

# Oregon Department of **ENERGY**

What's happened since  
our November meeting?

Ken Niles  
March 20, 2018



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# In the News

# Trump nominee to head up DOE's Environmental Management program

Anne M. White



# Senate Energy and Natural Resources Committee

January 18, 2018





# Senate Energy and Natural Resources Committee

January 18, 2018



# Testimony of Anne White

“We have a moral and legal obligation to live up to the commitments made in our agreements.”

# Senate Armed Services Committee

March 1, 2018



# Senate Armed Services Committee

March 1, 2018





## Testimony of Anne White

“One thing I’d like to consider when I’m looking at these problems is that there’s a very long timescale involved in all things nuclear, so we need to make sure we make decisions that are timely, they are technically underpinned and cost underpinned.”

## Written testimony of Anne White

“I have not had the opportunity to visit WTP and cannot fully assess the construction of the various parts of the facility, but I do understand progress is being made on Direct Feed Low-Activity Waste to initiate waste treatment in the near-term. I share the Department’s firm commitment to implementing the DFLAW approach.”

## Written testimony of Anne White

“The decision on Supplemental LAW has been delayed several times and given the long timelines associated with development of potential treatment capacity and waste routings, if confirmed, I look forward to working with members of this committee and Congress at large to make this decision a high-priority.”







# January 9, 2018 letter from Ecology and EPA

“the recent contamination events” at PFP “are creating a danger to the health and welfare of the people on the Hanford Site and to the environment.”

“...we hereby invoke...Article XXXII (“Creation of Danger”) and order all work at PFP to stop until Ecology and EPA determine that USDOE-RL has taken actions sufficient to allow the remaining work at PFP to continue and informs USDOE-RL that work may resume.”



# January 30, 2018 letter from WA Dept of Health

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...“we are concerned if work resumes without better controls, a risk to the public may develop.”

“...spread of alpha contamination is troubling because of its greater potential for damage...in biological tissue and the potential for lifelong internal contamination. Allowing alpha contamination off site is a serious and uncommon issue that we believe should be preventable...”







Mark MacIntyre  
EPA spokesman

“We are pleased to announce that we have selected Dave Einan to be our Hanford Office Unit Manager. Dave is a Remedial Project Manager who has been working in our Hanford office for more than 28 years. He brings extraordinary depth, experience and expertise to the position.”



# National Academy of Sciences Committee

Feb 28 - Mar 1, 2018



# National Academy of Sciences Committee

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# Hanford History of Low Activity Waste

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DOE previously made commitments to Washington State that Low Activity Waste disposed at Hanford would be vitrified:

- In exchange for Washington's agreement to delay the Hanford Vitrification Facility in the 1990s, so that Savannah River's vitrification facility could be constructed ahead of Hanford's.
- Based on significant performance issues identified for previously proposed grout vaults that concerned Ecology and the public.
- Based on a 1996 Environmental Impact Statement and Record of Decision in which DOE committed to pretreating the tank waste and vitrifying *all* the tank waste (both HLW and LAW).

# Hanford History of Low Activity Waste

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- Since the early 1990s, the Tri-Party Agreement has reflected these commitments to vitrify both HLW and LAW
  - 2003-2006: A waste form that performed “as good as glass” was considered as an option for supplemental LAW treatment.
  - **Subsequently, however, no viable alternatives to vitrification were identified that provide adequate protection to the human health and the environment**
  - Tri-Party Agreement went back to identifying LAW Vitrification as the treatment method.



# The Solution – Treat the Tank Waste Through Vitrification



**2018**



**2001**



Testimony

Before the Subcommittee on Strategic  
Forces, Committee on Armed Forces,  
U.S. Senate

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For Release on Delivery  
Expected at 2:30 p.m. ET  
Wednesday, March 14, 2018

