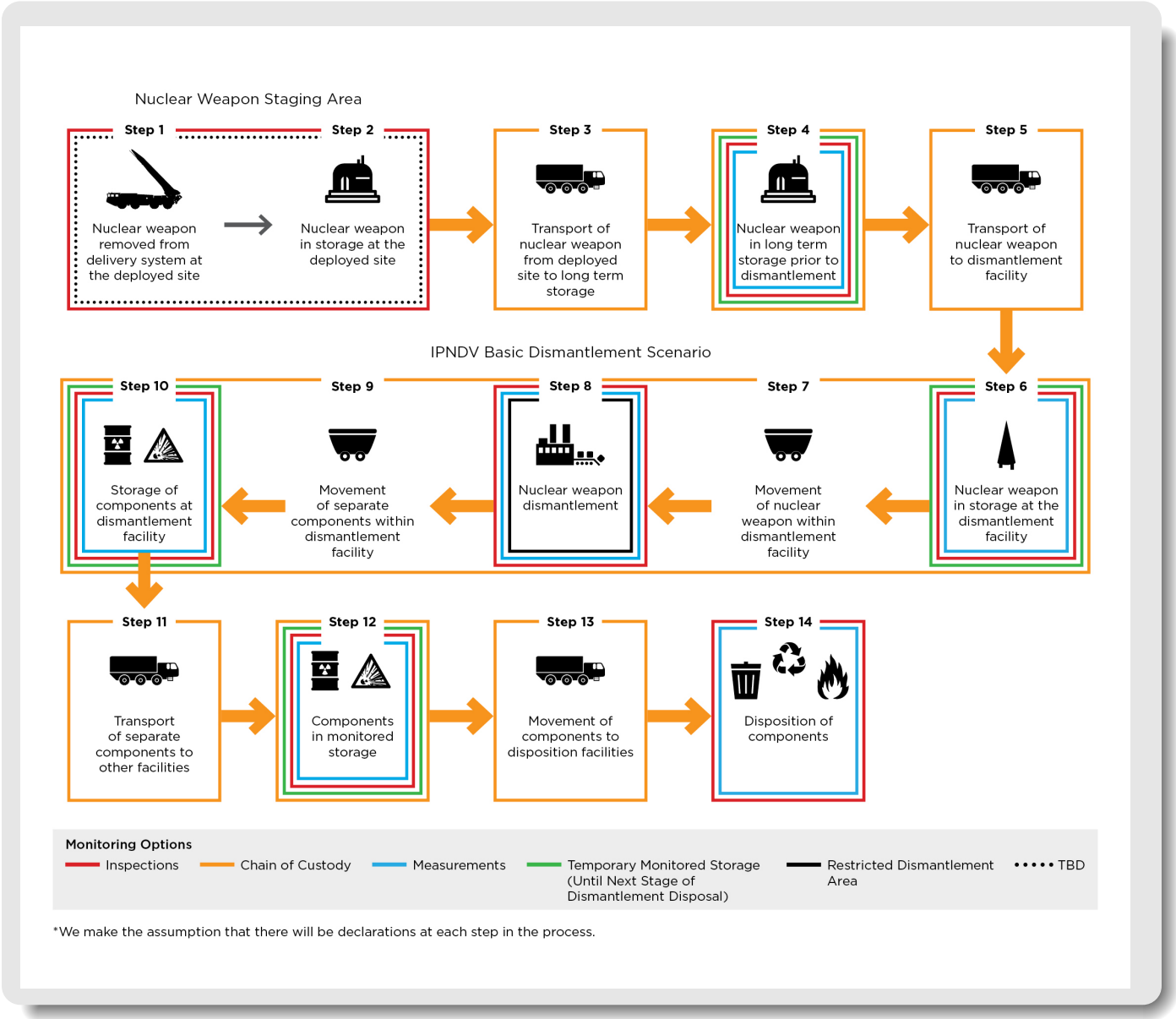
finalised

- Trilateral Initiative: Russia, US, IAEA
- UK-Norway Initiative
- US-UK Cooperation to Address Technical Challenges in Verification

ongoing

- QUAD Initiative: US, UK, Norway, Sweden
- *International Partnership on Nuclear Disarmament Verification (IPNDV)*: at present 30 states plus the EU

Disarmament Process Scheme



Conceptual Challenges (1)

Irreversibility

mandatory

no production of weapons grade fissile material

concept: physical irreversibility

disposal of SNM together with HAW
– potentially after use as reactor fuel –

concept: political irreversibility

blending of SNM and transfer to IAEA safeguards

Conceptual Challenges (2)

Disarmament capacities

mandatory

speedy realisation of reduction obligations

otherwise

internationally monitored long-term storage of warheads / components

Conceptual Challenges (3)

