

Mission. ECR is the Navy's principal open-air range for T&E of airborne electronic combat systems. The range provides a realistic electronic combat environment, including threat systems; operations and range control; instrumentation; TSPI, telemetry, optical, and communications; data processing and display systems; and signal monitoring, calibration systems, and assessment and repair facilities for T&E and training customers.

Unique Features. It is the only U.S. DoD electronic combat range with the ability to test against naval air defense systems and combinations of land and naval systems (littoral threat), either individually or as part of an integrated air-defense system. Topgun student pilots train against realistic threat radars and surface-to-air missile (SAM) systems.



Combat Support. Here, pilots hone their skills before deployment. In a single mission, pilots can combat both an air-to-air threat and a surface-to-air threat, as well as complete an air-to-ground strike mission.



RDT&E. The ECR offers a wide variety of threat simulations, surrogates, and actual systems, thus providing a threat-rich environment. Open-air hardware-in-the-loop analysis helps bridge the gap between laboratory and open-air testing. Multiple threat systems are available: actual, surrogate, and simulated. A broad range of EW technologies are offered: pulse, continuous wave, Doppler, multispectral, and Blue and Gray systems. Test emitter spectrums include IR, RF, electro-optical, millimeter wave, and laser. All systems use audio and video instrumentation to collect extensive digital flight test data. Top secret and special-access-level security is available with minimal electromagnetic interference.

Size / Description / Scope. China Lake South Ranges encompass 1,200 square miles of restricted airspace overlying 900 square miles of Navy land, offering ample room for either single or multiplatform events. **Plant Value:** \$75M+.

Main Facilities

- **Randsburg Wash Test Ranges (“Fuze Ranges”).** Fuzes are tested here in environments that closely simulate tactical conditions. Full-scale aircraft or geometric structures are suspended above the ground as targets for fuze tests. Test engineers measure fuze sensitivity and patterns and determine how target variations affect performance.
- **Towers.** Two 360-foot-high wooden target towers suspend large targets up to 250 feet above ground to minimize extraneous reflections. The range is backed up by mountains at distances from 7,000 to 20,000 yards.
- **Slate Range Facility (SRF).** The facility is located on a mountain overlooking most ECR sites. SRF provides an excellent location for ground testing. It includes a small airfield suitable for UAV operations. The site aligns threat radars to a single point and is an important element in the certification of ECR systems. It is located on Slate Mountain at an elevation of 4,700 feet and includes a static target performance exerciser (STARPEX), which provides beacon and radar calibration support for operational readiness exercises in test preparation. SRF also includes a moving target that simulates aircraft motion for electronic countermeasures (ECM) devices.





- **Superior Valley Training Range.** Extensive training exercises are conducted involving aerial delivery of conventional and training ordnance, weapons scoring systems, helicopter mobile assaults, fire fights, and search-and-rescue training. Pilots, including fighter / attack (F/A) squadrons from Lemoore, California, learn to spot and identify enemy mobile weapon systems. In time-critical-strike operations, highly realistic target shapes are moved to various locations. Superior Valley is located at the southern end of the Mojave B South Range and covers an area of approximately 76 square miles. Facilities include a simulated vehicle convoy, a simulated airfield complex with anti-aircraft artillery, SAM sites, and an 8,000-foot simulated runway, taxiway, and ramp with numerous aircraft targets. Targets at Superior Valley include two bombing circles for light inert nuclear and conventional deliveries and high-angle strafe and two triangular targets for low-angle strafe.

Types of Events / Testing / Training. ECM effectiveness, radar warning receiver (RWR), unmanned aerial systems (UASs), expendables—chaff and flare effectiveness, towed and air-launched decoy testing, Anti-Radiation Missile (ARM) flight testing to evaluate seekers and avionics, tactics development, and training.

Equipment / Instrumentation / Data Outputs. Scope video, boresight video, display video, radio recordings, crew hot mike recordings, digital data, raw unprocessed data, and sorted corrected data (wild point flags and sorted by time).

Systems Provided. Systems include advanced threat simulations; surrogates; and Red, Blue, and Gray threat assets.

Historical Significance. Initially, ECR was known as the Electronic Warfare Threat Environment Simulation (EWTES) facility and was established in 1968 in response to an urgent Vietnam wartime need for realistic pilot training.

