

Man in Space Theme Study
Federal Agency Nomination

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

FOR FEDERAL PROPERTIES

FOR NPS USE ONLY

RECEIVED

DATE ENTERED

SEE INSTRUCTIONS IN HOW TO COMPLETE NATIONAL REGISTER FORMS
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC Space Launch Complex 10

AND/OR COMMON
Missile Launch Complex 10

2 LOCATION

STREET & NUMBER
Vandenberg Air Force Base

NOT FOR PUBLICATION
CONGRESSIONAL DISTRICT

CITY, TOWN
Lompoc

VICINITY OF

STATE CODE COUNTY CODE
California 06 Santa Barbara 083

2 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
<input type="checkbox"/> DISTRICT	<input checked="" type="checkbox"/> PUBLIC	<input type="checkbox"/> OCCUPIED	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> MUSEUM
<input type="checkbox"/> BUILDING(S)	<input type="checkbox"/> PRIVATE	<input type="checkbox"/> UNOCCUPIED	<input type="checkbox"/> COMMERCIAL	<input type="checkbox"/> PARK
<input checked="" type="checkbox"/> STRUCTURE	<input type="checkbox"/> BOTH	<input type="checkbox"/> WORK IN PROGRESS	<input type="checkbox"/> EDUCATIONAL	<input type="checkbox"/> PRIVATE RESIDENCE
<input checked="" type="checkbox"/> SITE	<input type="checkbox"/> PUBLIC ACQUISITION	<input type="checkbox"/> ACCESSIBLE	<input type="checkbox"/> ENTERTAINMENT	<input type="checkbox"/> RELIGIOUS
<input type="checkbox"/> OBJECT	<input type="checkbox"/> IN PROCESS	<input checked="" type="checkbox"/> YES: RESTRICTED	<input checked="" type="checkbox"/> GOVERNMENT	<input checked="" type="checkbox"/> SCIENTIFIC
	<input type="checkbox"/> BEING CONSIDERED	<input type="checkbox"/> YES: UNRESTRICTED	<input type="checkbox"/> INDUSTRIAL	<input checked="" type="checkbox"/> TRANSPORTATION
		<input type="checkbox"/> NO	<input checked="" type="checkbox"/> MILITARY	<input checked="" type="checkbox"/> OTHER: Space Exploration

4 AGENCY

REGIONAL HEADQUARTERS: (If applicable)
United States Air Force

STREET & NUMBER
Vandenberg Air Force Base

CITY, TOWN STATE
Lompoc California

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE,
REGISTRY OF DEEDS, ETC.
Headquarters United States Air Force/LEER

STREET & NUMBER
Building 516, Bolling Air Force Base
CITY, TOWN STATE
Washington DC 20032

6 REPRESENTATION IN EXISTING SURVEYS

TITLE
None

DATE
_FEDERAL _STATE _COUNTY _LOCAL

DEPOSITORY FOR
SURVEY RECORDS

CITY, TOWN STATE

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
<input type="checkbox"/> EXCELLENT	<input type="checkbox"/> DETERIORATED	<input type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input checked="" type="checkbox"/> GOOD	<input type="checkbox"/> RUINS	<input checked="" type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED DATE _____
<input type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

Space Launch Complex Ten (SLC-10) is located on Vandenberg Air Force Base and is part of the Headquarters Air Force Systems Command Western Space and Missile Center (WSMC). Vandenberg Air Force Base belongs to the Strategic Air Command (SAC), and WSMC is a tenant unit on this HQ SAC installation.

SLC-10 is one of two launch pads built by the Douglas Aircraft Company to support combat training launches of the SM-75 THOR Intermediate-Range Ballistic Missile (IRBM). The other complex built for this program were SLC-2. Initially designated Complex 75-2, construction of the launch site began in January 1958 and was completed shortly before its acceptance by the Air Force in October 1958. The original SLC-10 launch site consisted of three launch pads, and all were decommissioned and stripped after THOR IRBM launches were discontinued in June 1962. The site was reactivated in 1964 with two launch pads, later designated as SLC-10 East and SLC-10 West, but launches were restricted to SLC-10W. SLC-10E was used strictly for training following its reactivation. SLC-10W was originally designated as Pad 75-2-6 for THOR IRBM launches, and as 4300 B-6, then LE-6 after reactivation for space launches. The last launch from SLC-10E was 19 March 1962, and it was decommissioned and stripped shortly thereafter. The last launch from SLC-10W was 14 July 1980, and it was then decommissioned and kept in a caretaker status.

