

# Vandenberg Air Force Base

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**Vandenberg Air Force Base (IATA: VBG, ICAO: KVBG, FAA LID: VBG)** is a United States Air Force Base located 9.2 miles (14.8 km) northwest of Lompoc, California. It is under the jurisdiction of the 30th Space Wing, Air Force Space Command (AFSPC).

Vandenberg AFB is a Department of Defense space and missile testing base, with a mission of placing satellites into polar orbit from the West Coast using expendable boosters (Pegasus, Taurus, Minotaur, Atlas V, Delta IV and now SpaceX's Falcon). Wing personnel also support the Service's LGM-30G Minuteman III Intercontinental Ballistic Missile Force Development Evaluation program.

In addition to its military mission, the base also leases launch pad facilities to SpaceX (SLC-4E), as well as 100 acres (40 ha) leased to the California Spaceport in 1995.

The base is named in honor of former Air Force Chief of Staff General Hoyt S. Vandenberg.

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# Vandenberg Air Force Base



Part of Air Force Space Command (AFSPC)

Located near: Lompoc, California



Titan IV rocket launch from Space Launch  
Complex-4 East, Vandenberg AFB, 19 October 2005

Coordinates 34°43'57"N 120°34'05"W

## Site information

Controlled by  United States Air Force

## Site history

Built 1941

**In use** 1957 – present

## Garrison information

**Garrison**  **30th Space Wing**

## Airfield information

**IATA: VBG – ICAO: KVBG – FAA LID: VBG**

## Summary

**Elevation AMSL** 369 ft / 112 m

Coordinates 34°43'58"N 120°34'05"W

- Titan II
  - 2.2.3.1.5 LGM-30 Minuteman
  - 2.2.3.1.6 LGM-118 Peacekeeper
  - 2.2.3.1.7 Ground Based Midcourse Defense Interceptor
- 2.2.3.2 Space exploration
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- 2.2.3.6 SpaceX Falcon
- 2.2.3.7 Launch sites
- 2.2.3.8 Space and Missile Heritage Center
- 2.2.4 Major commands to which assigned
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Location of Vandenberg Air Force Base

Runways

| Direction | Length |       | Surface  |
|-----------|--------|-------|----------|
|           | ft     | m     |          |
| 12/30     | 15,000 | 4,572 | Concrete |

Source: Official website<sup>[1]</sup> and FAA<sup>[2]</sup>

## Units

The host unit at Vandenberg AFB is the 30th Space Wing. The 30th SW is home to the Western Range, manages Department of Defense space and missile testing, and places satellites into near-polar orbits from the West Coast. Wing personnel also support the Air Force's Minuteman III Intercontinental Ballistic Missile Force Development Test and Evaluation program. The Western Range begins at the coastal boundaries of Vandenberg and extends westward from the California coast to the Western Pacific, including sites in Hawaii. Operations involve dozens of federal and commercial interests.

The wing is organized into operations, launch, mission support and medical groups, along with several directly assigned staff agencies.

- 30th Launch Group

The 30th Launch Group is responsible for booster and satellite technical oversight and launch processing activities to include launch, integration and test operations. The group consists of an integrated military, civilian and contractor team with more than 250 personnel directly supporting operations from the Western Range.

1st Air and Space Test Squadron  
4th Space Launch Squadron

- 30th Operations Group

The 30th Operations Group provides the core capability for West Coast spacelift and range operations. Operations professionals are responsible for operating and maintaining the Western Range for spacelift, missile test launch, aeronautical and space surveillance missions.

- 30th Mission Support Group

The 30th Mission Support Group supports the third largest Air Force Base in the United States. It is also responsible for quality-of-life needs, housing, personnel, services, civil engineering, contracting and security.

- 30th Medical Group

The 30th Medical Group provides medical, dental, bio-environmental and public health services for people assigned to Vandenberg Air Force Base, their families and retirees.

Tenant organizations assigned to Vandenberg are:

- Fourteenth Air Force
- Joint Functional Component Command for Space (JFCC SPACE)
- 9th Space Operations Squadron
- 21st Space Operations Squadron (GSU, 50th Space Wing)
- 576th Flight Test Squadron
- 381st Training Group
- 148th Space Operations Squadron (California ANG)
- 216th Operations Support Squadron (California ANG)
- NASA Resident Office
- Air Force Office of Special Investigations<sup>[3]</sup>



Fourteenth Air Force



Joint Functional  
Component Command  
for Space



30th Launch Group



30th Operations Group



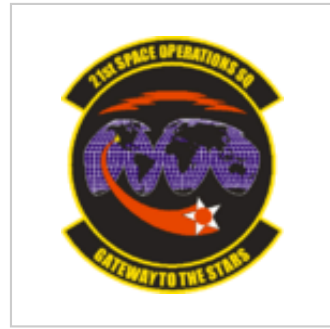
1st Air and Space Test Squadron



4th Space Launch Squadron



9th Space Operations Squadron



21st Space Operations Squadron



576th Flight Test Squadron



381st Training Group

## History

Vandenberg Air Force Base is named in honor of the late General Hoyt S. Vandenberg, second Chief of Staff of the United States Air Force and chief architect of today's modern Air Force.<sup>[4]</sup>

General Vandenberg was born in Milwaukee, Wisconsin, on 24 January 1899. In 1923, he graduated from West Point. During World War II, Colonel Vandenberg was transferred to England and assisted in planning air operations for the invasion of North Africa. He received his first star in December 1942, and became chief of staff of the Twelfth Air Force in North Africa under General James H. Doolittle. During this campaign he flew over two dozen combat missions over Tunisia, Italy, Sardinia, Sicily, and Pantelleria to obtain first hand information.<sup>[4]</sup>

In March 1945, he was promoted to the rank of lieutenant general, and full general in 1947. Meanwhile, in January 1946, General Vandenberg was appointed chief of the intelligence division of the General Staff. In June, he was named director of the Central Intelligence Group, predecessor to the Central Intelligence Agency formed in 1947.<sup>[4]</sup>



General Hoyt S. Vandenberg

With the establishment of a separate Air Force in September 1947, Vandenberg became its first vice chief of staff under General Carl Spaatz, and succeeded him on 30 April 1948. He held that post through the critical periods of the Berlin Airlift (1948–1949) and the Korean War (1950–1953).<sup>[4]</sup>

General Vandenberg retired from the Air Force in June 1953. He died in Washington, D.C. on 2 April 1954.<sup>[4]</sup>

## United States Army

### Camp Cooke (1941–1953)

In 1941 the United States Army sought more and better training centers for the rapid development of its armored and infantry forces. In March 1941, the Army acquired approximately 86,000 acres (35,000 ha) of open ranch lands along the Central Coast of California between Lompoc and Santa Maria. Most of the land was purchased. Smaller parcels were obtained either by lease, license, or as easements. With its flat plateau, surrounding hills, numerous canyons, and relative remoteness from populated areas, the Army was convinced it had found the ideal training location.<sup>[5]</sup>

Construction of the Army camp began in September 1941. Although its completion was still months away, the Army activated the camp on 5

October, and named it **Camp Cooke** in honor of Major General Phillip St. George Cooke.<sup>[5]</sup>

General Cooke was a cavalry officer whose military career spanned almost half a century, beginning with his graduation from West Point in 1827 to his retirement in 1873. He participated in the Mexican War, the Indian Wars, and the Civil War. A native of Virginia, General Cooke remained loyal to the Union during the Civil War. Perhaps his most enduring achievement came when as a colonel during the Mexican War, he led a battalion of Mormons from Missouri to California. The route led by Colonel Cooke in 1847 opened the first wagon route to California, and today the railroad follows much of the early wagon trails.<sup>[5]</sup>

Although the construction of Camp Cooke continued well into 1942, troop training did not wait. The 5th Armored Division rolled into camp in February and March, and the steady roar of its tanks and artillery soon became part of the daily scene. From then until the end of the war, other armored and infantry divisions kept up the din before they too left for overseas duty.<sup>[5]</sup>

Besides the 5th Division, the 6th, 11th, 13th, and 20th Armored Divisions as well as the 86th and 97th Infantry Divisions, and the 2d Filipino Infantry Regiment were all stationed at Cooke at varying times during the war. Also trained at Cooke were an assortment of anti-aircraft artillery, combat engineer, ordnance, and hospital units. Over 400 separate and distinct outfits passed through Camp Cooke.<sup>[5]</sup>

As the war progressed, German and Italian prisoners of war (the latter organized into Italian Service Units) were quartered at Camp Cooke. Both groups were kept separate from each other in accordance with the 1929 Geneva Convention on Prisoners of War, and worked on the post at various jobs including mechanical and civil engineering services, clerical positions, food service, and the main laundry. To help relieve the severe labor shortage in the commercial market created by wartime exigencies, the Germans also worked in local communities – mostly in agricultural jobs.<sup>[5]</sup>



Major General Phillip St.  
George Cooke

A maximum security army disciplinary barracks was constructed on post property in 1946. Confined to the facility were military prisoners from throughout the Army. When Camp Cooke closed in June 1946, personnel at the disciplinary barracks received the additional duty as installation caretakers. Practically the entire camp was then leased for agriculture and grazing.<sup>[5]</sup>

From August 1950 to February 1953, Camp Cooke served as a training installation for units slated for combat in Korea, and as a summer training base for many other reserve units. On 1 February 1953, the camp was again inactivated. The disciplinary barracks, meanwhile, was transferred to the U.S. Bureau of Prisons to house civilian offenders in August 1959. Today it is known as the United States Penitentiary at Lompoc.<sup>[5]</sup>

In September 2000, veterans of the 40th Infantry Division gathered at Vandenberg Air Force Base to dedicate its Korean War Memorial. In June 2001, the final remnants of Camp Cooke, including some barracks used by the 40th Infantry Division during its mobilization for the Korean War, were torn down.<sup>[5]</sup>

