

**INTERCONTINENTAL**

**BALLISTIC**

**MISSILE**

**SILOS**



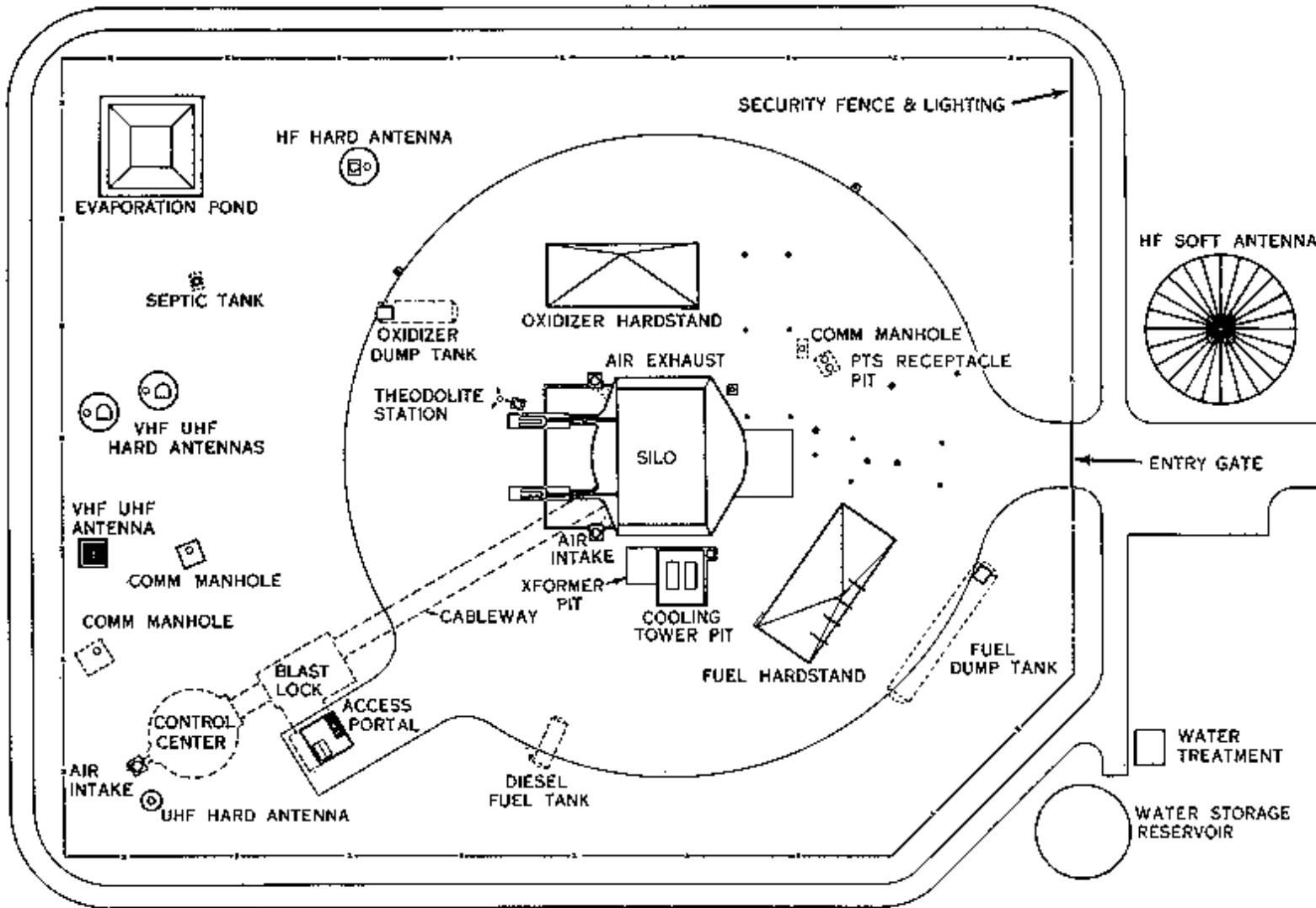
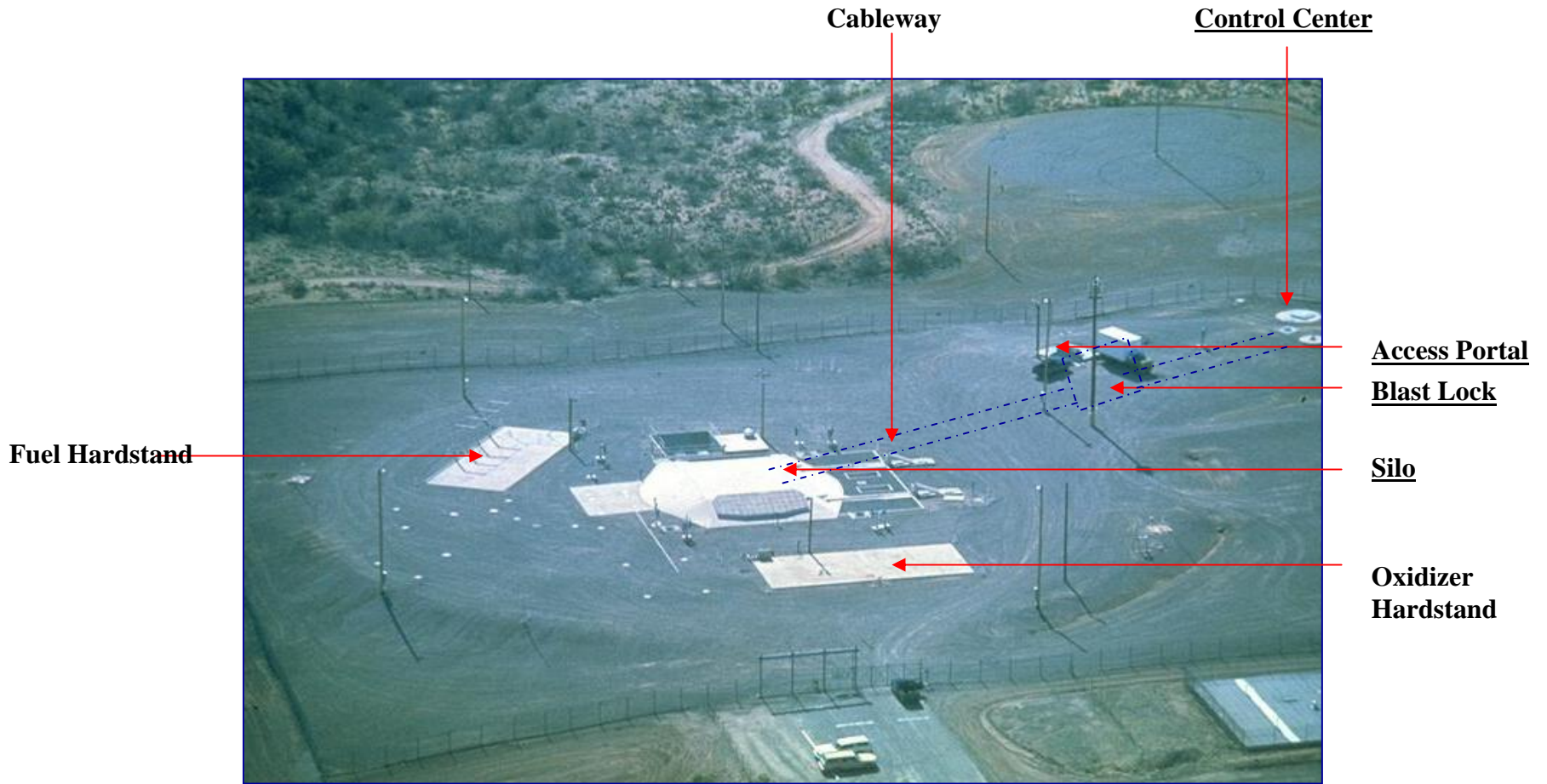