DEPARTMENT OF  
ENERGY

Continued Actions Needed  
to Address Management  
Challenges



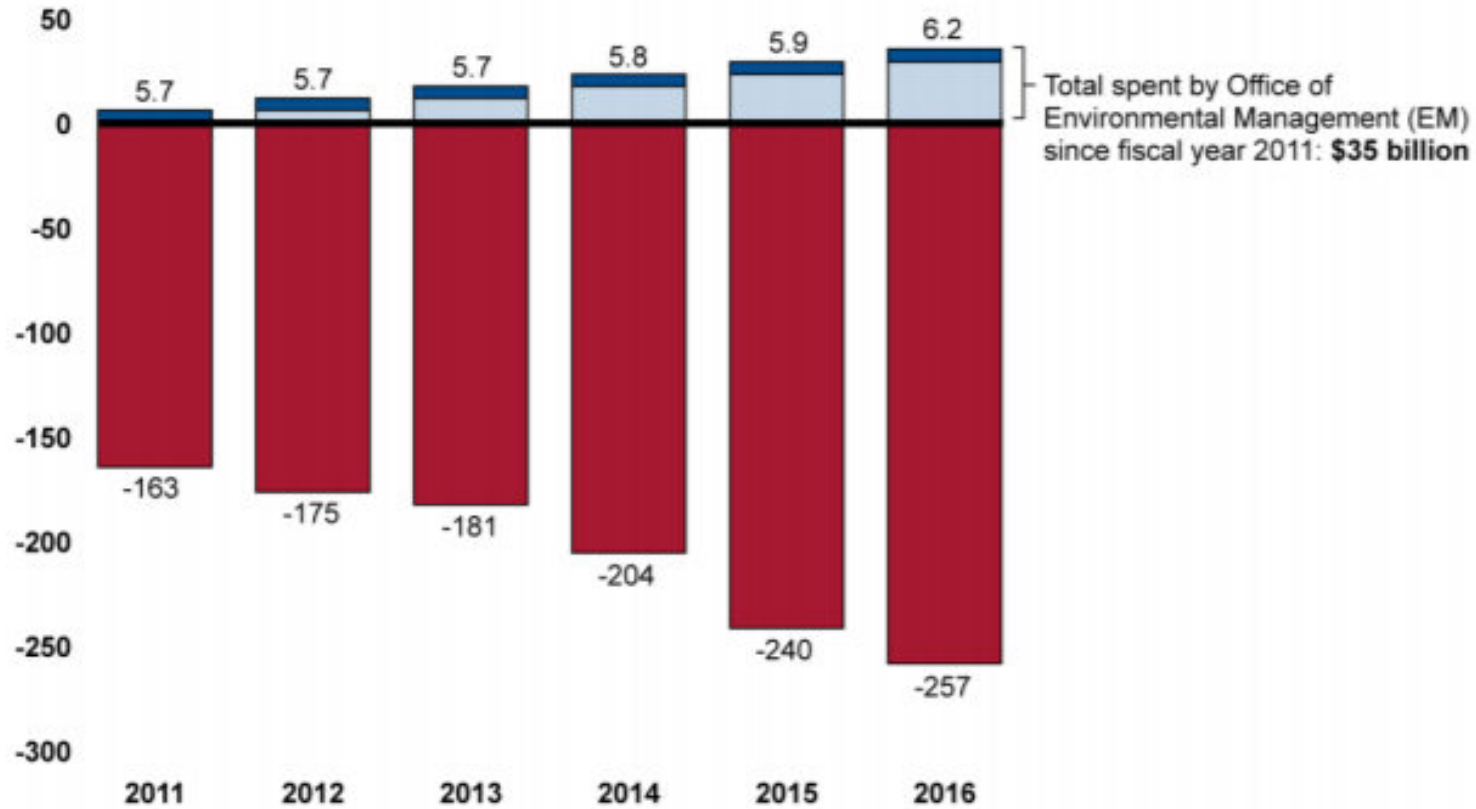
## Continued endorsement of alternatives to vitrification

“We found that the best available information indicates that DOE’s estimated costs to grout LAW at the Savannah River Site are substantially lower than its estimated costs to vitrify LAW at Hanford, and DOE may be able to save tens of billions of dollars by reconsidering its waste treatment approach for a portion of the LAW at Hanford. Moreover, according to experts who attended a meeting we convened with the National Academies...both vitrification and grout could effectively treat Hanford’s LAW.”



**Figure 1: Department of Energy's Office of Environmental Management's Annual Spending and Growing Environmental Liability**

Dollars (in billions)



Fiscal year

- Annual EM spending
- Cumulative EM spending
- Reported EM environmental liability



# Proposed Hanford Budget for FY 2019

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- Richland Office \$747 million, a reduction of \$169 million from FY 2017 (18% cut)
- Office of River Protection – \$1.4 billion, a reduction of \$61 million from FY 2017 (4% cut)

## Upcoming Tri-Party Agreement (TPA) and Consent Decree Milestones for Hanford Cleanup

**Note:** This is NOT a complete list of upcoming milestones – it focuses on major issues of concern to Oregon. This summary also does not include the exact language from the TPA.