## **Known United States Army Units at Camp Cooke**

### **World War II**

- 5th Armored Division
- 81st Armored Regiment
- 6th Armored Division
- 50th Armored Infantry Regiment, 6th Armored Division
- 11th Armored Division
- 13th Armored Division
- 20th Armored Division
- 86th Infantry Division
- 97th Infantry Division
- 2nd Filipino Infantry Regiment

### **Korean War**

- 40th Infantry Division
- 44th Infantry Division<sup>[6]</sup>

## **United States Air Force**

### **Cooke Air Force Base**

With the advent of the missile age in the 1950s, an urgent need arose for an adequate training site that could also serve as America's first combat ready missile base. In January 1956, a select committee was formed that examined more than 200 potential sites before Camp Cooke was chosen, essentially for the same characteristics the Army found desirable in 1941. Besides its size, remoteness from heavily populated areas, and moderate climate which afforded year-round operations Cooke's coastal location allowed missiles to be launched into the Pacific Ocean without population overflights. This same geographic feature also enabled satellites to be launched into polar orbit directly toward the South Pole without overflying any land mass until reaching Antarctica.<sup>[5]</sup>

In September 1956, Secretary of the Air Force, Donald A. Quarles accepted the committee's recommendation. A few weeks later, on 16 November 1956, Secretary of Defense Charles E. Wilson directed the Army to transfer 64,000 acres (26,000 ha) of North Camp Cooke to the United States Air Force for use as a missile launch and training base. In June 1957, North Camp Cooke was renamed **Cooke Air Force Base**, and on 21 June 1957 was transferred to the Air Force. In January, however, the Air Force, had received access to the camp, and with the arrival of the first airman in February, established on the 15th the 6591st Support Squadron. The initial mission of Cooke AFB was to serve both as a training site for the PGM-17 Thor, SM-65 Atlas, and HGM-25A Titan I missiles, and as an emergency operational facility for Atlas ICBM.<sup>[5][7]</sup>

The scene that met the first airmen to the base was a cluttered mass of dilapidated World War II buildings amid weeds and brush growing everywhere. Roads-mostly gravel and dirt trails-were in need of extensive repair. In late April 1957, parallel renovation and construction programs started. Over the next two years, missile launch and control facilities began to appear as tons of concrete and steel transformed the landscape. Old buildings were renovated and new ones built, including Capehart military family housing. The work was already in process when the Air Force hosted the official ground breaking ceremonies on 8 May 1957.<sup>[5]</sup>

To operate Cooke AFB, the 392d Air Base Group was activated, replacing the 6591st Support Squadron on 15 April 1957. With the activation of the 704th Strategic Missile Wing (Atlas) at Cooke on 1 July, the 392d was assigned to the wing. This was the first Air Force ballistic missile wing. On 16 July, the 1st Missile Division, activated three months earlier in Inglewood, California, relocated to Cooke AFB to supervise wing operations. During this formative period, the work of these latter two organizations involved planning for missile operations and training. The Division was assigned to Air Force Ballistic Missile Division (AFBMD) in Inglewood, which in turn reported to Air Research and Development Command (ARDC) at Andrews AFB, Maryland.<sup>[5]</sup>

The launching of the Russian Sputnik 1 satellite into orbit on 4 October 1957, followed a month later by Sputnik 2 that carried a dog into space, had military implications and caused an immediate acceleration of the United States Air Force's missile program. As part of the acceleration, on 23 November 1957, the Department of Defense authorized the peacetime launching of ballistic, missiles from Cooke AFB. The Air Force transferred management responsibilities for Cooke AFB from ARDC to the Strategic Air Command (SAC) on 1 January 1958. Along with the transfer, SAC acquired the three ARDC base organizations and responsibility for attaining initial operational capability (IOC) for the nascent U.S. missile force. Their mission also included training missile launch crews.<sup>[5]</sup>

The reorganization allowed ARDC to retain responsibility for site activation as well as research and development testing of ballistic missiles, also known as Category II testing. These activities were carried out by an AFBMD field office established at Cooke shortly after the transfers of January 1958. Space launches were to be conducted by ARDC and SAC. However, the vast majority of these operations were later handled by ARDC. Sharing the mission at Cooke, the two commands cultivated a close relationship that was to flourish for the next 35 years.<sup>[5]</sup>

On 12 February 1958, the Department, of Defense transferred executive responsibility for the Jupiter IRBM from the Department of the Army to the Air Force. Headquarters SAC transferred the 864th Strategic Missile Squadron (IRBM-Jupiter) from Huntsville, Alabama, to Cooke AFB. In April, Headquarters SAC activated the 576th Strategic Missile Squadron (ICBM-Atlas) at Cooke AFB. It was SAC's first ICBM squadron and first Atlas squadron. Initially, it consisted of two "soft" Series D Atlas complexes (576A and

576B). The first had three gantries while the second had three above ground coffin launchers (The term "coffin launcher" is used because the missile was laid on its side horizontally with the enclosure door or coffin-lid situated above. This configuration offered enhanced protection for the launcher.) similar to those planned for the first squadron in the field. Each complex had one launch control center. Thus, the squadron had a 3x2 configuration. In July, Construction began at Cooke AFB on the Operational System Test Facility (OSTF) for the Titan I ICBM. This was the prototype of the hardened Titan I launch control facility and consisted of one silo-lift launcher, blockhouse, and associated equipment. The first Thor IRBM arrived at Cooke AFB in August.<sup>[5][7]</sup>

On January 1, 1958, Lieutenant General David Wade of Louisiana was assigned as commander of the 1st Missile Division at Vandenberg. There he commanded the first operational missile unit in Air Force history. His commission was two-fold: (1) maintain operational capability with intercontinental ballistic missiles, and (2) establish operational readiness training for the missile crews of the SAC missile sites. Wade worked to develop the Discoverer, Samos, and Midas orbiting satellite programs.<sup>[8]</sup>

### Base expansion

The southern portion of Cooke AFB (formerly Camp Cooke), consisting of more than 19,800 acres (8,000 ha), was transferred to the U.S. Navy in May 1958. The Navy was in the process of establishing a Pacific Missile Range (PMR) with a headquarters 100 miles (160 km) south of Cooke at Point Mugu, and instrumentation sites along the California coast and at various islands down range in the Pacific Ocean. The property it acquired was renamed the Naval Missile Facility at Point Arguello. It became a major launch head and range safety center for all missile and satellite launch operations conducted within the PMR.<sup>[5]</sup>

On 16 November 1963, Secretary of Defense Robert S. McNamara ordered a restructuring in the way the Department of Defense managed and operated its missile ranges and flight test facilities across the nation. Part of the force restructuring had the Navy transfer major sections of its Pacific Missile Range, including its Point Arguello installation, to the Air Force in two parts. The first transfer occurred on 1 July 1964. In the second part of the transfer, remote properties and mobile resources, explained in detail in the next section, were handed over to Vandenberg on 1 February 1965.<sup>[5]</sup>

With the Navy's missile program and range authorities scaled back to the area around Point Mugu, the Air Force now assumed full responsibility for missile range safety at Vandenberg and over much of the Pacific Ocean. The Air Force renamed this geographical area the Air Force Western Test Range. The designation remained until 1979 when it was shortened to the Western Test Range.<sup>[5]</sup>

The final land acquisition at Vandenberg occurred on 1 March 1966, after the Air Force had announced plans to construct Space Launch Complex 6 for its Manned Orbiting Laboratory (MOL) program. Flight safety corridors for the Titan III MOL vehicle reportedly extended south of Point Arguello and inland to an area known as Sudden Ranch. The Air Force sought to purchase this property, but when negotiations with the Sudden Estate Company failed to reach a compromise purchase price, the government turned to condemnation proceedings (under the power of eminent domain). By filing a Declaration of Taking with the federal court in Los Angeles, it obtained almost 15,000 acres (6,100 ha) of Sudden Ranch. Finalized on 20 December 1968, the federal court established \$9,002,500 as the purchase price for the land. The total amount paid to the company with interest was \$9,842,700.<sup>[5]</sup>

The annexation of Sudden Ranch increased the size of the base to its present 99,099 acres (40,104 ha). Today, Vandenberg stands as the third largest Air Force base after Eglin AFB in Florida, and Edwards AFB in California.<sup>[5]</sup>

## Vandenberg Air Force Base

On 4 October 1958, Cooke AFB was renamed Vandenberg AFB in honor of the late General Hoyt S. Vandenberg, the Air Force's second Chief of Staff.<sup>[5]</sup>

### Ballistic missile testing

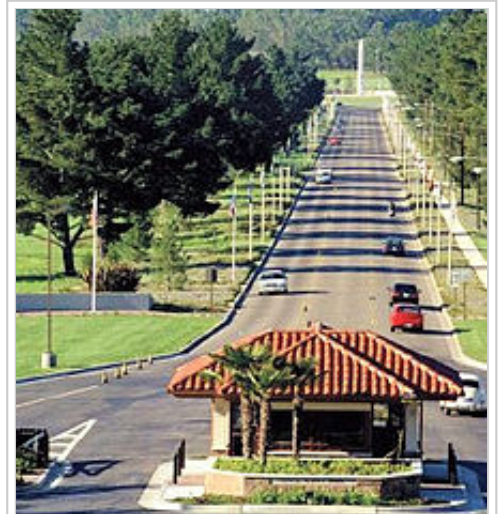
#### PGM-17 Thor

The transition from Army camp to missile base solidified on 15 December 1958 when Vandenberg AFB successfully launched its first missile, a PGM-17 Thor IRBM (Intermediate Range Ballistic Missile) The launch from Vandenberg inaugurated the intermediate-range ballistic missile portion of the Pacific Missile Range and was fired by a crew from the 1st Missile Division. The first successful launch of a Thor IRBM by a Royal Air Force crew took place at Vandenberg AFB on 16 April 1959. This launch was part of integrated weapon system training. In October, the first combat training launch of a Thor IRBM by a Royal Air Force crew was successful.