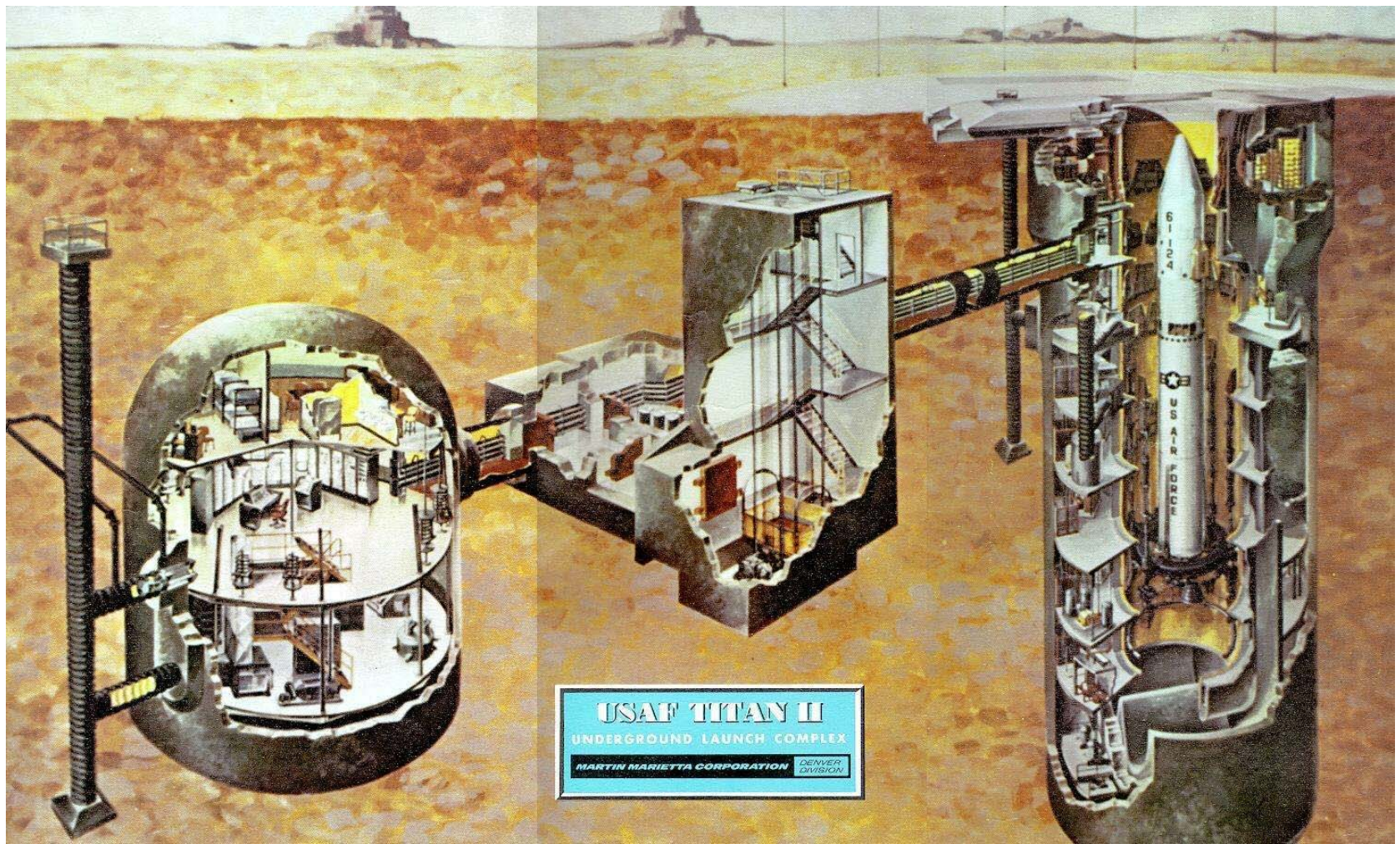
Figure 1. Layout of the missile launch complex.

