

UNITED STATES OF AMERICA

Date of first nuclear explosion- 16 July 1945

1. AMOUNT, LOCATION, AND OPERATIONAL PLAN OF NUCLEAR WEAPONS

Warhead	Yield (kilotons)	Number	Status
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Strategic Weapons

B61-7 Strategic	10* to 350	470	The Mod-7 is the only weapon in the strategic stockpile
B61-11	10-350	55	Mod-11 is an earth penetrator
B83/B81-1	low to 1,200	620	Strategic bomb replaced B28, B43, B53
W76/Trident I C4	100	3200	Under START I, over 1500 W76 warheads from retired Trident I SSBNs were used to arm Atlantic Fleet Trident II SSBNs
W88/Trident II D5	475	400	Warheads supplement the W76 warhead to arm Atlantic Fleet Trident II SSBNs
W62/Minuteman II	170	615	Will be retired around 2009
W78/Minuteman III	335	920	300 will be used to arm single warhead MMIIIs by 2012
W87-0/MX	300	550	Missile will be retired, and 200 W87s used for single warhead MMIII by 2012
W80-1/ALCM	5 and 150	1400	Some 900 ALCMs are in storage with their warheads removed. W80s are used to arm ACMs
W80-1/ACM	5 and 150	400	Operational in 1991; The original program of 1,461 ACMs has been cut to 460; Uses W80 warheads from ALCMs

Tactical Weapons

B61 Tactical Bomb	0.3 to 170	1290	Mods-3,-4,-10; Mod 10 is a converted W85 Pershing II warhead; each Mod has four yield options: the B61-3 (0.3, 1.5, 60 and 170 Kt), the B61-4 (0.3, 1.5, 10 and 45 Kt), and the B61-10 (0.3, 5, 10 and 80 Kt)
W80-0/SLCM	5 and 150	320	Nuclear SLCMs now stored ashore; Original program of 758 SLCMs for 200 ships and submarines was reduced to 367 SLCMs for 25 Sturgeon-class, 62 Los Angeles-class and 3 Seawolf-class attack submarines;

TOTAL	-10,240
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*nuclear weapons with a yield under 10 kt are considered "low-yield" nuclear weapons from the Natural Resource Defense Council, <http://www.nrdc.org/nuclear/nudb/datab12.asp>

Deployment/Storage Sites

State	Location
New Mexico	Kirtland AFB
Georgia	Kings Bay
Washington	Bangor
Nevada	Nellis AFB
North Dakota	Minot AFB, Grand Folks
Wyoming	FE Warren AFB
Montana	Malmstrom AFB
Missouri	Whiteman AFB
Texas	Pantex Plant, Dyess AFB
Louisiana	Barksdale AFB
South Dakota	Ellsworth AFB
Colorado	Peterson AFB

Storage sites, including sites listed by state, are available at: <http://www.nrdc.org/nuclear/tkstock/pl-52.pdf>.

Foreign Deployment Sites

Country	Storage Sites	No. of Warheads
Germany	Büchel, Nöerwenich, Ramstein	150
United Kingdom	RAF Lakenheath	110
Turkey	Incirlik	90
Italy	Aviano and Ghedi Torre	90
Netherlands	Volkel	20
Belgium	Klein Brogel	20
Total		480

from Kristensen, Hans. "US Nuclear Weapons in Europe: A Review of Post-Cold War Policy, Force Levels, and War Planning." *Natural Resources Defense Council*, February 2005.

The Role of Nuclear Weapons in National Security Strategies

Key documents: Nuclear Posture Review (January 2002), National Security Strategy (September 2002), National Strategy to Counter Weapons of Mass Destruction (December 2002)

Recent security policy documents such as these maintain the role of nuclear weapons in US national security policy, including the use of nuclear weapons in "immediate, potential or unexpected contingencies" against a number of named countries including Iraq, Iran, and North Korea.

The **Nuclear Posture Review (NPR)** establishes a New Triad, composed of:

- Offensive strike system (both nuclear and non-nuclear)
- Defenses (both active and passive)
- A revitalized defense infrastructure that will provide new capabilities in a timely fashion to meet emerging threats.