On 22 April 1960, the fourth and final British-based Thor IRBM squadron was turned over to the Royal Air Force by the Strategic Air Command, thus completing the deployment of this weapon system in the United Kingdom. The next month, the first missile to be removed from an operational unit and sent to Vandenberg AFB for confidence firing arrived from a Thor IRBM squadron (98 (Strategic Missile) Squadron RAF) in the United Kingdom. Confidence firing was the predecessor of SAC's operational test program.<sup>[5][7]</sup>

#### SM-65 Atlas

On 16 October 1958, the first Atlas ICBM launcher (576A-1) constructed at Vandenberg AFB, California, was accepted from the contractor by the 1st Missile Division. The first intercontinental ballistic missile, the SM-65D Atlas ICBM, was delivered and was accepted by SAC's 576th Strategic Missile Squadron on 18 February 1959. The first Atlas-D flew on 9 September 1959, and following the successful launch, General Thomas S. Power, CINCSAC, declared the Atlas ICBM to be operational. The following month, equipped with a nuclear warhead, the Atlas at Vandenberg became the first ICBM to be placed on alert in the United States. It was an SM-69D Atlas ICBM (AFSN 58-2190) on launcher 576A-1. In April 1960, the first attempted launch of a Series D Atlas ICBM from a coffin-type launcher (576B-2) was successful. This launcher was the prototype of the ones to be used at the first operational Atlas squadron, the 564th Strategic



Vandenberg AFB Main gate



PGM-17 Thor IRBM

Missile Squadron, Francis E. Warren AFB, Wyoming. Following this successful launch, Major General David Wade, Commander of the 1st Missile Division, declared the coffin-type launcher to be operational.<sup>[7]</sup>

In July 1959, construction began on the first Series E Atlas ICBM coffin-type launcher (Atlas operational system test facility #1). On 28 February 1962, the first successful launch of the SM-65E Atlas took place. Construction began on the first SM-65F Atlas ICBM "silo-lift" launcher (Atlas operational system test facility #2) in November. The first Atlas F arrived in June 1961 and the first operationally configured Series F Atlas was successfully launched on 1 August 1962.<sup>[7]</sup>

During its testing phase, Vandenberg would operate two Atlas-D launch complexes; two Atlas-E, and three Atlas-F silos.<sup>[9]</sup> The Atlas-Ds were taken off alert at the 576th Strategic Missile Squadron (Complex 576B) in May 1964 as part of the phaseout of the Atlas from active ICBM service. The last Atlas F test launch was on 18 January 1965, and the 576th Strategic Missile Squadron was inactivated on 2 April 1966. The 576th SMS carried out 53 Atlas-D, 7 Atlas-E and 7 Atlas-F test launches between 1959–1965.<sup>[7]</sup>

The Atlas would remain in use as a launch vehicle for satellites from Vandenberg as a space booster configured with an RM-81 Agena upper-stage rocket and the Atlas-Agena would launch many different types of satellites into orbit until its phaseout in the late 1980s.<sup>[5]</sup>

#### HGM-25A Titan I

The HGM-25A Titan I was the United States' first multistage ICBM. When designed and manufactured, the Titan I provided an additional nuclear deterrent to complement the U.S. Air Force's SM-65 Atlas missile. It was the first in a series of Titan rockets, and was an important step in building the Air Force's strategic nuclear forces.

In July 1958 construction began on the Titan I ICBM Operational System Test Facility (OSTF). This was the prototype of the hardened Titan I launch control facility at its operational sites. It consisted of one silo-lift launcher, blockhouse, and associated equipment. Designated "OSTF-8", the facility was destroyed on 3 December 1960 when the launcher elevator failed while lowering a fully fueled missile back into the silo. There were no injuries. This was the first silo accident at Vandenberg.<sup>[7]</sup>

The first "silo-lift" launch of the Titan I was successful in September 1961, and the first SAC launch of the ICBM was successful in January 1962. As a result, the Titan I ICBM launch complex (395-A1/A2/A3) at Vandenberg was turned over to the Strategic Air Command 395th Strategic Missile Squadron to perform test launches of the missile.<sup>[7]</sup>



Atlas missiles on alert, 1960



Titan I missile emerges from its silo at Vandenberg Operational System Test Facility in 1960



Titan II test launch from Vandenberg

However, the operational lifetime of the Titan I was short, as Secretary of Defense McNamara announced in November 1964 that all remaining first-generation ICBMs (Series E and F Atlas and Titan I) would be phased out (Project Added Effort) by the end of June 1965.<sup>[7]</sup>

On 5 March 1965, the last test launch of a Titan I ICBM conducted by the Strategic Air Command at Vandenberg was successful. The 395th SMS performed 19 test launches between 1963–1965 before moving on to exclusively Titan II testing. During the 1980s, some Titan I second stages were used as targets for early Strategic Defense Initiative (SDI) testing.<sup>[7]</sup>

#### LGM-25C Titan II

The LGM-25C Titan II ICBM was a second-generation ICBM with storable propellants, all inertial guidance, and in-silo launch capability. Construction of the first Titan II site began in 1962, and eventually Vandenberg operated four Titan II launch complexes.<sup>[7][10]</sup>

Most of the testing of the missile was done at Cape Canaveral AFS, Florida by the 6555th Aerospace Test Group, and the first successful underground silo launch of a Titan II ICBM took place at Vandenberg by the 395th SMS in April 1963. The first fully operational test took place in March 1965.<sup>[7]</sup>

On 25 March 1966, the 200th SAC missile launched from Vandenberg AFB, California was a Titan II. The operational testing of the Titan II continued until 1985.<sup>[7]</sup> Like its predecessor the Atlas ICBM, the Titan II GLV a derivative of that missile was used to launch Project Gemini spacecraft and the Titan 23G was used as a space booster to launch satellites. The final launch of a Titan II was made in 2003 when the last Titan IIG was expended.<sup>[5]</sup>

#### LGM-30 Minuteman

The advent of solid-propellant gave the three-stage LGM-30 Minuteman ICBM a major advantage over earlier liquid propellant ICBMs. In February 1961 construction began on Minuteman ICBM test launch facilities at Vandenberg. Silos 394A-1 through A-7 were the first constructed for use by the SAC 394th Strategic Missile Squadron.<sup>[5][7][11]</sup>

LGM-30A Minuteman IA flight tests began in September 1962. The first Minuteman IB test took place in May 1963. On 24 February 1966, the first attempted salvo (simultaneous) launch of two model "A" Minuteman I ICBMs from Vandenberg silos LF-04 (394A-3) and LF-06 (394-A5) was successful. This launch demonstrated the multiple countdown and launch techniques that would be used at operational bases under actual combat conditions. Minuteman I testing continued until 1968.<sup>[7][11]</sup>



Minuteman 3 missile launch



Test launch of LGM-118 Peacekeeper

LGM-30F Minuteman II testing began in August 1965 with the first launch conducted by Air Force Systems Command, was successful. The missile flew 5,000 miles (8,000 km) down the Pacific Missile Range and its reentry vehicle impacted in the target area.<sup>[7]</sup>

On 22 October 1970, the first attempted OT GT70F (Salvo) operational test launch (simultaneous) launch of two Minuteman II ICBMs was successful from LF-25 and LF-26. The last Minuteman II phase I operational test was performed in April 1972.<sup>[7][12]</sup>

The first LGM-30G Minuteman III phase II operational test was launched on 5 December 1972 from the LF-02 silo. The ICBM flew 800 miles (1,300 km) downrange before impacting in the Pacific Ocean. This was the beginning of Minuteman III launches which continue to this day from Vandenberg.<sup>[7]</sup>

In July 1974, the initial training of Minuteman missile combat crews, formerly performed by Air Training Command (ATC) instructors at Vandenberg AFB, California, was incorporated into the 4315th Combat Crew Training Squadron's Operational Readiness Training (ORT) program at Vandenberg. As a result of this action, the entire Minuteman missile combat training, from beginning (initial training) to end (upgrade training) became the responsibility of Strategic Air Command.<sup>[7]</sup>

SAC launched two Minuteman III ICBMs from Vandenberg AFB during exercise Global Shield, a comprehensive exercise of SAC's nuclear forces on 10 July 1979 from LF 08 and LF 09. One of these Global Shield missions, Glory Trip 40 GM, was the last Minuteman III phase I operational test flight. The missiles were launched 12 seconds apart by a SAC task force from the 90th Strategic Missile Wing, Francis E. Warren Air Force Base, Wyoming.<sup>[7]</sup>

Glory Trip 77GM, a Minuteman III Operational Test in September 1980, became the longest Minuteman flight test when its payload impacted a broad ocean area target over 5,600 nautical miles (10,400 km) downrange.<sup>[7]</sup>

#### LGM-118 Peacekeeper

The last ICBM tested from Vandenberg was the LGM-118 Peacekeeper (MX) ICBM beginning in June 1983. In addition to having a longer range than earlier ICBMs, the Peacekeeper could deliver up to 10 reentry vehicles to separate targets.<sup>[5]</sup> It was intended as a replacement for the LGM-30 Minuteman, but it suffered from a long development time, and was retired in 2005 before the Minuteman because of arms reduction treaties.