## Plan View of a Typical Titan II ICBM Complex



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**Oblique photo of a Titan II Complex, as viewed at the ground surface**



**Control Center**

**Access Portal &  
Blast Lock Area**

**Silo**

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**Cutaway view of a typical underground Titan II missile complex**



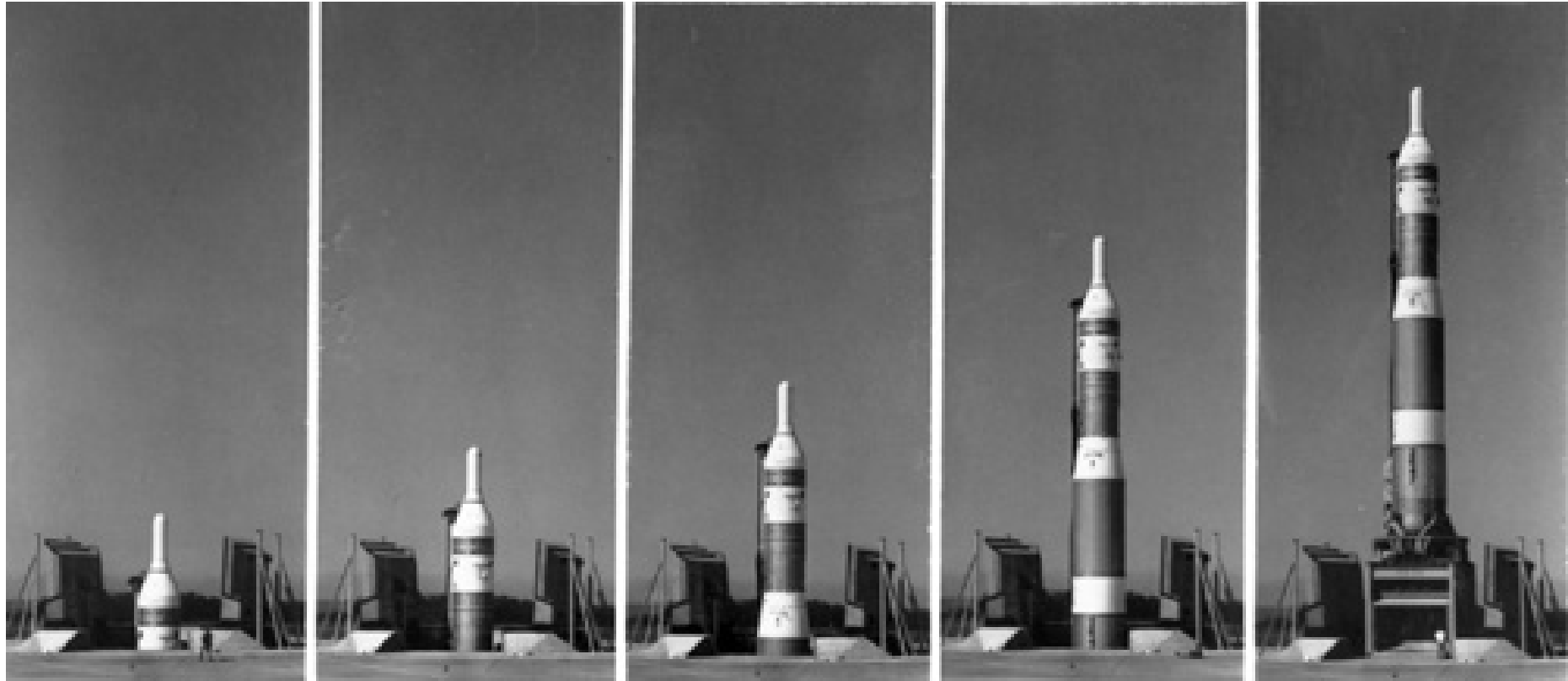
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**Giant springs which served to attenuate harmonic dynamic motions created by missile launching, as seen inside the Titan II Missile Museum in Tucson, AZ**

