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Building a new West Coast era for Atlas rockets

BY JUSTIN RAY

SPACEFLIGHT NOW

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Work has begun at California's Vandenberg Air Force Base to construct a launch pad for Lockheed Martin's Atlas 5 rocket, allowing the booster to compete with rival Boeing's Delta 4 on the West Coast and providing the U.S. government a second pathway to space for critical national security satellites.



Officials hold a ground-breaking ceremony at Space Launch Complex 3-East on January 14. Credit: Lockheed Martin

The dueling Evolved Expendable Launch Vehicles are America's next-generation rockets, each having logged three successful missions from Cape Canaveral. The vehicles have various configurations to suit different sizes of cargos.

Boeing had the Pentagon's West Coast launch business all sown up after Lockheed Martin opted against a Vandenberg pad several years ago, citing a relatively low number of payloads. But that changed last July when military officials penalized Boeing for possessing Lockheed Martin propriety documents, stripping several launches from the Delta 4 manifest and giving them to Atlas 5.

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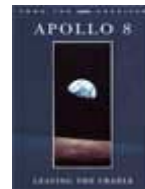
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Apollo patches

Before the EELV program revolution last summer, Lockheed Martin's satellite-launching future at Vandenberg appeared bleak with the Titan rockets being phased out and just one older-model Atlas 2AS booster left to fly.

Today, a month after successfully launching a National Reconnaissance Office payload on that last Atlas 2AS, Lockheed Martin has five new Vandenberg missions lined up for the Atlas 5 beginning in late 2005.



The fiery ignition at the Space Launch Complex 3-East pad of the Atlas 2AS rocket on December 2. Credit: Lockheed Martin

"Originally, the launch we had from Vandenberg on the 2nd of December was going to be the last Atlas launch from Vandenberg. We have history here of Atlas launches dating back to 1959. It just didn't seem right that was going to be the end of the era. And fortunately it's not the end of the era. It's just closing one chapter and starting a very important new one," Jim Spornick, Lockheed Martin's Atlas program vice president, told reporters at a news conference last week.

The Atlas program has launched 284 rockets from 15 different locations at Vandenberg over the past 44 years, Spornick said.

Engineers are taking the existing Atlas 2AS pad, called Space Launch Complex 3-East, and giving it a major overhaul to support the larger, more powerful Atlas 5 family of rockets. The \$200 million project will retrofit the existing mobile service and umbilical towers at the pad while adding a fixed launch platform and enlarging the flame trench.



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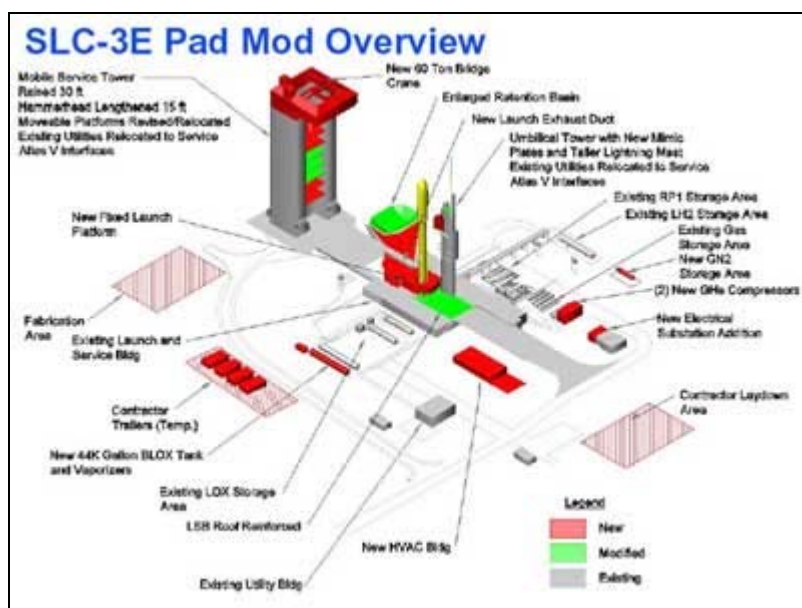
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This illustration shows the changes being made to SLC-3E to support Atlas 5.
Credit: Lockheed Martin

GRAPHICS DETAILING THE MODIFICATIONS:

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Lockheed Martin hopes to move swiftly through the project -- removal of obsolete parts and construction of the new hardware should be completed by year's end. The first rocket will arrive on the pad in December to begin five months of testing before the site is declared "ready" in May 2005. The inaugural flight carrying another NRO spy satellite payload is scheduled for October 2005.