The first Peacekeeper ICBM was launched by Air Force Systems Command from an aboveground canister-type launch facility from TP-01 on 17 June 1983. This was the first "cold launch" of a missile at Vandenberg AFB, the missile reaching 600 mi (970 km) downrange. Two more test launches were conducted in 1983, the missile from TP-01.<sup>[7][13]</sup>



Ground-based Midcourse Defense (GMD) interceptor in launch silo at Vandenberg

The first Peacekeeper with a Mark-21 test reentry vehicle was flight-tested from TP-01 on 15 June 1984. The Mark-21 resembled the reentry vehicle intended for the Peacekeeper weapon system. Two more test launches were conducted in 1984, the missile from TP-01. Air Force Systems Command conducted the final Peacekeeper launch from the aboveground TP-01 launch pad on 30 June 1985.<sup>[7][13]</sup>

The first silo launch from LF-05 took place on 24 August 1985 from LF-08. LF-02 began to be used in 1986 for additional launches. On 23 August 1986 the first launch of a completely operational hardware configured missile and launch facility, and also the first Peacekeeper launch by a SAC combat crew under the control of Air Force Systems Command took place from silo LF-02.<sup>[7][13]</sup>

A new Peacekeeper Missile Procedures Trainer was dedicated in March 1987. The \$17 million facility featured a state-of-the-art computer based simulator which would be used to train and evaluate missile crew members. The first LGM-118 Peacekeepers were deployed to F.E. Warren AFB, Wyoming that year.<sup>[7][13]</sup>

LGM-118 Peacekeeper test launches continued from Vandenberg with a third silo, LF-05 becoming operational in March 1990. The final launch of a LGM-118 Peacekeeper 33PA took place on 21 July 2004 before the missile was retired from service.<sup>[7][13]</sup>

#### **Ground Based Midcourse Defense Interceptor**

The latest missile deployed at Vandenberg in 2005 is the Ground-based Interceptor (GBI) missile Suborbital booster for the US Missile Defense Agency's Ground-based Midcourse Defense system's EKV ballistic missile kill vehicle. It is part of a National missile defense system advocated by president George W. Bush. The OBV is under development by Orbital Sciences; for every interceptor missile there is a missile silo and a Silo Interface Vault (SIV), which is an underground electronics room adjacent to the silo.<sup>[5]</sup> The basic OBV consists of the upper three stages and guidance system from the Taurus orbital launch vehicle (essentially a wingless Pegasus-XL). The developmental OBV is launched from an open pad; the operational version is to be silo-launched.<sup>[14]</sup>

The first test firing of the OVB took place from former Atlas-F pad 576-E on 6 February 2003. Launch silo LF-23 is used for ongoing silo testing, with target missiles consisting of surplus inert Minuteman ICBM second and third stages being launched from the Kwajalein Meck launch site in the Pacific Range.<sup>[14][15]</sup>

#### **Space exploration**

Vandenberg launched the world's first polar orbiting satellite, Discoverer I on 28 February 1959. The launch vehicle for this mission consisted of a Thor-Agena combination.<sup>[5]</sup>

The Discoverer series of satellites provided other significant firsts for Vandenberg. For instance, in August 1960, the data capsule was ejected from Discoverer XIII in orbit and recovered from the Pacific Ocean to become the first man-made object ever retrieved from space. A week later, on 19 August, the descending capsule from Discoverer XIV was snared by an aircraft in flight for the first air recovery in history.<sup>[5]</sup>

Shrouded in a cover story of scientific research, Discoverer was actually the cover name for Corona, America's first photo reconnaissance satellite program. The publicized Discoverer series came to an end on 13 January 1962. After 37 launches or launch attempts, the cover story for Discoverer had simply worn

out.<sup>[5]</sup>

Over the years, unmanned satellites of every description and purpose, including international satellites, were placed in orbit from Vandenberg by a widening variety of boosters. Among the parade of newer space boosters are the Titan IV (March 1991), Taurus (March 1994), Pegasus (April 1995), Delta II (February 1996), Atlas IAS (December 1999), Minotaur (2000), and beginning in late 2005, the Falcon 1, the Delta IV, and Atlas V vehicles.<sup>[5]</sup>

The most ambitious Air Force endeavors at Vandenberg were the Manned Orbiting Laboratory (MOL) and the Space Shuttle programs. The MOL vehicle consisted of a Titan III booster carrying a modified Gemini space capsule (Gemini B) attached to a space laboratory. Construction work for MOL began at Space Launch Complex 6 (SLC-6) on South Vandenberg in March 1966. President Richard Nixon canceled the estimated \$3 billion program in June 1969, as a result of cost overruns, completion delays, emerging new technologies, and the expense of fighting the Vietnam War. SLC-6 remained closed for the next decade.<sup>[5]</sup>

### Space Shuttle

In 1972, Vandenberg was selected as the West Coast Space Shuttle launch and landing site, but it was never used as such.

Space Launch Complex 6 (SLC-6, pronounced as "Slick Six"), originally built for the abandoned Manned Orbital Laboratory project, was extensively modified for shuttle operations. Over \$4 billion was spent on the modifications to the complex and construction of associated infrastructure. The original Mobile Service Tower (MST) was lowered in height and two new flame ducts were added for the shuttle's Solid Rocket Boosters. Additional modifications or improvements included liquid hydrogen and liquid oxygen storage tanks, a payload preparation room, payload changeout room, a new launch tower with escape system for the shuttle crewmembers, sound suppression system and water reclamation area and a Shuttle Assembly Building were added to the original complex.

Additionally, the existing 8,500-foot (2,590 m) runway and overruns on the North Base flightline were lengthened to 15,000 feet (4580 m) to accommodate end-of-mission landings, along with construction of the Precision Approach and Path Indicator (PAPI) lights/large triangle arrows at both ends of the runway. Turn-around servicing and refurbishing of the Orbiter would be accomplished in the adjacent Orbiter Maintenance and Checkout Facility (OMCF). The Mate-Demate Facility, to load and unload the Orbiter from the Boeing 747 Shuttle Carrier Aircraft (SCA), was changed from the large structure found at Dryden Flight Research Center and Kennedy Space Center, to a transportable "erector set-like" Orbiter Lifting Frame (OLF). This facility design change was due to the possibility of needing to support a landing at a location where there was no facility to load the Orbiter onto the SCA. The OLF could be disassembled, loaded onto two C-5 aircraft, shipped to the overseas Orbiter landing site, and reassembled to load the



1985 photo of Space Shuttle Enterprise (OV-101) moving toward the shuttle assembly building at Vandenberg AFB Space Launch Complex 6 aboard its specially designed Cometto 76-wheel transporter. In the background are the payload changeout room and the payload preparation room.

Orbiter onto the Boeing 747. To transport the Orbiter from the OMCF (on North Vandenberg AFB) to SLC-6, the 22-mile (35 km) route was upgraded to accommodate a 76-wheeled vehicle built specifically to carry the Orbiter on its large flat deck utilizing the three external tank interface points (built by Commetto, Italy), versus towing the Orbiter on its landing gear that long distance.

Modification of SLC-6 to support polar missions had been problematic and expensive.<sup>[16]</sup> SLC-6 was still being prepared for its first Shuttle launch, mission STS-62-A targeted for 15 October 1986, when the *Challenger* disaster grounded the Shuttle fleet and set in motion a chain of events that finally led to the decision to cancel all west coast shuttle launches. The orbiter transporter was sent to Kennedy Space Center in Florida after the Vandenberg AFB launch site was abandoned and was used to transport the Orbiter from the Orbiter Processing Facility to the Vehicle Assembly Building.

Persistent site technical problems, however, and a joint decision by the Air Force and NASA to consolidate Shuttle operations at the Kennedy Space Center, following the Challenger tragedy in 1986, resulted in the official termination of the Shuttle program at Vandenberg on 26 December 1989.

Had the space shuttle program been successful at SLC-6, the West Coast operation would have contrasted with that at the Kennedy Space Center by creating the orbiter stack directly on the launch pad, rather than assembling it and then moving it. Three movable buildings on rails, the Launch Tower, Mobile Service Building and Payload Changeout Room were used to assemble the Shuttle orbiter, external tank and SRBs. These buildings were designed to protect the shuttle "stack" from high winds in the area and were used during a series of "fit tests" utilizing the space shuttle *Enterprise* in 1985.

### **Delta IV**

Since the demise of the shuttle program at Vandenberg, SLC 6 was once again been reconfigured, this time to support polar-orbit satellite launches by the new Delta IV family of launch vehicles, utilizing a Common Core Booster for class sizes all the way up to and including the Delta IV (Heavy) launcher. As it is currently configured, the 132-acre (53 ha) launch site features structures similar to Boeing's Delta IV SLC-37 launch site at Cape Canaveral Air Force Station in Florida, with a Fixed Umbilical Tower, Mobile Service Tower, Fixed Pad Erector, Launch Control Center and Operations Building, and a Horizontal Integration Facility. SLC-6 also features a Mobile Assembly Shelter that protects the rocket from adverse weather.

The first of the Delta IV launch vehicles to fly from SLC 6 successfully lifted off at 8:33 pm PDT on 27 June 2006 when a Delta IV Medium+ (4,2) rocket lofted NROL-22, a classified satellite for the National Reconnaissance Office, into orbit. The payload was successfully deployed approximately 54 minutes later.

### **Atlas V**

The Atlas V was developed by Lockheed Martin as part of the US Air Force Evolved Expendable Launch Vehicle (EELV) program.

The Atlas V launches from Space Launch Complex 3-E. Lockheed Martin Commercial Launch Services markets the Atlas V to government and commercial customers worldwide.<sup>[17]</sup>

The first Atlas V launch vehicle to fly from SLC 3-E was launched on 19 March 2008 for the National Reconnaissance Office.<sup>[18]</sup>

All Atlas V launches from Vandenberg have been successful.

