

# Purpose of Stockpile Declarations

## Transparency

Build confidence; reduce uncertainty

Aggregate data; verification unnecessary

## Provide basis for agreed reductions, limits

Arms control treaties must establish initial inventories  
(INF/START, CFE, NPT)

Limit strategic breakout; limit nonstrategic warheads;  
improve accounting; prohibition

Detailed data on stockpiles by location

Detailed historical and facility data to aid verification

# Items Covered by Declarations

## Warheads

Undefined in most treaties (NPT, START), except NWFZ:

‘Nuclear explosive device’ means any nuclear weapon or other explosive device capable of releasing nuclear energy, irrespective of the purpose for which it could be used. The term includes such a weapon or device in unassembled and partly assembled forms, but does not include the means of transport or delivery of such a weapon

Operationally defined, if all warheads are declared

What about unassembled weapons?

If all parts available for assembly, count as warhead

If key parts destroyed (e.g., HE), count fissile materials

## Nuclear Explosive Materials

Any material able to sustain a fast-fission chain reaction (bare critical mass < 1 ton); other terms: FM, SFM, SNM

HEU (>20% U-235/U-233)

Plutonium (any isotopic composition)

Others? (Pa-231, Np-237, Am, Cm, Cf)

In weapons; in weapon components (pits, CSA); fresh/spent reactor fuel; bulk metal, oxides

Including NEM makes definition of “warhead” less important

Declarations reduce gap between NWS, NNWS

## Declarations: a phased approach

### Warheads

### HEU, Pu

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Aggregate stockpiles	aggregate stockpiles
by type, delivery system	chemical/isotopic composition
by status (deployed, reserve)	status (warhead, pit, fuel...)
by declared facility	by declared facility
facility descriptions	facility descriptions
historical data on stocks, assembly, disassembly	historical data on stocks, production, losses
serial number/tag, location of each warhead	location, mass, composition of each item, container

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# Verification of declarations

## Declared stocks

### Warheads

Are all declared items warheads of declared type?  
Any undeclared warheads at declared facilities?

Use random sampling to limit items examined

Deployed strategic warheads: START RVOSI

Stored warheads

attributes/templates, info barriers to verify declared item is warhead/warhead of declared type

attributes, templates, other methods can be used to verify that other items are not warheads

## Nuclear explosive materials

No verification of NEM in warheads

Verify that declared items are components  
attributes/templates plus info barriers

Verify declarations of other materials

transfer materials to IAEA safeguards if possible  
attributes or standard NDA techniques

Verify that other items don't contain NEM

## Undeclared stocks

TLI are small, undetectable if shielded, require little or no maintenance

Internal consistency of historical data on warhead, NEM production, consistency with intelligence information; forensic analysis of records

Nuclear archaeology: confirm HEU, Pu production

Monitor warhead maintenance facilities (T production?)

NTM for suspicious-looking storage, assembly facilities

Societal verification

Challenge inspections

## **Other Issues**

What data should be publicly available? Confidential?

How often to update? Every six months?

How to accommodate imprecise accounting? Lack of national system? Declare range or estimated uncertainty?

A central computer database?

Standards for physical protection, control, accounting?

Should US and RF initiate/refine declarations, then invite other NWS to join later? Or should we begin with all NWS?

When and how should de facto NWS join?

## Book Issues

Where is the boundary between chapter 5 (establishing and verifying stockpile declarations) and...

...chapter 6 (monitoring and verifying nuclear warhead status and dismantlement)

...chapter 7 (monitoring and verifying the storage and disposal of fissile materials and the closure of nuclear facilities)

“Verifying stockpile declarations” involves “verifying nuclear warhead status” and “verifying the storage of fissile materials”