# TITAN II ICBM system

- **Deactivated in Mid - 1980's**
  - **Capabilities**
    - **Range: 6000 miles**
    - **Velocity: 17,000 mph**
    - **Length: 103 Feet**
    - **Time to Target: 35 min**
  - **Green Valley, AZ (museum open to public)**
  - **Vandenberg AFB, CA (active test site, not open to public)**
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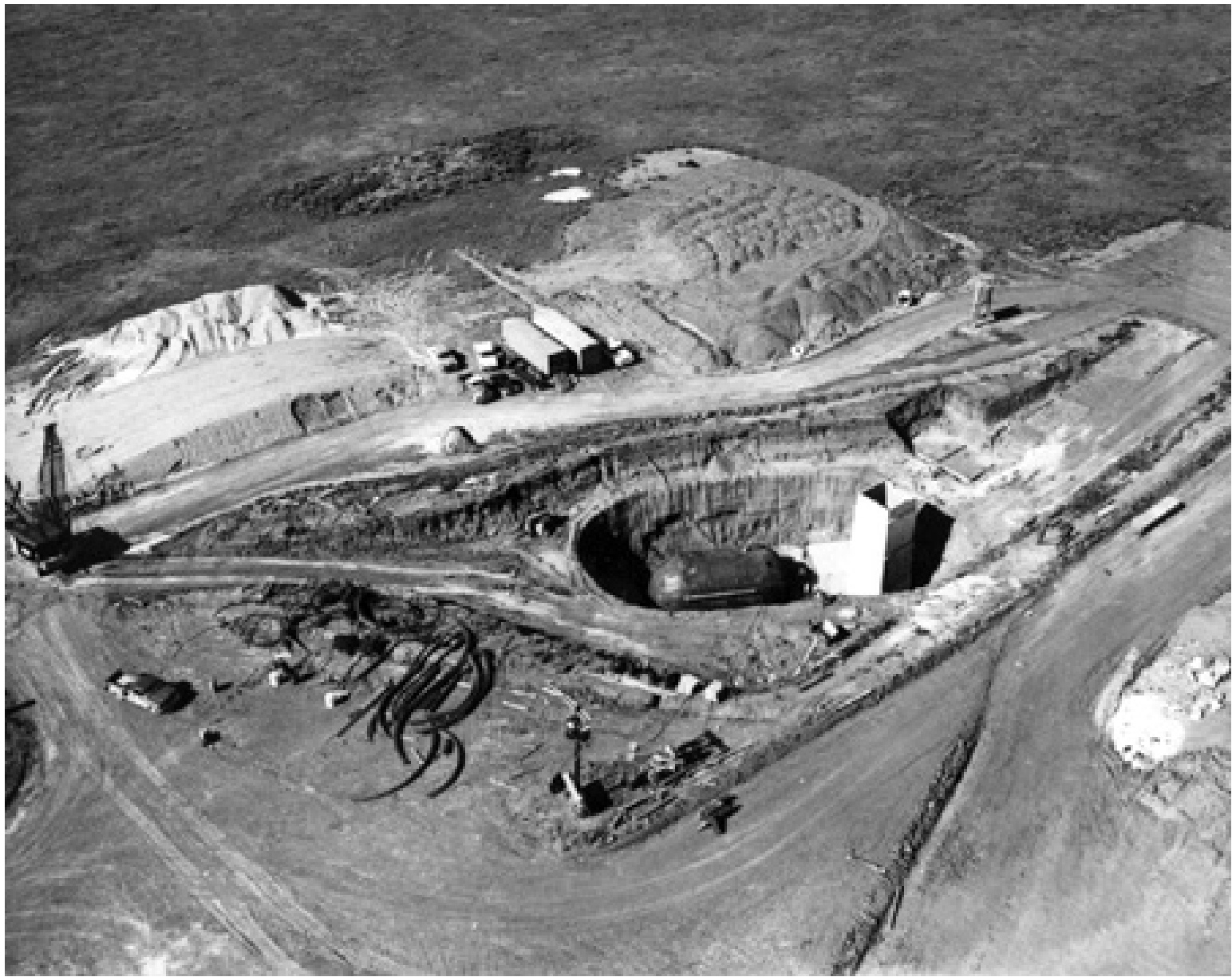
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**Titan I Launch Sequence photographed at Vandenberg AFB, CA in 1961**