SpaceX Falcon

SpaceX briefly used SLC-3W during the early development of the Falcon 1 launch vehicle,<sup>[19][20]</sup> and later moved operations to Space Launch Complex 4-East (SLC 4E). The pad underwent 24 months of refurbishment to support Falcon 9 and Falcon Heavy launches.<sup>[21][22][23]</sup> The draft environmental impact assessment with a finding of "no significant impact" was published in February 2011.<sup>[23]</sup> As of August 2011, demolition work got underway on the pad's fixed and mobile service towers, with most of the fixed tower removed and the hammerhead crane removed from the mobile service tower.<sup>[24]</sup>



Falcon 1 on Pad 3W.

At a press conference at the National Press Club in Washington, DC. on 5 April 2011, Elon Musk stated, "Falcon Heavy will arrive at our Vandenberg, California, launch complex by the end of next year (2012), with liftoff to follow soon thereafter (2013)."<sup>[22]</sup> The first launch is currently scheduled for 2015.

Launch sites

| Active launch sites                           |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Site                                          | Status | Uses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Space Launch Complex 2E/W (SLC 2W and SLC 2E) | Active | 34°45′05″N 120°37′09″W (SLC 2E Dec 1958 – Mar 1972)<br><br>34°45′19″N 120°37′20″W (SLC 2W Sep 1959 – present)<br>SLC 2W is currently used for <b>Delta II</b> launches. The launch sites were built in 1958 for the never activated 75th Strategic Missile Squadron PGM-17 Thor IRBM missile launches and were used by SAC for training RAF personnel in operations and launching of the missile. 2E launch pad 75-1-1, 2W launch pad 75-1-2. Upgraded to a Space Launch Complex (SLC) in 1966. Used for Thor-DM18A, Thor Able-Star, Thor-Agena USAF satellite launches. SLC 2E inactivated in 1972, last launch a Thor Delta 1A carrying a navigation satellite for European Space Agency. Landsat 1-2-3-4-5-7 American earth land resources satellites launched from SLC 2W, Global Positioning System and many communications satellites. First Thor-Delta launch 1959, Delta I, 1969, Delta II 6925 in 1990. <sup>[11]</sup> |
| Space Launch Complex 3-East (SLC 3E)          | Active | 34°38′25″N 120°35′23″W (Jul 1961 – present)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|                                      |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                      |        | <p>SLC 3E is currently used for <b>Atlas V</b> launches since 13 March 2008.</p> <p>Previously used for Atlas II (1999–2003); Atlas-H (1983–1987); Atlas-F/G, Atlas-Agena since 1961. Originally an Atlas test facility, designated PALC1-2, then LC1-2, and finally upgraded to a Space Launch Complex (SLC) in 1966.<sup>[11]</sup></p>                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Space Launch Complex 4-East (SLC 4E) | Active | <p>34°37′55″N 120°36′36″W (Aug 1964 – present)</p> <p>SLC 4E is currently used by SpaceX for <b>Falcon 9</b> and <b>Falcon Heavy</b> launches.</p> <p>Built in 1964 as Atlas-Agena D pad for launch of KH-7 reconnaissance satellites. First designated PALC2-4. Upgraded to a Space Launch Complex (SLC) in 1966. Redeveloped 1967–1971 for Titan IIID KH-9 and KH-11 reconnaissance satellites; Titan 34D in 1983. Rebuilt 1988–1991 for Titan IV. Inactivated in 2005 with end of Titan IV program. Reactivation started in 2011, with a kick off ceremony on July 14, 2011.<sup>[21]</sup> Launches began on September 29, 2013 with the Falcon 9 v1.1 CASSIOPE mission. This was also the inaugural flight of the Falcon 9 v1.1.</p>                                       |
| Space Launch Complex 6 (SLC 6)       | Active | <p>34°34′52″N 120°37′39″W (Aug 1995 – present)</p> <p>SLC 6 is currently used for <b>Delta IV</b> launches.</p> <p>SLC 6 was built as a Space Launch Complex (SLC) between 1966 and 1969 for Titan III Gemini-B Manned Orbiting Laboratory (MOL) flights which were canceled and was unused for 10 years. Then it was upgraded between 1979 and 1989 for Space Shuttle launches, canceled in part due to the Challenger accident and many unresolved technical issues and again was unused for several years. It was also considered for a second Titan launch facility but this was dropped in 1991. Supported Athena 1 and 2 launch vehicles (1995–99). Delta IV launches began in June 2006 for commercial and military payloads going into polar orbits.<sup>[11]</sup></p> |
| Space Launch Complex 8 (SLC 8)       | Active | <p>34°34′34″N 120°37′56″W (Jan 2000 – present)</p> <p>SLC 8 is currently used for commercial <b>Minotaur</b> launches. It is known as the "California Spaceport". The facilities are operated by Spaceport Systems</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

|                                               |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               |          | International. <sup>[11]</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Launch Complex 576-E                          | Active   | <p>34°44′22″N 120°37′08″W (Jan 1962 – Dec 1964; Feb 1998 – present)</p> <p>LC 576-E is used by Orbital Sciences Commercial <b>Taurus</b> launches and for USAF OBV Ground Based Interceptor (GBI) launches. Initially a 576th SMS SM-65F Atlas Operational Suitability Test facility. Inactivated 1964. Reactivated in 1988 by Orbital Sciences.<sup>[25]</sup> Also used by USAF OBV American anti-ballistic missile. Suborbital booster for the US Missile Defense Agency's Ground-based Midcourse Defense system's EKV ballistic missile kill vehicle.<sup>[9][11]</sup></p>                                                                                                                                                |
| <b>Inactive sites</b>                         |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Space Launch Complex 1E/W (SLC 1E and SLC 1W) | Inactive | <p>34°45′22″N 120°37′35″W (SLC 1E Jun 1959 – Sep 1968)</p> <p>34°45′26″N 120°37′50″W (SLC 1W Jan 1959 – Dec 1971)</p> <p>Both sites were built in 1958 for the never activated 75th Strategic Missile Squadron for Thor Agena A launches. SLC-1E launch pad 75-3-5, SLC-1W launch pad 75-3-4. Both were upgraded to a Space Launch Complex (SLC) in 1966. Inactivated with phaseout of Thor-Agena. SLC-1E inactivated 1968, 45 Launches; SLC-1W inactivated in 1971, 56 launches.<sup>[11]</sup></p>                                                                                                                                                                                                                           |
| Space Launch Complex 3-West (SLC 3W)          | Inactive | <p>34°38′37″N 120°35′34″W (Oct 1960 – Mar 1995)</p> <p>Activated in 1960. First designated LC1-1 and used to launch Atlas Agena B with Samos payloads. After Samos cancellation, rebuilt in 1963 to support launch of KH-4 Corona reconnaissance satellites atop Thor-Agena. Upgraded to a Space Launch Complex (SLC) in 1966. Used for later Thor-Agena and Delta I launches in 1960s and early 1970s. Refurbished in 1973 to accommodate surplus Atlas ICBM's in space launch role. Inactivated in 1995 with last Atlas-E launch of a weather satellite. SLC 3W's tower was demolished 22 January 2000 with no immediate plans for re-use except for speculation regarding the Atlas V under development.<sup>[11]</sup></p> |

|                                                                |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                |          | SpaceX briefly used SLC-3W in 2005 during the early development of the Falcon 1 launch vehicle. <sup>[19][20]</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Space Launch Complex 4-West (SLC 4W)                           | Inactive | <p>34°37′59″N 120°36′56″W (July 1963 – Oct 2003)</p> <p>Built in 1963 as Atlas-Agena D pad for launch of KH-7 reconnaissance satellites. First designated PALC2-3. Upgraded to a Space Launch Complex (SLC) in 1966. Rebuilt 1965–1966 for Titan IIIB with various military payloads. Began launching Titan 23/24B (Titan III core rocket) also Titan 34B MOL core rocket with Agena upper stage in 1971–1987. Modified to accommodate former LGM-25C Titan II ICBMs for space launch vehicles (Titan IIG), 1988. Inactivated in 2003 with last Titan IIG expended. 93 Launches<sup>[11]</sup></p>                                                                                                                                                                                                                                                                                                                                                     |
| Space Launch Complex 5 (SLC 5)                                 | Inactive | <p>34°36′28″N 120°37′27″W (Apr 1962 – May 1994)</p> <p>Dedicated Scout rocket launch pad, used during the life of that vehicle from 1962 to 1994. 69 launches.<sup>[11]</sup></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Space Launch Complex 10E/W (SLC 10E (former LE-7) and SLC 10W) | Inactive | <p>34°45′45″N 120°37′17″W (SLC 10E Jun 1959 – 1961) (LE-7 1961 – Mar 1962)</p> <p>34°45′49″N 120°37′29″W (SLC 10W Aug 1959 – Jul 1980)</p> <p>34°45′51″N 120°37′22″W Space and Missile Heritage Center</p> <p>SLC 10E (launch pad 75-2-7) and SLC 10W (75-2-6) activated as a Thor-Delta (DM-18A) pads in 1959. Upgraded to a Space Launch Complex (SLC) in 1961. From 1961 to Mar 1962, SLC-10E was known as LE-7 (Launch Emplacement 7). It was inactivated in Mar 1962. 10W continued launch operations with various configurations of the Thor-Delta until the phaseout of the vehicle in 1980. Declared a National Historic Landmark in 1986, SLC 10 is the best surviving example of a launch complex built in the 1950s at the beginning of the American effort to explore space. It is home to the Space and Missile Heritage Center, which is open by appointment through the Base Public Affairs office for public tours.<sup>[11]</sup></p> |

