

explosive warhead that is designed to provide a realistic simulation of the mid-course and terminal phase of a supersonic anti-ship cruise missile. These missiles are 7.7 m (25.2 ft) in length with a mass at launch of 3,674 kg (8,100 lbs) including the solid propellant booster. There are variants of the Vandal; they all have the same dimensions, but differ in their operational range. The Vandals are remotely controlled, non-recoverable missiles. At launch, the Vandal is accelerated for several seconds by a solid propellant rocket booster to a speed sufficient for the ram-jet engine to start. After several seconds of thrust, the booster is discarded, falls into the water of the Sea Range, and the Vandal continues along its flight path at supersonic speed under ramjet power.

The Vandal and most other targets are launched from the ALC on the west-central part of SNI, a land-based launch site. The ALC is 192 m (630 ft) above sea level and is approximately 2 kilometers (km) (1.25 miles (mi)) from the nearest pinniped haul-out site. Launch trajectories from ALC may vary from a near-vertical liftoff, crossing the west end of SNI at an altitude of approximately 3,962 m (13,000 ft) to a nearly horizontal liftoff, crossing the west end of SNI at an altitude of approximately 305 m (1,000 ft). However, to date, most Vandal launches during NAWS first IHA monitoring program had low angles (8 degrees) crossing the SNI beaches at an altitude of about 1,300 ft (396 m) (Lawson, 2002). Four Vandals however, had high angle (42 degrees) profiles, crossing SNI beaches at an altitude of about 9,600 ft (2,926 ft) (Lawson, 2002).

Vandal launches produce strong noise levels. Sound measurements collected during two Vandal launches in 1997 and 1999 indicated received A-weighted SPLs ranged from 123 dB (re 20 micro-Pa) (SEL of 126 dB re 20 micro-Pa<sup>2</sup>-sec) at 945 m (3,100 ft) to 136 dB (re 20  $\mu$ Pa) (SEL of 131 dB re 20 micro-Pa<sup>2</sup>-sec) at 370 m (1,215 ft) (Burgess and Greene, 1998; Greene, 1999). The most intense sound exposure occurred during the first 0.4 to 4.1 seconds after launch (Greene, 1999; Greene and Malme, 2002). However, what is important for this action is not the noise level near the launch site but the noise level over the pinniped haulouts on the SNI beaches. This will be discussed later in this document.

#### *Supersonic and Subsonic Targets and Other Missiles*

The Navy also plans to launch other subsonic and supersonic vehicles to simulate various types of threat missiles

and aircraft. These are small unmanned aircraft that are launched using jet-assisted take-off (JATO) rocket bottles. Once launched, they continue offshore where they are used in training exercises to simulate various types of subsonic threat missiles and aircraft. The larger target, BQM-34, is 7 m (23 ft) long and has a mass of approximately 1,134 kg (2,500 lbs) plus the JATO bottle. The smaller BQM-74, is 420 centimeters (cm) (165.5 inches (in)) long and has a mass of approximately 250 kg (550 lbs) plus the JATO bottle. Additional types of small vehicles that may be launched include the Exocet and Tomahawk missiles, and the Rolling Airframe Missile (RAM).

All of these smaller targets are launched from either the ALC or from Building 807. Building 807 is approximately 10 m (30 ft) above sea level and accommodates several fixed and mobile launchers that range from 30 m (98 ft) to 150 m (492 ft) from the nearest shoreline. For these smaller vehicles, launch trajectories from Building 807 may range from 6 to 45 degrees and cross over the nearest beach at altitudes from 15 to 190 m (50 to 625 ft).

Sound measurements were collected from the launch of a BQM-34S at the Point Mugu Naval Air Station (NAS) in 1997. Burgess and Greene (1998) found that for this launch, the A-weighted SPL ranged from 92 dB (re 20 micro-Pa) (SEL of 102.2 dB re 20 micro-Pa<sup>2</sup>-sec) at 370 m (1,200 ft) to 145 dB (re 20 micro-Pa) (SEL of 142.2 dB re 20 micro-Pa<sup>2</sup>-sec) at 15 m (50 ft). These estimates are approximately 20 dB lower than that of a Vandal launch at similar distances (Greene, 1999). The measured Terrior Orion SPL ranged from 89 to 138 dB and the SEL from 93 to 138 dB, although the SPL/SEL of 138 dB appears to be anomalously high (Lawson, 2002). The SPL/SELs for the AGS launches ranged from 95 to 150 dB (93 to 137 dB SEL) and the RAM launch SPL was 126 dB (131 dB SEL). It should be noted that these measurements were all flat-weighted, meaning that A-weighted SPL/SELs values were several decibels lower.

#### *General Launch Operations*

Aircraft and helicopter flights between NAS on the mainland, the airfield on SNI and the target sites in the Sea Range will be a routine part of any planned launch operation. These operational flights do not pass at low level over the beaches where pinnipeds are expected to be hauled out. In addition, movements of personnel are restricted near the launch sites 2 hours prior to a launch, no personnel are

allowed on the western end of SNI during Vandal and other vehicle launches, and various environmental protection restrictions exist near the island's beaches during other times of the year.

#### **Comments and Responses**

On March 11, 2003 (68 FR 11527), NMFS published a notice of receipt of the Navy's application for a small take authorization and requested comments, information and suggestions concerning the request and the structure and content of regulations to govern the take. During the 30-day public comment period, NMFS received comments from the Marine Mammal Commission (Commission) and the Stop LFAS Worldwide Network (Stop LFAS). The Commission supports NMFS' intent to publish proposed small take regulations for the Navy's activities on SNI provided that the mitigation and monitoring activities described in the NAWS petition for regulations are incorporated into the proposal.

*Comment 1:* The Stop LFAS states that underwater marine impacts due to missile testing will not be known unless an environmental impact statement is prepared.

*Response:* In March, 2002, the NAWCWD prepared and released to the public a Final Environmental Impact Statement/Overseas Environmental Impact Statement on the NAWCPNS Point Mugu Sea Range activities (Final EIS). This Final EIS analyzed in detail the potential for impacts on marine mammals including the Eastern North Pacific gray whale. In addition, on August 9, 2001 (66 FR 41834), NMFS released an Environmental Assessment/Finding of No Significant Impact on the issuance of a small take authorization for Vandal and other rocket and missile launches at SNI in 2001. The potential for gray whales (or other cetaceans) to be taken by harassment, injury or mortality is virtually nonexistent for several reasons, including low numbers offshore of SNI (< 10 percent of population), seasonality (spring/autumn), transitory behavior (non-feeding) off SNI, infrequent and low number of missile launches, airborne noise levels less than levels that could potentially cause temporary threshold shift (TTS), and a narrow window (maximum of 13 degree radius from perpendicular from the launch vehicle) for sound penetration into the water (i.e., almost all sounds hitting the water surface are reflected). For information on calculating "take" levels and the potential for marine mammals to be taken by this activity, please refer to the Navy's Final EIS on this action.