**Note:** Reports/assessments/negotiations/decisions are in black text.

Cleanup/monitoring actions are in red text.

Milestones at risk or that will be missed are in purple text.

**2017**

Sept 30, 2017 DOE will complete Plutonium Finishing Plant to “slab on grade” (M-83-00A).  
MISSED.

- Dec 31, 2033** DOE shall complete high-level waste facility hot commissioning (*Amended Consent Decree, Milestone A-4*). UNDER ANALYSIS (from Consent Decree Monthly Summary Report, February 2018). DOE is considering an option to continue preservation and maintenance of the PT and HLW facilities for a period of 3-5 years while focusing on bringing direct-feed LAW into operation.
- Dec 31, 2033** DOE shall complete pre-treatment facility hot commissioning (*Amended Consent Decree, Milestone A-16*). UNDER ANALYSIS (from Consent Decree Monthly Summary Report, January 2018). DOE is considering an option to continue preservation and maintenance of the PT and HLW facilities for a period of 3-5 years while focusing on bringing direct-feed LAW into operation.
- Dec 31, 2033** DOE shall begin hot start of Waste Treatment Plant (*Amended Consent Decree, Milestone A-17*). UNDER ANALYSIS (from Consent Decree Monthly Summary Report, January 2018). DOE is considering an option to continue preservation and maintenance of the PT and HLW facilities for a period of 3-5 years while focusing on bringing direct-feed LAW into operation.

# Stabilizing PUREX Tunnel 2

Expert panel recommends filling with grout

- 1,700 feet long
- holds 28 railcars of highly contaminated waste
- built in 1964
- structural analysis shows at serious risk of collapse





# Cleanup progress around the site





# First tank waste disposed

## 3 gallons of treated, stabilized tank waste

- blended supernate waste from AN-101, AN-106, AP-105, AP-107 and AY-101
- wastes were part of the 222-S Laboratory hot cell archives
- filtered to remove solids
- ion-exchange resin column to remove cesium



# First tank waste disposed

3 gallons of treated, stabilized tank waste

- hazardous waste constituents immobilized by grout at Perma-Fix Northwest





# First tank waste disposed

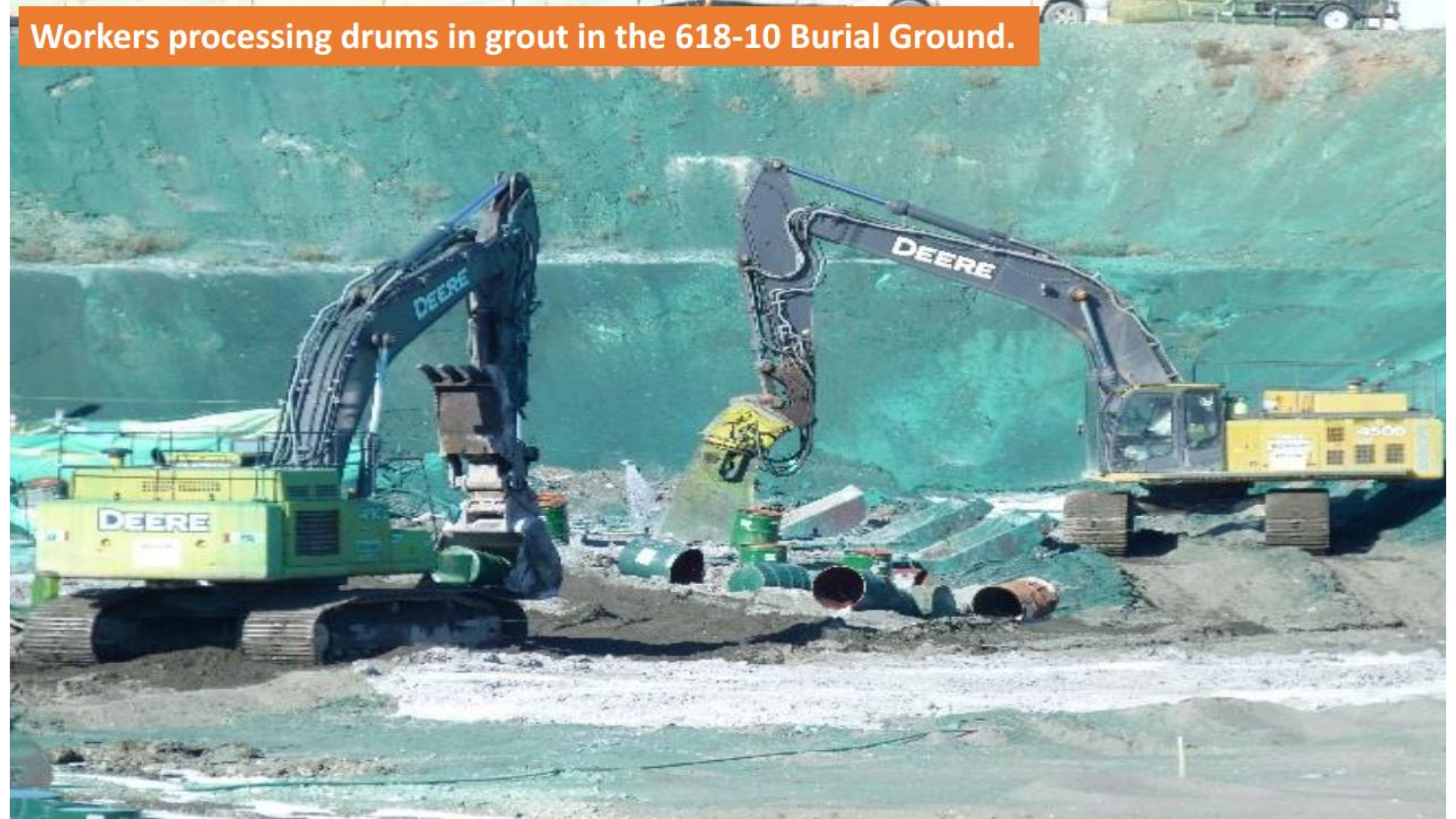
3 gallons of treated, stabilized tank waste