**Active ICBM Testing sites**

|                       |        |                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LF-03 (former 394-A2) | Active | <p>34°50′46″N 120°34′52″W</p> <p>394-A2 (Apr–Dec 1963), LF-03 (Jan 1964 – present)<br/>LGM-30 Minuteman I/II; Minotaur II testing. Originally a Minuteman 394th SMS silo, first launch April 1963. Upgraded for use as a Launch Facility in 1964, Used for Minuteman testing until July 2001. Currently modified to launch the Minotaur. 97 launches.<sup>[11]</sup></p> |
| LF-04 (former 394-A3) | Active | <p>34°51′32″N 120°36′24″W</p> <p>394-A3 (Sep 1962 – Dec 1963), LF-04 (Jan 1964 – present)<br/>LGM-30 Minuteman I/II/III testing; first launch, September 1962.<sup>[11]</sup></p>                                                                                                                                                                                        |
| LCC-01 (former LF-10) | Active | <p>34°51′39″N 120°35′00″W</p> <p>LGM-30G Minuteman III, first launch July 1987. This is now a pair of Launch Control Centers with LCC 01-A on the left, and LCC 01-B on the right.<sup>[11]</sup></p>                                                                                                                                                                    |
| LF-09                 | Active | <p>34°52′43″N 120°38′01″W</p> <p>LGM-30 Minuteman I/II/III testing; first launch June 1964, Inactivated 2006,<sup>[11]</sup> Minuteman III launch September 26, 2013<sup>[26]</sup></p>                                                                                                                                                                                  |
| LF-10 (former LF-22)  | Active | <p>34°51′02″N 120°35′38″W</p> <p>LGM-30 Minuteman I/II testing; first launch October 1965, Inactivated 1975,<sup>[11]</sup> Minuteman III launch September 22, 2013<sup>[27]</sup></p>                                                                                                                                                                                   |
| LF-21                 | Active | <p>34°51′39″N 120°35′44″W</p> <p>LGM-30 Minuteman I/II, Ground Based Interceptor (GBI) testing; first launch August 1965.<sup>[11]</sup></p>                                                                                                                                                                                                                             |
| LF-23                 | Active | <p>34°51′20″N 120°35′49″W</p> <p>LGM-30F Minuteman II. Surprisingly, only one Minuteman launch, on 26 August 1966. Since 2003 it has been used for Ground Based Interceptor (GBI) launches.<sup>[11]</sup></p>                                                                                                                                                           |
| LF-24                 | Active | <p>34°51′24″N 120°36′08″W</p> <p>LGM-30F Minuteman II testing; first launch December 1965. Mothballed 1971. LF-24 is currently being refurbished as a backup for Pad LF-23 missile defense launches.<sup>[11]</sup></p>                                                                                                                                                  |

|                                                   |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TP-01                                             | Active   | 34°48′15″N 120°35′20″W<br>LGM-118 Peacekeeper, MGM-134 Midgetman<br>SICBM (Small Intercontinental Ballistic Missile);<br>first launch June 1983. Also is a candidate site for<br>Ground Based Interceptor (GBI) launches. <sup>[11]</sup>                                                                                                                                                                                                                                                                                  |
| <b>Inactive ICBM sites</b>                        |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 395-A1, 395-A2, 395-A3                            | Inactive | 34°48′23″N 120°32′39″W 395 Alpha 1 (Sep 1961 –<br>Dec 1964)<br><br>34°48′19″N 120°32′42″W 395 Alpha 2 (Mar 1963 –<br>Mar 1965)<br>34°48′23″N 120°32′42″W 395 Alpha 3 (Jan 1962 –<br>Jan 1965)<br>HGM-25A Titan I, 3 operational alert sites. First<br>Titan I launch 3 May 1961, last 14 January 1965.<br>Primarily used for research and development<br>launches. <sup>[11][28]</sup>                                                                                                                                     |
| 395-B                                             | Inactive | 34°46′57″N 120°36′25″W<br>LGM-25C Titan II, This was a test and training<br>facility, (1964–69) <sup>[10][11]</sup>                                                                                                                                                                                                                                                                                                                                                                                                        |
| 395-C                                             | Inactive | 34°44′02″N 120°35′47″W<br>LGM-25C Titan II, This was a test and training<br>facility and was the site of the first Titan II launch at<br>Vandenberg AFB. In December 1969 complexes B<br>and D were deactivated and complex C was<br>mothballed, but was occasionally used for more<br>Titan II launches (1963–76). <sup>[10][11]</sup>                                                                                                                                                                                    |
| 395-D                                             | Inactive | 34°42′27″N 120°35′22″W<br>LGM-25C Titan II, This was a test and training<br>facility, (1963–69) <sup>[10][11]</sup>                                                                                                                                                                                                                                                                                                                                                                                                        |
| Site A – 576 Alpha 1, 576 Alpha 2, 576<br>Alpha 3 | Inactive | 34°46′36″N 120°36′06″W 576 Alpha 1 (Oct 1962 –<br>Sep 1974)<br><br>34°46′51″N 120°36′00″W 576 Alpha 2 (Sep 1959 –<br>Aug 1971)<br>34°46′39″N 120°35′48″W 576 Alpha 3 (Jan 1960 –<br>Oct 1989)<br>SM-65D Atlas The very first Atlas D operational<br>ICBM sites, these were above ground with open<br>support towers. These missiles were on alert from<br>31 October 1959 until 1 May 1964. After going off<br>alert in 1964, Alpha 1 and 2 were used by the USAF<br>for Atlas satellite rocket launches until 1974; Alpha |

|                                                |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                |          | 3 was used by the American Rocket Corporation until 1989, developing a new rocket motor utilizing a solid fuel and liquid oxygen that was throttlable and restartable. <sup>[9]</sup> Noted on image that 576 Alpha 3 still has a launch gantry tower.                                                                                                                                                                                                                                    |
| Site B – 576 Baker 1, 576 Baker 2, 576 Baker 3 | Inactive | <p>34°47′36″N 120°35′41″W 576 Baker 1 (Jul 1960 – Jun 1966)</p> <p>34°47′27″N 120°35′30″W 576 Baker 2 (Apr 1960 – Nov 1967)</p> <p>34°47′23″N 120°35′45″W 576 Baker 3 (Sep 1960 – Oct 1967)</p> <p>SM-65D Atlas, Site 1 was active from 22 July 1960 to 10 June 1966. Site 2 was active from 19 June 1959 to 7 November 1967. Site 3 was active from 12 September 1960 to 21 January 1965, then was used for the space program from 27 May 1965 to 11 October 1967.<sup>[9][11]</sup></p> |
| Site C – 576 Charlie                           | Inactive | <p>34°48′32″N 120°35′01″W</p> <p>SM-65E Atlas, built 1963. The Atlas E would normally be semi-buried, but at Vandenberg it was constructed above ground for testing but resembled a normal site in most respects. 3 Atlas demonstration and shakedown operations launches occurred July – September 1963 and the site was then inactivated.<sup>[9][11]</sup></p>                                                                                                                         |
| Site D – 576 Delta                             | Inactive | <p>34°49′14″N 120°33′25″W</p> <p>SM-65F Atlas, Built 1963, inactivated 1964. Atlas F Operational Suitability Test facility, the second for the Atlas ICBM perhaps because of significant differences with the earlier Atlas missiles. 2 Atlas demonstration and shakedown operations launches occurred March – August 1963 and the site was then inactivated.<sup>[9][11]</sup></p>                                                                                                       |
| Site F – 576 Foxtrot (also known as OSTF-1)    | Inactive | <p>34°47′46″N 120°35′20″W</p> <p>SM-65E Atlas, Operational Suitability Test Facility for Atlas E missiles. 10 Atlas research and development launches occurred June 1961 – August 1964 and the site was then inactivated.<sup>[9][11]</sup></p>                                                                                                                                                                                                                                           |

|                                          |          |                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Site G – 576 Golf (also known as OSTF-2) | Inactive | <p>34°49′21″N 120°33′37″W</p> <p>SM-65F Atlas, Operational Suitability Test Facility for Atlas F missiles. 7 Atlas research and development launches occurred August 1962 – January 1965 and the site was then inactivated.<sup>[9][11]</sup></p>                                                                                                                                                                          |
| BOM1, BOM2                               | Inactive | <p>34°48′02″N 120°35′57″W</p> <p>Used for CIM-10 Bomarc interceptors. 2 Bomarc launchers with a third support building between the two shelters. United States Navy personnel at Vandenberg launched the missiles strictly as targets with the first launch taking place on 25 August 1966. The last two launches for a Navy test program occurred on 14 July 1982. BOM1 49 launches; BOM2 38 launches.<sup>[11]</sup></p> |
| HP-06                                    | Inactive | <p>34°48′13″N 120°36′02″W</p> <p>BGM-109 Tomahawk Ground Launched Cruise Missile</p> <p>Used for one launch of a BGM-109 GCLM on 22 October 1985.<sup>[11]</sup></p>                                                                                                                                                                                                                                                       |
| OSTF-8                                   | Inactive | <p>34°48′15″N 120°32′46″W</p> <p>HGM-25A Titan I, Operational Suitability Test Facility. This site was destroyed on 3 December 1960 when the elevator failed while lowering a fully fueled missile back into the silo.<sup>[11][28]</sup></p>                                                                                                                                                                              |
| 68-SLTF                                  | Inactive | <p>34°48′25″N 120°32′57″W</p> <p>LGM-25C Titan II, Silo Launch Test Facility for Titan II, though in fact the only missile launched was a Titan I on 3 May 1961. The facility was only intended to prove the design of a silo that could fire a missile, and to try out construction methods; later it became the Titan II Operations and Maintenance Missile Trainer (QMT).<sup>[10][11]</sup></p>                        |
| LC-A                                     | Inactive | <p>34°40′44″N 120°35′32″W</p> <p>formerly Launch Complex A, Naval Missile Facility, Point Arguello (PALC-A). Used for Blue Scout Jr; Nike Javelin; Honest John; Black Brant; Astrobee 1500, Nike Asp; Seagull, and Dac Roc sounding rockets from 1959 to 1966.</p>                                                                                                                                                         |

