FACT SHEET
UNITED STATES AIR FORCE

Quick Reaction Launch Vehicle Program

The U.S. Air Force developed a program during fiscal year 2000 to demonstrate quick reaction launch capability in support of Defense Department operations and exercises in the Alaskan Theater. The Quick Reaction Launch Vehicle program assembles launch vehicles and flies them within one year of a Defense Department request. In addition to supporting Defense Department operations and exercises, various experiments, ranging from measuring atmospheric attributes to demonstrating new technologies, are conducted with the QRLV sub-orbital rocket flights.

The QRLV program is postured to launch up to eight sub-orbital vehicles (one launch per year) until fiscal year 2008. Depending on the specific mission, each QRLV sub-orbital launch vehicle will consist of either a single-stage or a two-stage vehicle. Likely vehicle configurations include various single- or two-stage combinations of the following rocket motors: Minuteman I stage 2 (M56), Minuteman II/III stage 2 (SR19), Minuteman I/II stage 3 (M57) or Delta/Atlas strap-on (Castor IVB).

The QRLV-1 mission, an M56A1 configuration, successfully launched at 2:15 pm AST in March 2001. The vehicle flew for approximately seven minutes, reached an altitude of 163 km and impacted in the Pacific Ocean 615 km down range as predicted. This was the third successful RSLP launch from Kodiak, including the ait-1 launch in November 1998 (an SR-19 / M57A1) and the ait-2 launch in September 1999 (a Castor IVB / M57A1).

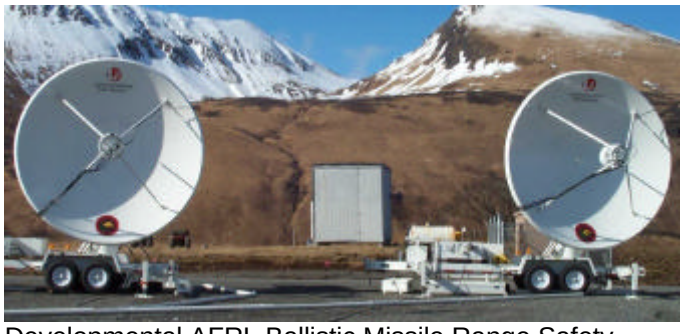
The Air Force Space and Missile Systems Center, Rocket Systems Launch Program (SMC Detachment 12) at Kirtland Air Force Base, New Mexico is the managing office for the QRLV program.

QRLV-1 Lifts off the pad at KLC.
Photo copyright Tom Rogers

QRLV-2 Mission

For the QRLV-2 mission, the Air Force awarded contracts to Orbital Sciences Corporation for integration of the launch vehicle and to Alaska Aerospace Development Corporation (AADC) for lease of the launch facilities at the Kodiak Launch Complex (KLC), located on the Narrow Cape peninsula of Kodiak Island, Alaska.

The primary objective of the QRLV-2 mission is to provide a realistic Theater Ballistic Missile scenario in support of the Alaskan Command Northern Edge 2002 exercise. Northern Edge 2002 participants will use the launch to exercise Ballistic Missile Warning and Battle Management, Command, Control and Communications (BMC^3) capabilities, test planning scenarios and execute defensive strategies during an actual ballistic missile flight.



Developmental AFRL Ballistic Missile Range Safety Technology tracking dishes at Kodiak Launch Complex.

As secondary objectives, the QRLV-2 vehicle will host a suite of experiments, including a U.S. Army Space and Missile Defense Command (SMDC) experiment package consisting of developmental flight batteries and advanced accelerometers. The Ballistic Missile Range Safety Technology System (BMRST) will provide a demonstration of the mobile tracking system to capture GPS-INS data throughout the flight. During QRLV-2, the Command / Destruct portion of the system will be exercised as an experiment, with no interference to the launched vehicle.

Additionally, since the QRLV-2 vehicle will provide a trajectory appropriate for the Navy Sea-based Midcourse Defense program, the U.S. Navy will utilize the QRLV-2 launch as an opportunity to exercise tracking capabilities and computer-simulated intercept scenarios.

Flight Trajectory

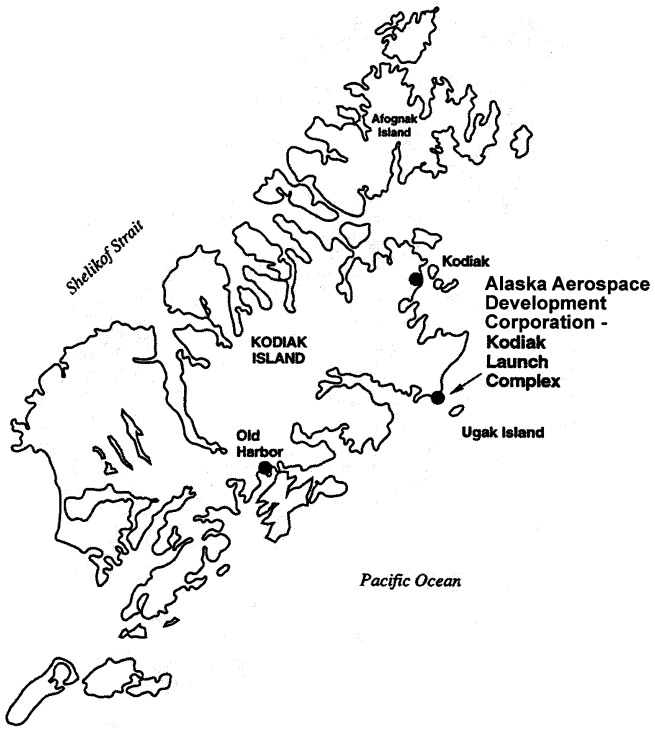
QRLV-2 will be a single-stage launch vehicle, utilizing an M56 rocket motor. The M56 is a four-nozzle solid propellant rocket motor with a titanium case. It uses thrust vector control for steering and stabilization. It is 13 feet in length, 3.7 feet in diameter and contains approximately 10,380 pounds of class 1.3 solid propellant.