The **National Security Strategy (NSS)** calls for:

- "Proactive counterproliferation efforts...integrated into the doctrine, training, and equipping of our forces and those of our allies to ensure that we can prevail in any conflict with WMD-armed adversaries
- "Minimizing the effects of WMD use against our people...(to) help deter those who possess such weapons... the United States must also be prepared to respond to the effects of WMD use against our forces abroad";

The NSS also recognizes that deterrence is no longer "an effective defense" in a post-Cold War scenario. It asserts that "rogue states...see these (WMD) as their best means of overcoming the conventional superiority of the United States."

The **National Strategy to Counter Weapons of Mass Destruction** has three principal pillars:

- Counterproliferation: Interdiction, deterrence, defense and mitigation
- Strengthened Nonproliferation: Active non-proliferation diplomacy, multilateral regimes, non-proliferation and threat reduction cooperation, controls on nuclear materials, US export controls, non-proliferation sanctions;
- Consequence Management to Respond to WMD Use: Coordination of all federal efforts.

2. ACTIVITIES SPECIFICALLY UNDERTAKEN IN ACCORDANCE WITH ARTICLE VI OF THE NPT

Nuclear Weapons Reductions

- Reduced number of deployed strategic warheads to 6,000 by December 1991 as required by the START Treaty;
- Eliminated 1,032 launchers for intercontinental ballistic missiles and submarine-launched ballistic missiles, 350 heavy bombers;
- Eliminated nearly 90% of US non-strategic nuclear weapons and reduced the number of types of nuclear systems in Europe from 9 in 1991 to 1;
- Dismantled approx. 13,000 nuclear weapons since 1988;
- Halted production of plutonium for nuclear weapons in 1988;
- Halted nuclear explosive testing in 1992;
- Removed more than 200 tons of fissile material from military stockpile;
- Deactivated 28 of 50 MX (“Peacekeeper”) ICBMs and removed four ballistic missile submarines from strategic service; complete elimination of MX missile expected by end 2005;
- Under the Strategic Offensive Reductions Treaty (SORT, a.k.a. Moscow Treaty), the US will reduce about 80% of strategic nuclear warheads deployed from 1991 levels by 2012.

As noted in A/RES/59/94 and in statement by Assistant Secretary of State Stephen G. Rademaker to the Third Session of the Preparatory Committee for the 2005 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons, New York, May 3, 2004. available at: <http://www.reachingcriticalwill.org/legal/npt/prepcom04/usarticleIV.pdf>

Major Nuclear Weapons Facilities Shut Down

- Rocky Flats (plutonium pit production)
- Mound, Pinellas, Fernald (weapons components)
- Hanford (plutonium production/reprocessing)
- Savannah River, F Canyon (plutonium production reactors)
- Oak Ridge (uranium enrichment)

Other Facilities Shut Down

- Portsmouth uranium enrichment plant
- Fernald uranium metal production for reactor fuel and target rods

3. LOCATION AND CAPABILITY OF NUCLEAR FACILITIES

Power Reactors

Operational: 102

Shut down: 23

Decommissioned/Under Construction/Planned: 0

<http://www.iaea.or.at/programmes/a2/>

Research Reactors

Operational: 52

Shut Down: 107

Decommissioned: 68

Under Construction: 0

Planned: 0

<http://www.iaea.or.at/worldatom/rpdb/>

Uranium Enrichment Facilities

After the enrichment plant at Portsmouth, Ohio, closed on May 11, 2001, the only remaining LEU facility is at Paducah, Kentucky.

In February 2004, the Nuclear Regulatory Commission (NRC) issued a license for United States Enrichment Corporation (USEC) to construct and operate a demonstration and test facility known as the Lead Cascade, to be located at Piketon, Ohio. USEC planned to submit an application in August 2004 for a commercial facility to be located in Piketon. Louisiana Energy Services (LES) submitted its application and environmental report in December 2003 for a commercial facility to be located in

Eunice, New Mexico. Under a Commission order, the NRC staff is to complete its review of the LES application by June 2006.