|                       |          |                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LC-B                  | Inactive | 34°40′07″N 120°35′53″W<br>formerly Launch Complex B, Naval Missile Facility, Point Arguello (PALC-B). Used for Nike Viper I; Terrier Asp IV, Kiva/Hope; Deacon Arrow II; Nike Cajun, and Astrobee 1500 sounding rockets from 1960 to 1963.                                                                                                                                                          |
| LF-02 (former 394-A1) | Inactive | 34°50′41″N 120°35′05″W<br><br>394-A1 (Apr–Dec 1963), LF-02 (Jan 1964 – Jul 2004)<br>LGM-30 Minuteman I/II/III; LGM-118 Peacekeeper testing. Originally a Minuteman 394th SMS silo, first launch April 1963. Upgraded for use as a Launch Facility in 1964. Used for Minuteman until July 1975. Modified for Peacekeeper use in 1986. Used for LGM-118 until July 2004. 76 launches. <sup>[11]</sup> |
| LF-05 (former 394-A4) | Inactive | 34°51′44″N 120°36′34″W<br><br>394-A4 (Sep 1962 – Dec 1963), LF-05 (Feb 1964 – Mar 2000)<br>LGM-30 Minuteman I/II/III; LGM-118 Peacekeeper testing; first launch December 1962. Last Minuteman launch October 1976. Modified for use by Peacekeeper in 1989, first LGM-118 launch March 1990. Last launch March 2000. <sup>[11]</sup>                                                                |
| LF-06 (former 394-A5) | Inactive | 34°52′58″N 120°38′09″W<br><br>394-A5 (Jul–Dec 1963), LF-06 (Feb 1964 – Aug 2007)<br>LGM-30 Minuteman I/II/III. First launch April 1963. Last launch Aug 2007. LF-06 is also is a candidate site for Ground Based Interceptor (GBI) launches. <sup>[11]</sup>                                                                                                                                        |
| LF-07 (former 394-A6) | Inactive | 34°53′09″N 120°38′01″W<br><br>394-A6 (May–Nov 1963), LF-07 (Jan 1964 – Nov 1987)<br>LGM-30 Minuteman I/II testing; first launch May 1963, last Launch November 1987. <sup>[11]</sup>                                                                                                                                                                                                                |
| LF-08 (former 394-A7) | Inactive | 34°51′02″N 120°35′54″W                                                                                                                                                                                                                                                                                                                                                                              |

|                       |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |          | 394-A7 (Sep 1963), LF-08 (Aug 1964–1994) LGM-30 Minuteman I/II/III; LGM-118 Peacekeeper testing. First launch September 1963. Last Minuteman Launch Jan 1984. Modified for Peacekeeper use in 1986. Used for LGM-118 until Jun 1991. Converted for Astrid use (a test vehicle to demonstrate laser-pumped propulsion in 1994). Silo has been filled half way with cement and is now a Minuteman III maintenance training facility for Tech School.<br>[11] |
| LF-25                 | Inactive | 34°52′56″N 120°37′47″W<br>Minuteman II/III testing; first launch February 1966, inactivated 1976.[11]                                                                                                                                                                                                                                                                                                                                                      |
| LF-26                 | Inactive | 34°53′18″N 120°38′12″W<br>Minuteman II/III testing; first launch January 1966, inactivated 2006.[11]                                                                                                                                                                                                                                                                                                                                                       |
| LE-07                 | Inactive | 34°46′01″N 120°37′06″W<br>PGM-17 Thor Used by Royal Air Force (RAF) for 2 test launches: 6 September 1961 and 19 March 1962. Inactivated afterwards.[11]                                                                                                                                                                                                                                                                                                   |
| LE-08 (former 75-2-8) | Inactive | 34°45′54″N 120°36′58″W<br>Used by: Delta. First launch 16 April 1959, last launch 19 June 1962. Originally a Thor 75 SMS PGM-17 Thor IRBM pad 75-2-8. Used by RAF for launch training. Number of launches 7. Upgraded for use as a launch emplacement in 1961, inactivated in June 1962 after 2 RAF test launches.[11]                                                                                                                                     |
| PLC-C                 | Inactive | 34°36′34″N 120°37′42″W<br>Probe Launch Complex C, used for Aerobee-170 and TE-416 Tomahawk sounding rockets.                                                                                                                                                                                                                                                                                                                                               |

As of 1 January 2013, a total of 1,918 orbital and ballistic missiles have lifted off from Vandenberg AFB.<sup>[29]</sup>

### Space and Missile Heritage Center

The Space and Missile Heritage Center preserves and displays artifacts and memorabilia to interpret the evolution of missile and spacelift activity at Vandenberg from the beginning of the Cold War through current non-classified developments in military, commercial, and scientific space endeavors.

The initial display area is made up of two exhibits, the "Chronology of the Cold War" and the "Evolution of Technology". The exhibits incorporate a combination of launch complex models, launch consoles, rocket engines, re-entry vehicles, audiovisual and computer displays as well as hands-on interaction where

appropriate. The Center will evolve in stages from these initial exhibit areas as restorations of additional facilities are completed.

The Center is located at Space Launch Complex 10, site of the first IRBM tests of the Thor and Discoverer (aka Corona spy satellite) series of launches. It is Vandenberg's only National Historic Landmark that is open for regularly scheduled tours through the 30th Space Wing's Public Affairs office.

### Major commands to which assigned

- Air Research and Development Command, 21 June 1957
- Strategic Air Command, 1 January 1958
- Air Force Space Command, 15 January 1991 – present<sup>[30]</sup>

### Major units assigned

- 1st Strategic Aerospace Division, 16 July 1957 – 1 September 1991
- 392d Strategic Missile Wing, 18 October – 20 December 1961
- Space and Missile Test Center, 1 April 1970 – 1 July 1980
- Air Force Space Test Center, Provisional, 2 January-15 May 1964
- Air Force Western Test Range, 5 May 1964 – 1 Apr 1970

Re-designated: Western Space and Missile Center, 1 Oct 1979

Re-designated 30th Space Wing, 1 November 1991 – present

- 704th Strategic Missile Wing (ICBM), 1 July 1957 – 1 July 1959
- 6565th Test Wing, 20 October 1960

Re-designated: 6595th Aerospace Test Wing, 1 April 1961 – 1 October 1979

- 10th Aerospace Defense Group, 1 January 1967 – 31 December 1971 (Aerospace Defense Command)
- 30th Launch Group, 1 December 2003 – present
- 30th Operations Group, 19 November 1991 – present
- 6595th Missile Test Group, 1 May 1970 – 1 October 1990
- 6595th Space (later Satellite, later Aerospace) Test Group, 1 May 1970 – 1 October 1990
- 6595th Space Transportation (later Shuttle) Test Group, 21 May 1979 – 30 September 1987
- 2d Space Launch Squadron, 19 Nov 1991 – 31 Oct 2005
- 4th Space Launch Squadron, 15 Apr 1994 – 29 Jun 1998; 1 Dec 2003 – present
- 10th Aerospace Defense Squadron, 15 November 1963 – 1 January 1967; 31 December 1970 – 1 November 1979
- 394th Missile Testing Squadron (ICBM-Atlas), 1 April-15 December 1958
- 394th Strategic Missile Squadron (ICBM-Titan), 1 July 1960 – 30 June 1976

Re-designated: 394th Test Maintenance Squadron, 1 July 1976

Re-designated: 394th Operational Missile Maintenance Squadron, 1 September 1991

Re-designated: 394th Field Missile Maintenance Squadron, 1 September 1994 – present

- 395th Strategic Missile Squadron (ICBM-Titan), 1 February 1959 – 31 December 1969
- 576th Strategic Missile Squadron (ICBM-Atlas), 1 April 1958 – 2 April 1966

Re-designated: 576th Flight Test Squadron, 1 September 1991 – present  
Assigned to Air Force Global Strike Command, 1 December 2009 – present

- 644th Strategic Missile Squadron, 15 January-1 November 1959
- 670th Aircraft Control and Warning Squadron, 5 May 1950 – 2 August 1951
- 4315th Combat Crew Training Squadron, 1 May 1958 – 15 January 1991

[30][31][32]

## Past scheduled airline service

Vandenberg Air Force Base was one of the few military installations in the continental U.S. to be served with scheduled passenger airline flights. Pacific Air Lines and its successor, Air West, both served the military airfield at Vandenberg with Fairchild F-27 turboprop aircraft with direct flights to Los Angeles (LAX), San Francisco (SFO), San Jose (SJC) and other smaller California cities. However, arriving and departing passengers were strictly controlled. The timetables for these airlines contained the following statement: "The right of passengers to enplane and deplane at Vandenberg AFB is subject to Military Security Control." Vandenberg currently does not have any scheduled airline service.