SLC-10 is composed of a Blockhouse and two launch pads. Only the concrete pad, the prefabricated shelter building (launch shed), and some support equipment are left at SLC-10E. At SLC-10W the Blockhouse and Pad with supporting structures retain their integrity.

Blockhouse

The Launch Control Blockhouse at SLC-10 was used to control launches from both the East and West Pads. The blockhouse is a self-contained reinforced concrete building capable of withstanding the dangers of catastrophic vehicle failure at lift-off. The control room houses numerous monitor consoles necessary to support the vehicle and spacecraft during testing and final countdown. Television monitors are mounted in the control room wall for viewing the vehicle and critical prelaunch functions from cameras at vantage points around the complex.¹ The cameras have been removed from the launch pad. A portion of the flooring in the second story is in poor condition, but the first floor is in good condition.

Support System

The missiles launched from this pad were liquid fueled. At SLC-10W, the fuel and liquid oxygen storage tanks, four nitrogen storage tanks, two high pressure storage tanks, and their associated pipes are still intact and in good condition. The launch vehicle erecting-launching mount and the launch shelter (prefabricated building) are still in place and in good condition. The trailer mounted launch vehicle system checkout station, the trailer-mounted missile launching countdown group, and the trailer-mounted air conditioner have all been removed. The trailer mounted hydro-pneumatic controller is still on the pad and in good condition. At SLC-10E, all liquid oxygen, fuel, and nitrogen storage tanks have been removed, except for one high pressure nitrogen tank. There is also some skid-mounted, propellant-handling equipment on the pad at SLC-10E.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input type="checkbox"/> SCIENCE
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input checked="" type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input checked="" type="checkbox"/> TRANSPORTATION
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input checked="" type="checkbox"/> OTHER (SPECIFY) Space Exploration
		<input type="checkbox"/> INVENTION		

SPECIFIC DATES 1958-1980

BUILDER/ARCHITECT US Air Force

STATEMENT OF SIGNIFICANCE

Space Launch Complex 10 was built for the Air Force in 1958 for their Intermediate Range Ballistic Missile (IRBM) Testing Program. The first launch from SLC-10E occurred on 16 June 1959 by the Royal Air Force (United Kingdom). The first launch from SLC-10W occurred on 14 August 1959, when a Royal Air Force crew launched a THOR DM-18A IRBM nicknamed "Short Skip" down the range.

In order to support the nuclear testing project at Johnston Island, the entire launch complex was dismantled and transported to that remote Pacific atoll between January and March 1962. It was designated as LE-1 (JI).

The desire of Headquarters USAF to proceed with the Burner I/Altair satellite program led to the decision to rebuild SLC-10W, which was at that time under the control of HQ SAC's 4300th Support Squadron and was designated as 4300 B-6. Construction began in May 1963, using equipment shipped from England where the 60 SM-75 IRBM sites were being dismantled, and was completed in October 1963.

After the pad was used for missile/launcher twist testing in its IRBM configuration over March-April 1964, it was partially torn down for modifications to support space launch operations. The pad was back in commission in October 1964, ready to support the Burner I/Altair series of satellite launches.

On 18 January 1965, the first THOR Burner I space booster was launched. The 4300th Support Squadron launched a total of six Burner I and two Burner II satellites from SLC-10W. On 1 April 1967, the Burner program was transferred to the Aerospace Defense Command (ADCOM) and was assigned to the 10th Aerospace Defense Group (AERODG). ADCOM crews then launched ten Burner II, eight Burner II-A, and four Block 5D-1 payloads from SLC-10W over the following 12 1/2 years.