<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/enrichment.html>

Uranium Mines

Site	Location	Status
Arizona 1	Arizona	standby
Canyon Mine	Arizona	idle
Wate property	Arizona	prospection halted
Pinenut mine	Arizona	idle
Cañon City mill	Colorado	operating
Scwartzwalder	Colorado	idle
Southwest CO (15)	Colorado	operating/halted
Sunday Mine Complex	Colorado	idle
Graysill	Colorado	no information
Whirlwind Claim	Colorado	under development
Crow Butte	Nebraska	operating
Big Red	Nebraska	exploration finished
Apex	Nevada	no information
Ambrosia Lake	New Mexico	idle
Churchrock	New Mexico	idle
Roco Honda	New Mexico	exploration finished
Noserock	New Mexico	exploration finished
Crownpoint	New Mexico	idle
Hosta Butte	New Mexico	no information
La Jara Mesa	New Mexico	no information
Marquez	New Mexico	no information
Mt. Taylor	New Mexico	exploration finished

Site	Location	Status
Alta Mesa	Texas	exploration finished
Alta Mesa	Texas	exploration finished
Aurora	Oregon	exploration halted
Bullfrog	Utah	exploration finished
Dewey/Burdock	Oregon	exploration finished
El Mesquite	Texas	reclamation ongoing
Hobson U plant	Texas	idle
Hobson U plant	Texas	idle
Hot Rock	Utah	no information
Kingsville	Texas	idle
La Sal	Utah	idle
Noserock	New Mexico	exploration finished
Ram Claims	New Mexico	exploration halted
Rim Mine	Utah	idle
Rio Puerco	New Mexico	no information
Rio Puerco	New Mexico	no information
Roco Honda	New Mexico	exploration finished
Rosita	Texas	idle
San Rafael River	Utah	no information
Shootaring Canyon	Utah	idle
Tony M	Utah	idle
Vasquez	Texas	operating

Uranium Mines continued

Site	Location	Status
Antelope	Wyoming	exploration halted
Cedar Rims	Wyoming	no information
Charlie	Wyoming	exploration finished
Ford	Washington	idle
Frank M	Utah	exploration finished
Velvet mine	Utah	idle
White Mesa	Utah	idle

Site	Location	Status
Christensen	Wyoming	reclamation ongoing
Copper Mt.	Wyoming	no information
Cyclone	Wyoming	exploration halted
East Shirley	Wyoming	no information
Gas Hills	Wyoming	under development
Highland	Wyoming	operating
JAB	Wyoming	exploration halted

<http://www.antenna.nl/wise/uranium/uouusa.html>

Nuclear Facilities

- Lynchburg, VA- fuel fabrication
- Erwin, TN- uranium processing and fuel fabrication
- Savannah River Site, SC- reprocessing; some uranium processing
- Y-12 plant at Oak Ridge, TN- weapons-related processing
- Portsmouth, OH- uranium enrichment
- Redox plant, Hanford- military reprocessing: closed.
- Paducah, KY- uranium enrichment
- Metropolish, IL- uranium hexafluoride conversion facility

In March, 2005, the Nuclear Regulatory Commission authorized the construction of a facility at the Savannah River Site in South Carolina to manufacture mixed plutonium and uranium oxide (MOX) fuel for use in commercial nuclear power plants, the first MOX fuel fabrication facility in the US.

In February 2005, a federal licensing board approved a proposed nuclear waste dump on the Skull Valley Goshute Indian reservation, about 50 miles southwest of Salt Lake. The State of Utah will continue to fight the facility, either through another appeal to the board, in court or before the regulatory commission.

Reed, Travis, "Board Backs Nuclear Waste Dump in Utah," *Seattle Post Intelligencer*, February 24, 2005.