- sent by truck to Waste Control Specialists, in West Texas
- disposed as low-level radioactive waste by shallow burial





Workers processing drums in grout in the 618-10 Burial Ground.





618-10 Burial Ground, July 2011.





618-10 Burial Ground, May 2017.





## 618-10 Burial Ground, February 2018.

- 2,201 55-gallon drums
- 94 vertical pipe units
- 512,000 tons of contaminated soil and debris





















**NOTICE**  
**Restricted**  
**Area**

Permission Required from  
Characterization FWS prior to entry.

Contact: Name: Dave Stephenson 907-6559  
Info: Leonard Shay 438-4267

**LOAD LIMIT**  
**300# / sq'**



# Oregon comment letters

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- Permit modifications for Waste Encapsulation Storage Facility
- Concerns about grout for Hanford tank waste (letter to Senator Wyden)
- Keep EPA Manager in Tri-Cities (e-mail)
- TPA negotiations, request for consultation
- Interim TPA milestone for cesium/strontium capsules

# Hanford Advisory Board meetings

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- March 7-8 – Richland
- Dan for OHCB (via phone), Jeff for agency
- 1 piece of advice, 2 letters
  - Tank waste negotiations (advice)
  - Hanford budget
  - Re-engaging with the public

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# The bizarre world of nuclear..





# America's Nuclear Arsenal

U.S. arsenal approximately 4,000 warheads

- ~1,800 deployed
  - 1,650 on ballistic missiles or at bomber bases in U.S.
  - 150 tactical nuclear bombs at six bases in five European countries – Italy, Germany, Turkey, Belgium and the Netherlands
- ~2,200 in storage as a “hedge”
- 2,550 “retired” warheads awaiting dismantlement by DOE



# America's Nuclear Arsenal

“Triad” of nuclear deterrence



# America's Nuclear Arsenal

## 450 Minuteman III ICBM silos

- 400 deployed ICBMs (50 silos “kept warm”)
- Each Minuteman III carries one warhead (300 kt or 335 kt) (Hiroshima and Nagasaki were 15 kt each)
- Based in Colorado, Wyoming, Nebraska, North Dakota and Montana





# America's Nuclear Arsenal

## 14 Ohio-class ballistic missile submarines (12 typically operational)

- 8 based near Bangor, WA, 6 in Georgia
- Launch tubes on each sub reduced from 24 to 20
- Each Trident missile can carry up to 8 warheads (100 kt), each typically carries 4-5
- Deployed submarine fleet carries 900-1,000 warheads



# America's Nuclear Arsenal

86 nuclear capable bombers (60 assigned nuclear missions on day-to-day basis)

- 20 B-2s – can carry 16 nuclear bombs (yields up to 340 kt)
- 89 B-52Hs – can carry 20 air launched cruise missiles (yields up to 150 kt)
- Bombers based in North Dakota, Louisiana and Missouri
- Estimated 300 nuclear weapons kept at the bomber bases