On 1 November 1979, the ADCOM launch mission and crews were transferred to SAC's 394th ICBM Test Maintenance Squadron. Only eight and one-half months later, on 14 July 1980, the last LV-2F THOR Space Booster in existence became the 32nd THOR to lift off from Space Launch Complex Ten-West.

SLC-10W is the best surviving example of a launch complex built in the 1950s at the beginning of the American effort to explore space.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Western Test Range Operations Handbook. John F. Kennedy Space Center: Florida, 1968.

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY Approximately 138 acres
UTM REFERENCES See Continuation Sheet

A	<input type="text"/>	<input type="text"/>	<input type="text"/>	B	<input type="text"/>	<input type="text"/>	<input type="text"/>
	ZONE	EASTING	NORTHING		ZONE	EASTING	NORTHING
C	<input type="text"/>	<input type="text"/>	<input type="text"/>	D	<input type="text"/>	<input type="text"/>	<input type="text"/>

VERBAL BOUNDARY DESCRIPTION

The boundary of Space Launch Complex 10W is marked by a line connecting points "ABCDEFGA" on the accompanying map entitled "Vandenberg AFB, California Space Launch Complex 10 Boundaries".

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE

Captain Mark C. Mondl, Space Transportation System Environmental Program Manager

ORGANIZATION

DATE

Headquarters Space Division, Directorate of Acquisition Civil Engr 3 January 1986

STREET & NUMBER

TELEPHONE

Building 130

(213) 643-0933

CITY OR TOWN

STATE

Los Angeles Air Force Station

California

12 CERTIFICATION OF NOMINATION

STATE HISTORIC PRESERVATION OFFICER RECOMMENDATION

YES ___ NO ___ NONE ___

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

In compliance with Executive Order 11593, I hereby nominate this property to the National Register, certifying that the State Historic Preservation Officer has been allowed 90 days in which to present the nomination to the State Review Board and to evaluate its significance. The evaluated level of significance is ___ National ___ State ___ Local.

FEDERAL REPRESENTATIVE SIGNATURE

TITLE

DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

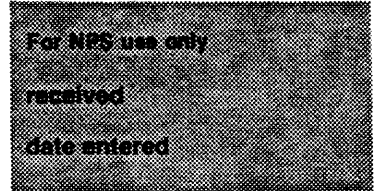
ATTEST:

DATE

KEEPER OF THE NATIONAL REGISTER

**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Inventory—Nomination Form**



Continuation sheet

Item number 7

Page 1

Other Buildings/Structures

Building 1657 - Office and Administration Building.

Building 1658 - Electronic Equipment Building (EEB) -This structure has numerous electronic components in it that are environmentally sealed. This is electronic checkout equipment. There is also a hydraulic power unit in the building.

Building 1659 - Storage and Maintenance Building.

Building 1663 - Bench Stock and Tool Crib - There are assorted tool and bench stock still in this building and some safety equipment, including the original wet suits.

Building 1664 - Storage and Maintenance Building.

Equipment within SLC-10W Launch Shed

Nitrogen Purge Chart.

Launch Vehicle Erecting - Launching Mount (Upper and Lower Stage).

Missile Handling Trailer.

Reentry Vehicle Transportation Trailer (2).

Rocket Engine Transportation Trailer (3).

Equipment within SLC-10E Launch Shed

Launch Vehicle Erecting - Launching Mount (Upper Stage - 2, no Lower Stage).

Trailer Mounted Air Conditioning Units (2).

Mobile Work Stands (6).

Rocket Motor Alignment Kit.

Rocket Motor Storage Container Kit (2).

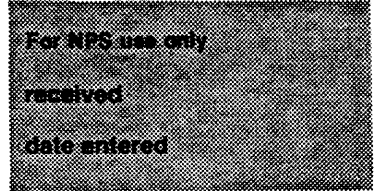
DEWAR Units - Portable Fuel Filters (2).