4. FISSILE MATERIAL HOLDINGS

Military Stocks of Fissile Materials

- Plutonium: 45-49 tons
- HEU: 530-630 tons

Declared Excess

- Plutonium: 52.5 tons
- HEU: 123 tons

http://www.isis-online.org/global_stocks/bulletin_albright_kramer.pdf

Separated Civil Plutonium: 4-5 tons

http://www.isis-online.org/global_stocks/separated_civil_pu.html

Cumulative Plutonium Discharges from Civilian Power Reactors: 390 tons

http://www.isis-online.org/global_stocks/civil_pu.html#table7

Radioactive Waste Management

Low-level waste: There are three existing low-level waste disposal facilities in the United States in Barnwell, South Carolina, Richland, Washington and Clive, Utah, where LLW are buried in near-surface shallow trenches, usually in the containers in which they were shipped.

<http://www.nrc.gov/reading-rm/doc-collections/nuregs/brochures/br0216/r2/>

High-level waste: Currently, most high-level radioactive waste is stored at the reactor sites. Plans for the underground engineered repository at Yucca Mountain, Nevada, continue to face delays and problems. Most recently, the project encountered one of its greatest setbacks when technical and environmental studies were proved falsified in spring, 2005.

5. NUCLEAR ACTIVITIES

Research Programs

The Department of Energy (DoE) has plans for two research programs: Generation IV (GenIV) and Advanced Fuel Cycle Initiative (AFCI), to identify, design and deploy new and advanced commercial nuclear power reactor and fuel cycle technologies.

The DoE's Office of Nuclear Energy claimed in September 2003 that the first commercial Gen IV reactor could be deployed between 2020 and 2035.

Under the DoE's Nuclear Power 2010 program, it hopes to complete two new nuclear power plants by the end of the decade. Under the Vision 2020 plan, the Nuclear Energy Institute hopes to generate 50 GW of new US capacity by 2020 despite strong misgivings from some in the scientific and environmental communities.

<http://www.nrdc.org/nuclear/bush/freprocessing.asp>

<http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/Documents/Documents/USA%202002.pdf>

Nuclear Cooperation

Under the 1950s-era Atoms for Peace program, the United States would lease HEU to foreign countries with the explicit provision that the spent fuel would be returned to the US for treatment and disposal. In 1964, this policy was revoked.

In May 1996, the DoE initiated a program, now known as the Foreign Research Reactor Spent Fuel Acceptance Program, whereby the US recovers foreign research reactor spent fuel containing HEU produced in the US. This program covers about 30% of the US-produced HEU, which had been provided to foreign countries.

Memorandum for the Secretary, from Gregory H. Friedman, Inspector General, "Audit Report on 'Recovery of Highly Enriched Uranium Provided to Foreign Countries,'" February 9, 2004.

The DoE organized the Generation IV International Forum- 10 countries to jointly develop six nuclear energy systems: South Africa, Argentina, Brazil, South Korea, Switzerland, Japan, Canada, United Kingdom, France, and US. In February, 2005, only five participants of the Forum- the United States, United Kingdom, Japan, France and Canada- signed the agreement to proceed with the Gen IV program. The agreements listed below are in the Gen IV framework.

Brazil: Agreement (20 June 2003) including cooperation on advanced reactor developments;

advanced reactor fuel and reactor fuel cycle-integration; life management and upgrading of current operating reactors; advanced fuel and material irradiation and use of experimental facilities; environmental and safety issues related to new reactor and fuel cycle technologies; and fundamental areas of nuclear engineering and science.

Canada: Agreement (17 June 2003) to collaborate on seven projects totaling approximately \$20 million. The projects range in duration from two to four years and will focus on: Hydrogen Production by Nuclear Systems; Sustainable and Advanced Fuel Cycles; Supercritical-Water-Cooled Reactor Concepts;

EU: Agreement (24 February 2004) to collaborate on eight new projects, at approximately \$2 million per year, including but are not limited to: Fuels & materials research and development for advanced nuclear reactors; Advanced Reactor design and engineering development; Research and development related to the transmutation of high-level nuclear waste; Transmutation related systems analyses.