**Launch Control Capsule module under construction at Malstrom AFB, MT in Nov. 1961**





**Launch Control Capsule module under construction at Ellsworth AFB, SD in July 1962. Note cut-and-cover method being employed.**



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**Close up of Launch Control Capsule under construction at Ellsworth AFB, SD in Sept.1962**



**Cut away model of a Minuteman missile launch complex**



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**Construction of Minuteman Launch Silo B-11 at Whiteman AFB, MO on June 18, 1962**



**Crafting housing for Minuteman launch silo B-11, after the steel casing has been lowered into the neat excavation. At Whiteman AFB, MO in June 1962**



**Blast Door to Delta I Launch Control Capsule Ellsworth Air Force Base, SD**



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**Minuteman II Missile being loaded into underground silo at Ellsworth Air Force Base, SD**

# MINUTEMAN III

## The Last of its Kind

- **Range: 8080 Miles**
- **Velocity: 15,000 mph**
- **Length: 60 Feet**
- **Ceiling: 700 miles**





# PEACEMAKER

- **Range: 6000 miles**
- **Velocity: 15,000 mph**
- **Length: 71 Feet**
- **Warheads: 10 Avco MK21 re-entry vehicles**



# **STRATEGIC ARMS REDUCTION TREATY**

## **(START I)**

- **Signed by US and Soviet Union on 31 JUL 1991**
  - **Belarus, Kazakhstan, Ukraine and Russia signed on 23 MAY 1992**
  - **Ratified on 5 DEC 1994**
  - **Joint reduction to 6000 Deployed warheads reached on 05 DEC 2001**
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# **STRATEGIC ARMS REDUCTION TREATY**

## **(START II)**

- **Signed by US and Russia on 3 JAN 1993**
  - **Ratified on 14 APR 2000**
  - **Interim limitations must be completed by 31 Dec 2004**
  - **All limitations and reductions must be completed by 31 Dec 2007**
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# START

<b>•<u>Phase One</u> (Completion Date: 31 December 2004)</b>	<b>•<u>Phase Two</u> (Completion Date: December 31, 2007)</b>
<ul style="list-style-type: none"><li>•<b>3,800-4,250 actual Strategic Warheads</b></li><li>•<b>1,200 MIRVs with ICBMs</b></li><li>•<b>2,160 Submarine-Launched Ballistic Missiles (SLBMs)</b></li><li>•<b>650 heavy ICBM Warheads</b></li><li>•<b>1,100 mobile ICBM Warheads</b></li><li>•<b>1,600 Strategic Nuclear Delivery Vehicles (SNDVs)</b></li></ul>	<ul style="list-style-type: none"><li>•<b>3,000-3,500 actual Strategic Warheads</b></li><li>•<b>Zero MIRVs with ICBMs</b></li><li>•<b>1,700-1,750 Submarine-Launched Ballistic Missiles (SLBMs)</b></li><li>•<b>Zero heavy ICBM Warheads</b></li><li>•<b>1,100 mobile ICBM Warheads</b></li><li>•<b>1,600 Strategic Nuclear Delivery Vehicles (SNDVs)</b></li></ul>

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**Concrete Barriers on exhibit at the Titan II Missile Museum near Tucson, AZ**



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**Disarmed Warhead on inert Titan II Missile at the museum near Tucson, AZ**

# REFERENCES

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