Complexity

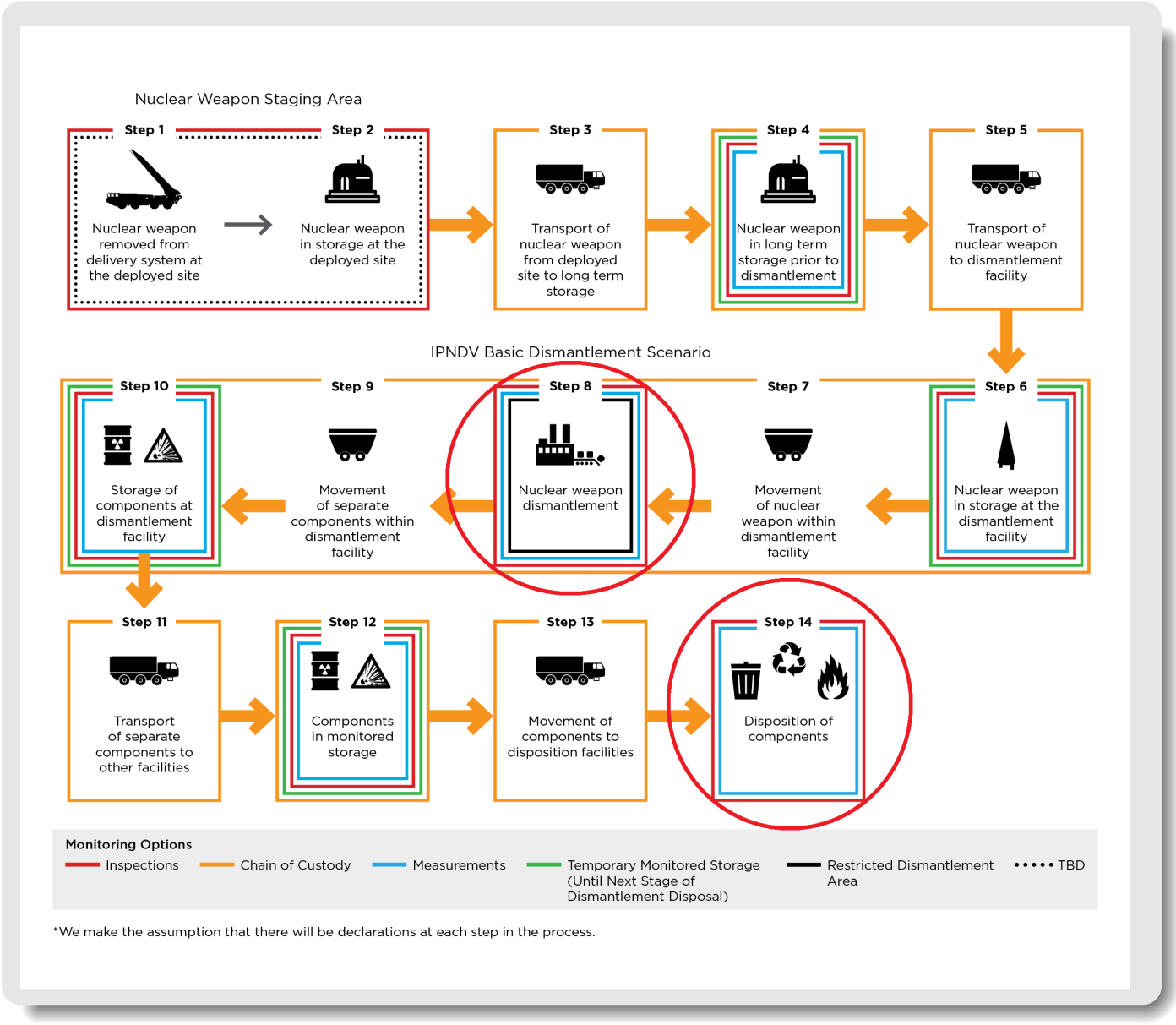
mandatory

verification regime kept as simple as possible

potential elements

- provenance
- focus on chain of custody technologies
  (seals, UIDs, perimeter monitoring, accelerometers, . . .)
- radiation measurements for *absence* of fissile material
- for verifying its *presence* as backup only
- random selection of verification activities

Conceptual Challenges (3)



Conceptual Challenges (4)

Infrastructure & logistics

mandatory

dedicated facilities / areas of existing facilities for disarmament processes

otherwise

- additional diversion pathways
- complex verification regime
- increased risk of disclosing sensitive information

A Concluding Citation

IPNDV Phase I Summary Report (2017):

Specifically, the Partnership's key judgment is that:

> **While tough challenges remain, potentially applicable technologies, information barriers, and inspection procedures provide a path forward that should make possible multilaterally monitored nuclear warhead dismantlement while successfully managing safety, security, non-proliferation, and classification concerns in a future nuclear disarmament agreement.**