"This is clearly an aggressive modification schedule," Spornick acknowledged. "But we think we have a plan that fully supports."

"The Atlas 5 program has evolved over the last several years. For many years we never thought we were going to fly off this coast. Today, we have the opportunity to demonstrate not only that we can but we have a plan that we are ready to do that," added Lt. Col. Bob Hodgkiss, the Atlas 5 program manager in the Air Force's EELV Systems Program Office.

"We look forward to the challenge. We believe that we will provide increased capability for the nation, improving our assured access to space."

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The overhauled pad aims to serve an annual launch rate of four missions with approximately three months needed to assemble and ready each rocket, Spornick said. Unlike the Atlas 5 launch site at Cape Canaveral that prepares the rockets in the Vertical Integration Facility and then rolls the boosters to the pad just hours before liftoff, Vandenberg will use the traditional on-pad processing scheme.

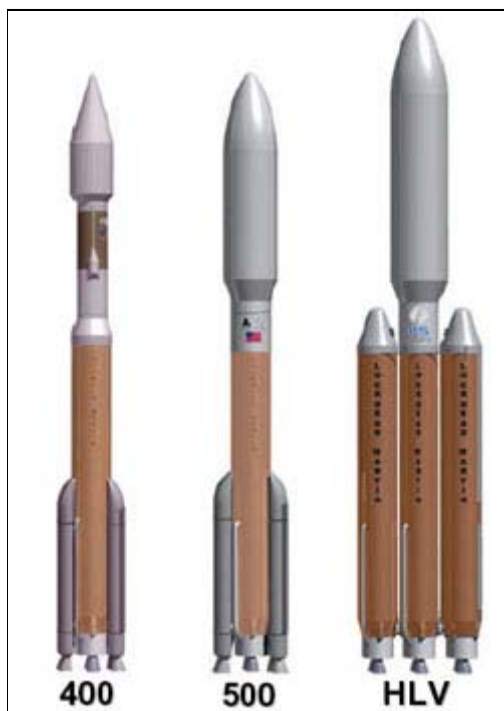
Of the five West Coast launches awarded to Atlas 5, four of them will deploy classified reconnaissance spacecraft for the NRO -- the government agency responsible for designing and operating the country's fleet of spy satellites. The fifth launch carries an Air Force weather satellite.

Lt. Col. Jim Norman, the NRO's Office of Space Launch deputy director, called last week's ceremonial ground-breaking for the Space Launch Complex 3-East renovations as a "key day."

"The NRO's mission is freedom's sentinel in space. We try to provide information and data to our nation's analysts, our leaders and our troops in the field. We see this as part of that link, frankly, on being able to support that mission directly."

SLC-3E will be outfitted to support both the Atlas 5 400- and 500-series of rockets. Strap-on solid-fuel boosters can be added to increase the amount of cargo launched, with the 500-series able to use as many as five solids.

There are no current plans to fly the giant Atlas 5-Heavy rocket from the West Coast. That vehicle is under development for launches from the Cape beginning in late 2006.



The Atlas 5 400, 500 and Heavy vehicle configurations are shown in this illustration. Credit: Lockheed Martin

"We have carefully scrutinized the potential mission manifest here from Vandenberg for at least the next 10 years and we do not foresee any needs for the heavy-lift version of the Atlas 5

vehicle from Vandenberg," Spornick said. "The Atlas 5 with up to five solid rocket boosters provides a very substantial performance capability here from Vandenberg."

Hodgkiss says one of the five scheduled Vandenberg launches will be a 500-series vehicle that is distinguished with the much larger five-meter diameter nose cone; the rest are 400-series rockets with four-meter fairings.

Boeing currently has three West Coast Delta 4 missions -- two for the NRO and one weather satellite deployment mission.

With both EELV rockets available to place satellites into orbits around Earth's poles from California, something not practical from Cape Canaveral, the U.S. military will avoid relying upon just one rocket.

"It's great to see the heritage of the Atlas program continuing its legacy here at Vandenberg," Col. John Insprucker, director of the Air Force EELV Systems Program Office, said in a written statement. "It's another arrow in our quiver as a means of preserving our nation's asymmetric advantage in space."

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