France: Agreement (10 July 2001) to collaborate on eleven new projects totaling approximately \$28 million over three years, focusing on: Advanced Gas-Cooled Fast Reactor; Hydrogen Production by Nuclear Systems; Advanced Fuels and Materials Development;

Japan: Agreement (24 November 2004) to collaborate on their first project titled "Development of Materials for Supercritical-Water-Cooled Reactor (SCWR)".

South Korea: Agreement (16 May 2001) agreed to collaborate on six new projects totaling approximately \$12 million over three years, focusing on: Advanced Gas-Cooled Fast Reactor; Hydrogen Production by Nuclear Systems; Advanced Fuels and Materials Development; Supercritical-Water-Cooled Reactor Concepts.

6. INTERNATIONAL NON-PROLIFERATION EFFORTS

The US is also a participant in the G8 Global Partnership against the spread of weapons and materials of mass destruction, launched in Kananaskis, Canada 2002.

Treaties Signed and Ratified, Date of Deposit

Agreement Between the United States of America and the Union of Soviet Socialist Republics on Notification of Launches of Intercontinental Ballistic Missiles and Submarine-Launched Ballistic Missiles, 31 May 1988

Antarctic Treaty, 18 August 1960

Biological Weapons Convention, 26 March 1975

Certain Conventional Weapons Convention, 24 March 1995

Chemical Weapons Convention, 25 April 1997

Comprehensive Nuclear Test Ban Treaty (not ratified)

Convention on the Physical Protection of Nuclear Material, 1980

The Intermediate Nuclear Forces Treaty, 1 June 1988

Nuclear Non-Proliferation Treaty, 5 March 1970

Outer Space Treaty, 10 October 1967

Sea Bed Treaty, 18 May 1972

Strategic Offensive Reductions Treaty, 6 March 2003

Treaty of Pelindaba Protocol, 11 April 1996

Treaty of Rarotonga Protocol, 25 March, 1996

Treaty of Tlatelolco Protocol, 12 May 1971

The US signed the IAEA Additional Protocol 12 June 1998, but has not completed ratification process.

Multilateral Groups

Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

7. POSITIONS TAKEN IN INTERNATIONAL FORA ON VARIOUS ISSUES OF DISARMAMENT

Fissile Material: “The negotiation of a legally binding treaty banning the production of fissile material for nuclear weapons or nuclear explosive devices is a goal that the international community long has endorsed as an important step to reduce nuclear dangers. At the same time, the United States has concluded that effective international verification of an FMCT is not realistically achievable. Our delegation calls on the CD to begin such negotiations as soon as possible after it reconvenes in January.” - **Statement by Assistant Secretary of State Stephen G. Rademaker to the Third Session of the Preparatory Committee for the 2005 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons, New York, 3 May 2004.**

<http://www.reachingcriticalwill.org/legal/npt/prepcom04/usarticleIV.pdf>

Additional Protocol: “We must ...make signature of the Additional Protocol a condition of nuclear supply by the end of 2005.” - **Statement by Jackie W. Sanders, Permanent Representative of the United States Delegation to the Conference on Disarmament, Geneva, 26 February 2004.**

<http://www.reachingcriticalwill.org/political/cd/speeches04/26FebUSA.pdf>

Negative Security Assurances: “We wish to make clear, however, as we have made clear in other contexts, that the United States continues to oppose any proposal for an NSA treaty, or other global, legally binding security assurances regime.” **United States explanation of vote in the 58th session of the General Assembly First Committee, on draft resolution 58/L.8 “Conclusion of effective international arrangements to assure non-nuclear weapon States against the use or threat of use of nuclear weapons”; October 2003.**

<http://www.reachingcriticalwill.org/political/lcom/lcom03/voting/L8USEoV.htm>

Fuel Cycle: “We will help nations end the use of weapons-grade uranium in research reactors... The world's leading nuclear exporters should ensure that states have reliable access at reasonable cost to fuel for civilian reactors, so long as those states renounce enrichment reprocessing. Enrichment and reprocessing are not necessary for nations seeking to harness nuclear energy for peaceful purposes.”

- **Statement by the President of the United States of America, circulated as official text to the Conference on Disarmament, 12 February 2004.**