## Geography

The United States Census Bureau has designated the base as its own census-designated place for statistical purposes. The census-designated place has a total area of 57.3 km<sup>2</sup> (22.1 sq mi). 57.1 km<sup>2</sup> (22.0 sq mi) of it is land and 0.087 km<sup>2</sup> (0.034 sq mi) of it (0.39%) is water.<sup>[33]</sup>

Much of the base is rugged, mountainous, and undeveloped; predominant groundcover includes chaparral with coastal sage scrub and oak woodland. Because of its protected nature—none of the backcountry areas are open to the public or to any kind of development—the base contains some of the highest quality coastal habitat remaining in southern or central California. It is home to numerous threatened or endangered species, including Gambel's watercress (*Nasturtium gambelii*).<sup>[35]</sup> The western terminus of the Santa Ynez Mountains is on the base, and is dominated by Tranquillion Peak, which rises 2,297 feet (700 m) above sea level. An optical tracking station is located at the top of the peak, which overlooks the various space launch complexes. The Amtrak Coast Starlight and Pacific Surfliner trains travel along the coast, providing a splendid

| Vandenberg Air Force Base                                                                                                                                             |                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| census-designated place                                                                                                                                               |                                                                                                                                                                         |
| <b>Country</b>                                                                                                                                                        | USA                                                                                                                                                                     |
| <b>State</b>                                                                                                                                                          | <span><span></span></span> California                                                                                                                                   |
| <b>County</b>                                                                                                                                                         | Santa Barbara                                                                                                                                                           |
| <b>Area</b> <sup>[33]</sup>                                                                                                                                           |                                                                                                                                                                         |
| • <b>Total</b>                                                                                                                                                        | <span>22.121</span> <span> </span> <span>sq</span> <span> </span> <span>mi (57.294</span> <span> </span> <span>km</span> <sup>2</sup> <span>)</span>                    |
| • <b>Land</b>                                                                                                                                                         | <span>22.034</span> <span> </span> <span>sq</span> <span> </span> <span>mi (57.068</span> <span> </span> <span>km</span> <sup>2</sup> <span>)</span>                    |
| • <b>Water</b>                                                                                                                                                        | <span>0.087</span> <span> </span> <span>sq</span> <span> </span> <span>mi (0.226</span> <span> </span> <span>km</span> <sup>2</sup> <span>)</span> <span> </span> 0.39% |
| <b>Elevation</b> <sup>[34]</sup>                                                                                                                                      | <span>512</span> <span> </span> <span>ft (156</span> <span> </span> <span>m)</span>                                                                                     |
| <b>Population</b> (2010)                                                                                                                                              |                                                                                                                                                                         |
| • <b>Total</b>                                                                                                                                                        | <span>3,338</span>                                                                                                                                                      |
| • <b>Density</b>                                                                                                                                                      | <span>150/sq</span> <span> </span> <span>mi (58/km</span> <sup>2</sup> <span>)</span>                                                                                   |
| <b>Time zone</b>                                                                                                                                                      | Pacific (PST) (UTC-8)                                                                                                                                                   |
| • <b>Summer (DST)</b>                                                                                                                                                 | PDT (UTC-7)                                                                                                                                                             |
| <b>GNIS feature ID</b>                                                                                                                                                | 2409501                                                                                                                                                                 |
| U.S. Geological Survey Geographic Names Information System: Vandenberg Air Force Base ( <span>http://geonames.usgs.gov/apex/?p=gnispq:3:::NO::P3_FID:2409501</span> ) |                                                                                                                                                                         |

view and one of the few ways for the public to see these remote areas. Conversely, State Route 1, California's Pacific Coast Highway, avoids these coastal protected areas and instead turns inland to serve the base's eastern side.

## Beaches

Surf Beach is open to the public, while Wall and Minuteman Beaches are restricted to those with regular access to the base. Sections of these three beaches are closed between 1 March and 30 September every year during the nesting season of the western snowy plover. The closures are in place to protect the bird under the Endangered Species Act. If a set number of trespass violations have been reached during any nesting season (50 for Surf, 10 for Wall, 10 for Minuteman), the beach is closed entirely.<sup>[36]</sup>

Surf Beach is adjacent to the Surf Amtrak station, just south of Ocean Beach Park, run by the Santa Barbara County Parks Division.<sup>[37]</sup> On 22 October 2010, 19-year-old Lucas Ransom, a UCSB student, was killed by a great white shark near Surf Beach.<sup>[38]</sup> On 23 October 2012, 38-year-old Francisco Javier Solorio Jr. was killed by a shark near Ocean Beach.<sup>[39]</sup>

## Demographics

### 2010

The 2010 United States Census<sup>[40]</sup> reported that Vandenberg AFB had a population of 3,338. The population density was 150.9 people per square mile (58.3/km<sup>2</sup>). The racial makeup of Vandenberg AFB was 2,317 (69.4%) White, 307 (9.2%) African American, 26 (0.8%) Native American, 207 (6.2%) Asian, 24 (0.7%) Pacific Islander, 140 (4.2%) from other races, and 317 (9.5%) from two or more races. Hispanic or Latino of any race were 616 persons (18.5%).

The Census reported that 2,952 people (88.4% of the population) lived in households, 378 (11.3%) lived in non-institutionalized group quarters, and 8 (0.2%) were institutionalized.

There were 858 households, out of which 655 (76.3%) had children under the age of 18 living in them, 730 (85.1%) were opposite-sex married couples living together, 57 (6.6%) had a female householder with no husband present, 31 (3.6%) had a male householder with no wife present. There were 4 (0.5%) unmarried opposite-sex partnerships, and 3 (0.3%) same-sex married couples or partnerships. 38 households (4.4%) were made up of individuals and 1 (0.1%) had someone living alone who was 65 years of age or older. The average household size was 3.44. There were 818 families (95.3% of all households); the average family size was 3.54.

The population was spread out with 1,287 people (38.6%) under the age of 18, 610 people (18.3%) aged 18 to 24, 1,338 people (40.1%) aged 25 to 44, 97 people (2.9%) aged 45 to 64, and 6 people (0.2%) who were 65 years of age or older. The median age was 22.5 years. For every 100 females there were 118.0 males. For every 100 females age 18 and over, there were 124.4 males.

There were 1,035 housing units at an average density of 46.8 per square mile (18.1/km<sup>2</sup>), of which 12 (1.4%) were owner-occupied, and 846 (98.6%) were occupied by renters. The homeowner vacancy rate was 0%; the rental vacancy rate was 2.2%. 25 people (0.7% of the population) lived in owner-occupied housing

units and 2,927 people (87.7%) lived in rental housing units.

## 2000

As of the census<sup>[41]</sup> of 2000, there were 6,151 people, 1,707 households, and 1,601 families residing in the base. The population density was 107.7/km<sup>2</sup> (278.8/mi<sup>2</sup>). There were 1,992 housing units at an average density of 34.9/km<sup>2</sup> (90.3/mi<sup>2</sup>). The racial makeup of the base was 72.3% White, 11.7% African American, 0.5% Native American, 3.9% Asian, 0.7% Pacific Islander, 5.0% from other races, and 6.0% from two or more races. Hispanic or Latino of any race were 11.1% of the population.

There are 1,707 households, out of which 72% have children under the age of 18 living with them, 87% were married couples living together, 3.8% had a female householder with no husband present, and 6.2% were non-families. 5.4% of all households were made up of individuals and none had someone living alone who was 65 years of age or older. The average household size was 3.33 and the average family size was 3.44.

In the base, the population was spread out with 38% under the age of 18, 15.2% from 18 to 24, 45% from 25 to 44, 1.9% from 45 to 64, and 0.2% who were 65 years of age or older. The median age was 24 years. For every 100 females there were 109.0 males. For every 100 females age 18 and over, there were 116.2 males.

The median income for a household in the base was \$39,444, and the median income for a family was \$40,000. Males had a median income of \$27,352 versus \$22,283 for females. The per capita income for the base was \$13,570. About 6.0% of families and 7.1% of the population were below the poverty line, including 10.4% of those under age 18 and none of those age 65 or over.

Vandenberg supports a population greater than 18,000 composed of military, family members, government contractors, and civilian employees.

The majority of the workforce that does not live on base resides in the immediate northern Santa Barbara county communities of Lompoc, Vandenberg Village, Santa Ynez, Orcutt or Santa Maria. A small percentage commute from as far south as Santa Barbara and Isla Vista to as far north as the Five Cities area near San Luis Obispo, which are all roughly an hour's drive along U.S. Route 101 and State Route 1 to the base's five access gates.

The base's ZIP code is 93437 and its area code 805.

## State and federal representation

In the California State Legislature, Vandenberg AFB is in the 19th Senate District, represented by Democrat Hannah-Beth Jackson, and in the 35th Assembly District, represented by Republican Katcho Achadjian.<sup>[42]</sup>

In the United States House of Representatives, Vandenberg AFB is in California's 24th congressional district, represented by Democrat Lois Capps.<sup>[43]</sup>

## See also

- Point Arguello Light

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## External links

### Official sites

- History/Chronology of Vandenberg AFB

(<http://www.vandenberg.af.mil/~swStaff/history/chronology.asp>)

- Space and Missile Heritage Center (<http://www.vandenberg.af.mil/library/factsheets/factsheet.asp?id=4627>)



Wikimedia Commons has media related to ***Vandenberg Air Force Base***.

### Other

- Vandenberg Air Force Base Spacecraft and Rocket Listing (<http://www.astronautix.com/sites/vannberg.htm>)
- California Spaceport Website (<http://www.calspace.com/SSI/Welcome.html>)
- Vandenberg AFB Launch Schedule (<http://www.spacearchive.info/vafbsked.htm>)
- Vandenberg AFB Launch History (<http://www.spacearchive.info/vafbblog.htm>)
- Vandenberg AFB (<http://www.globalsecurity.org/space/facility/vafb.htm>) at GlobalSecurity.org
- FAA Airport Diagram for Vandenberg AFB (<http://aeronav.faa.gov/d-tpp/1508/00770AD.PDF>) (PDF), effective July 23, 2015
- Resources for this U.S. military airport:
  - FAA airport information for VBG (<https://nfdc.faa.gov/nfdcApps/airportLookup/airportDisplay.jsp?airportId=VBG>)
  - AirNav airport information for KVBG (<http://www.airnav.com/airport/KVBG>)
  - ASN accident history for VBG (<http://aviation-safety.net/database/airport/airport.php?id=VBG>)
  - NOAA/NWS latest weather observations (<http://www.crh.noaa.gov/data/obhistory/KVBG.html>)
  - SkyVector aeronautical chart for KVBG (<http://skyvector.com/perl/code?id=KVBG&scale=2>)

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