The entire launch vehicle will be approximately 30 feet long and weigh approximately 14,100 pounds at liftoff. A southeasterly trajectory, along an azimuth of 120 degrees, will be flown. Apogee will be 160 km, and ocean impact will occur about 605 km down range.

Mission Safety

The Air Force selected the Naval Air Warfare Center, Weapons Division (NAWCWD) from Pt. Mugu, California to provide lead Range Safety support for the QRLV-2 mission. The Space & Missile Systems Center, Test Integration & Launch Division (Detachment 9) from Vandenberg Air Force Base, California, will assist the Rocket Systems Launch Program in enforcing ground safety by supervising hazardous operations during vehicle buildup and pre-launch testing. Explosive Ordnance Disposal (EOD) support will be provided by the Air Force 75th Air Base Wing, Civil Engineer Group, Explosive Ordnance Disposal Division from Hill Air Force Base, Utah.

The Rocket Systems Launch Program has established a safety requirement for a 385-foot radius clear zone around the QRLV-2 launch vehicle at all times while at KLC. For the launch, a 6,000-foot radius clear zone is required to ensure public safety and the safety of the launch team.



Map of Kodiak Island

The Navy team provides a mobile Range Safety system that includes telemetry, communications, command, control, destruct, and computer display equipment. A Missile Flight Safety Officer coordinates all flight safety responsibilities from the KLC ground station. These activities include termination of the flight in the event of an anomaly using a 1,000-watt command-destruct transmission system. Backing up the ground system is a Navy NP-3D Range Area Safety Aircraft with the capability to independently function as a flight tracking and termination system.

During the flight, the missile flight safety officer ensures the rocket remains within the approved flight corridor. Should the computed Instantaneous Impact Point of the launch vehicle indicate a potential deviation outside the approved corridor, Range Safety will terminate the flight via the command-destruct transmission systems.

The offshore area near the Kodiak Launch Complex and in the down range ocean impact area is cleared of ships prior to launch with assistance from the U.S. Coast Guard. The Federal Aviation Administration clears and restricts airspace in the flight corridor. Notices to Airmen and Mariners will be issued.

Environmental Assessment

The QRLV program has been found environmentally consistent with the Alaska Coastal Management Program as mandated by the Alaska Coastal Management Act of 1977. This consistency determination evaluation addresses the effect of launch activities associated with the QRLV program's activities performed at Kodiak Launch Complex in reference to the federal, state and district policies regarding the coastal management program.

The Air Force completed an Environmental Assessment (EA) of the potential environmental consequences for the QRLV program. The final QRLV EA and FONSI, dated January 2001, are available online at SMC Environmental Management web site (http://ax.losangeles.af.mil/axf/) and locally at the Kodiak High School, Kodiak College and Kodiak Public libraries. The Air Force previously prepared an EA for the two successful atmospheric interceptor technology (ait) launches which occurred from KLC.

In coordination with the National Marine Fisheries Service (NMFS), the Air Force conducted noise monitoring of ait-1 and ait-2 from KLC. The monitoring was conducted primarily to assess the effects of the launches on the endangered Steller sea lion, which utilizes Ugak Island, located approximately 3 miles southeast of KLC, as a haulout from July to September. The QRLV flights are anticipated to occur during March or April of each year in support of the ALCOM Northern Edge exercise. During this time, the endangered Steller sea lion is not expected to be present on Ugak Island.

The Environment and Natural Resources Institute, University of Alaska Anchorage (ENRI) conducted environmental monitoring during the launch of QRLV-1 in March 2001. The study included M-56 rocket noise measurements near the Kodiak launch site at both Narrow Cape and Ugak Island, Steller's Eider Surveys, as well as Environmental Quality monitoring of rocket exhaust products on water and air quality. The Air Force has also complied with the requirements of Essential Fish Habitat legislation as mandated by the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act. Other pertinent National Environmental Protection Act documents include an initial EA for construction and operation of KLC prepared by AADC and the FAA in June 1996, which evaluated use of the site for up to nine launches per year over the anticipated 22 years of operation.

For more information on the QRLV program, please contact SMC Public Affairs office at (310) 363-0030 in Los Angeles.