Footnotes

1. Western Test Range Operations Handbook (JFK Space Center, Jan 68), p. v-1.

**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Inventory—Nomination Form**



Continuation sheet

Item number 8

Page 1

The SLC-10 blockhouse, with its supporting electrical equipment, is intact. Only minimum modifications were made over the years. Although the complex had been dismantled and then rebuilt from the original equipment, as well as from other THOR launch pads, the equipment is all original equipment designed for the same mission. The blockhouse with its electronic equipment is today one of the best surviving example of working electronics used to support a space launch from this era. The only comparable example is the blockhouse at SLC-2W and the Launch Complex 26 at Cape Canaveral Air Force Station.

The equipment at Launch Complex 26 is not operational. It was reconstructed for visitor interpretation when Launch Complex 26 became part of the US Air Force Museum. The equipment at the Blockhouse for SLC-2W is operational but has been modified to support the NASA DELTA launch program. Although modifications were kept to a minimum at SLC-2W, SLC-10W was not modified to support this program. The equipment at the Blockhouse at SLC-10 has been mothballed, could be made operational, dates from the period of the 1950s, and is integral to the site. It is one of the best surviving examples of this technology.

In a similar manner the Launch Pad at SLC-10W is intact and survives from the 1950s with only minor modifications, primarily the changes were in removing the trailers and the fuel storage tanks from the site. SLC-10W has been decommissioned since 1980 with very little maintenance performed on site since that date. However, it is still in a good state of preservation.

SLC-10W with its blockhouse is a unique resource that represents the best surviving example of a working 1950s-era launch complex that propelled Americans into Space.

Launches From Space Launch Complex 10-East and West Pads

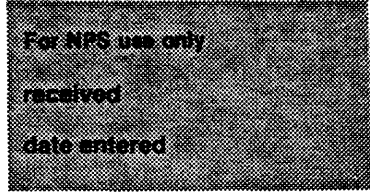
There were seven attempted launches from SLC-10E. Six of the launches were successful. All of the launches were conducted by the Royal Air Force.

Launches from SLC-10W:

<u>Date</u>	<u>Missile Type</u>	<u>Cum By Booster</u>	<u>Program</u>	<u>Command*</u>	<u>Cum By Command</u>	<u>Pad Designation</u>
14 AUG 59	THOR IRBM	1	IWST	RAF	3	75-2-6
18 JAN 65	THOR/ALTAIR**	1	Space	SAC	143	4300 B-6
17 MAR 65	THOR/ALTAIR	2	Space	SAC	156	4300 B-6
20 MAY 65	THOR/ALTAIR	3	Space	SAC	167	4300 B-6
9 SEP 65	THOR/ALTAIR	4	Space	SAC	183	4300 B-6
6 JAN 66	THOR/ALTAIR	5	Space	SAC	190	4300 B-6
30 MAR 66	THOR/ALTAIR	6	Space	SAC	202	4300 B-6

