

Verifying removal of nuclear weapons (from delivery vehicles, territories, or bases) can serve as a valuable transparency and confidence-building measure in disarmament.

EVIDENCE OF ABSENCE: VERIFYING THE REMOVAL OF NUCLEAR WEAPONS

IMPORTANCE

Activities such as removing warheads from their weapon systems, withdrawing warheads and other weapons from their operational bases, and relocating warheads to central storage are all steps on the way to dismantlement.

Most nuclear reductions to date have been carried out as a result of unilateral voluntary decisions (see right). **In none of these cases has removal been fully and directly verified.**

Value of verifying removal in the current geopolitical environment:

1. Establishes trust, confidence, and mutual understanding and ensures obligations are being upheld
2. Largely avoids issues of access and sensitive information
3. Can support a number of policy initiatives (see right)

PRACTICAL ARRANGEMENTS

Cooperative process assumed. And drawing on assumptions about warhead design, fissile materials, size (including storage), and weight.

Use New START Procedures

- Inspection procedures permit verifying absence of warheads on ballistic missiles
- Radiation detection equipment confirms “non-nuclear” objects
- Ensures weapons were not temporarily removed during inspections

Include Modifications and Additional Procedures

- Managed access for random selection of torpedoes
- Visual inspection of select facilities, with pre-inspection restrictions
- Identify support (e.g. infrastructure) for deployment and maintenance
- Confirm technical procedures in conversion

 Pavel Podvig, Ryan Snyder, Wilfred Wan

PAST REMOVAL SCENARIOS

- Post-Cuban Missile Crisis
- Withdrawal from Soviet successor states
- PNIs: US weapons abroad, and sea-based
- INF Treaty

POSSIBLE REMOVAL SCENARIOS

- Non-strategic nuclear weapons in Europe
- Denuclearization of the Korean Peninsula
- Elimination of nuclear cruise missiles
- Verification of the TPNW
- Strategic elimination of nuclear weapons



Above: Igloo-type storage facility with B-61 bombs

Hans Kristensen. “Estimated Nuclear Weapons Locations 2009,” Federation of American Scientists, November 25, 2009

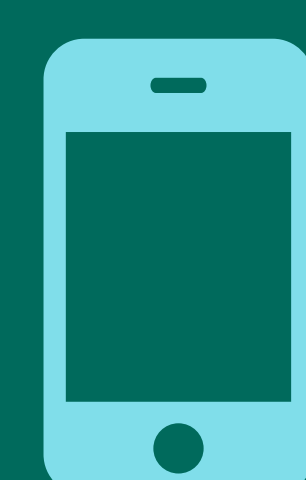
Below: Empty igloo

Kathryn Olmstead. “Have You Seen the Nuclear Weapons Storage Igloos in Limestone?” The Bangor Daily News, 05 November 2015

Stages of Removal of Nuclear Weapons from Operations and Their Elimination

Blue shaded stages are considered in this report.

Status of weapons	Examples
Weapons: armed and deployed in launchers	U.S. and Russian ICBMs in silos or on TELs SLBMs installed in launch tubes on a submarine ALCMs or bombs loaded on bombers
Weapons: armed and ready to be deployed, but not in launchers	Bombs and/or armed ALCMs stored at an air base
Weapons: unarmed	ICBMs in silos or on TELs without warheads SLBMs in launch tubes without warheads ALCMs stored at an air base with warheads removed
Warheads/bombs: in storage at the base	Russia’s non-strategic weapons
Warheads/bombs: removed from the base	U.S. Barksdale Air Force Base with B-52H strategic bombers Former U.S. and Soviet bases in Europe
Warheads/bombs: removed from the base	U.S. air bases with B-1B bombers
Infrastructure for warhead storage eliminated	
Warheads/bombs: removed from the base	
Infrastructure for warhead storage eliminated	
Delivery vehicles and/or launchers converted	
Warheads/bombs: in dismantlement queue	About 5000 U.S. and Russian retired warheads and bombs
Warheads/bombs: dismantled	Older types of warheads



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