United States Department of the Interior
National Park Service

National Register of Historic Places
Inventory—Nomination Form



Continuation sheet

Item number 8

Page 2

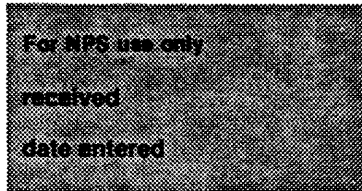
<u>Date</u>	<u>Missile Type</u>	<u>Cum By Booster</u>	<u>Program</u>	<u>Command</u>	<u>Cum By Command</u>	<u>Pad Designation</u>
15 SEP 66	THOR/BURNER II	1	Space	SAC	230	4300 B-6
8 FEB 67	THOR/BURNER II	2	Space	SAC	248	4300 B-6
29 JUN 67	THOR/BURNER II	3	Space	ADCOM	1	LE-6
22 AUG 67	THOR/BURNER II	4	Space	ADCOM	2	LE-6
11 OCT 67	THOR/BURNER II	5	Space	ADCOM	3	LE-6
22 MAY 68	THOR/BURNER II	6	Space	ADCOM	4	SLC-10W
22 OCT 68	THOR/BURNER II	7	Space	ADCOM	5	SLC-10W
22 JUL 69	THOR/BURNER II	8	Space	ADCOM	6	SLC-10W
11 FEB 70	THOR/BURNER II	9	Space	ADCOM	7	SLC-10W
3 SEP 70	THOR/BURNER II	10	Space	ADCOM	8	SLC-10W
16 FEB 71	THOR/BURNER II	11	Space	ADCOM	9	SLC-10W
8 JUN 71	THOR/BURNER II	12	Space	ADCOM	10	SLC-10W
14 OCT 71	THOR/BURNER IIA	1	Space	ADCOM	11	SLC-10W
24 MAR 72	THOR/BURNER IIA	2	Space	ADCOM	12	SLC-10W
8 NOV 72	THOR/BURNER IIA	3	Space	ADCOM	13	SLC-10W
16 AUG 73	THOR/BURNER IIA	4	Space	ADCOM	14	SLC-10W
16 MAR 74	THOR/BURNER IIA	5	Space	ADCOM	15	SLC-10W
8 AUG 74	THOR/BURNER IIA	6	Space	ADCOM	16	SLC-10W
23 MAY 75	THOR/BURNER IIA	7	Space	ADCOM	17	SLC-10W
18 FEB 76	THOR/BURNER IIA	8	Space	ADCOM	18	SLC-10W
11 SEP 76	THOR/BLOCK 5D-1	1	Space	ADCOM	19	SLC-10W
4 JUN 77	THOR/BLOCK 5D-1	2	Space	ADCOM	20	SLC-10W
30 APR 78	THOR/BLOCK 5D-1	3	Space	ADCOM	21	SLC-10W
6 JUN 79	THOR/BLOCK 5D-1	4	Space	ADCOM	22	SLC-10W
14 JUL 80	THOR/BLOCK 5D-1	5	Space	AFSC/SAC	--	SLC-10W

- * ADCOM - AEROSPACE DEFENSE COMMAND
- AFSC - AIR FORCE SYSTEMS COMMAND
- IWST - INTEGRATED WEAPON SYSTEM TRAINING (RAF/SAC)
- RAF - ROYAL AIR FORCE (UNITED KINGDOM)
- SAC - STRATEGIC AIR COMMAND

** THOR/ALTAIR was actually a THOR/BURNER I

**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Inventory—Nomination Form**



Continuation sheet

Item number 10

Page 1

Geographical Data

UTM References for SLC-10 Boundary

A 10/718045/3849720

B 10/718200/3849160

C 10/717630/3849000

D 10/717180/3849040

E 10/717040/3849190

F 10/717220/3849620

G 10/717460/3849820

1. Space Launch Complex - Ten West.
2. Vandenberg Air Force Base, California.
3. Official US Air Force Photograph.
4. 1983.
5. 1939 Audiovisual Squadron, Vandenberg AFB, CA.
6. Interior of Prefabricated Shelter Bldg (Launch Shed) showing Launch Vehicle Erecting-Launching Mount.
7. Photograph #3.

1. Space Launch Complex - Ten.
2. Vandenberg Air Force Base, California.
3. Official US Air Force Photograph.
4. 1983.
5. 1939 Audiovisual Squadron, Vandenberg AFB, CA.
6. Launch Control Center, Bldg 1654.
7. Photograph #4.

1. Space Launch Complex - Ten.
2. Vandenberg Air Force Base, California.
3. Official US Air Force Photograph.
4. 1983.
5. 1939 Audiovisual Squadron, Vandenberg AFB, CA.
6. Interior of Launch Control Center, Bldg 1654.
7. Photograph #5.

1. Space Launch Complex - Ten.
2. Vandenberg Air Force Base, California.
3. Official US Air Force Photograph.
4. 1983.
5. 1939 Audiovisual Squadron, Vandenberg AFB, CA.
6. Interior of Launch Control Center, Bldg 1654.
7. Photograph #6.

1. Space Launch Complex - Ten West.
2. Vandenberg Air Force Base, California.
3. Official US Air Force Photograph.
4. 1983.
5. 1939 Audiovisual Squadron, Vandenberg AFB, CA.
6. SLC-10, Launch Pad, Prefabricated Shelter Bldg (Launch Shed), Northeast Face.
7. Photograph #1.