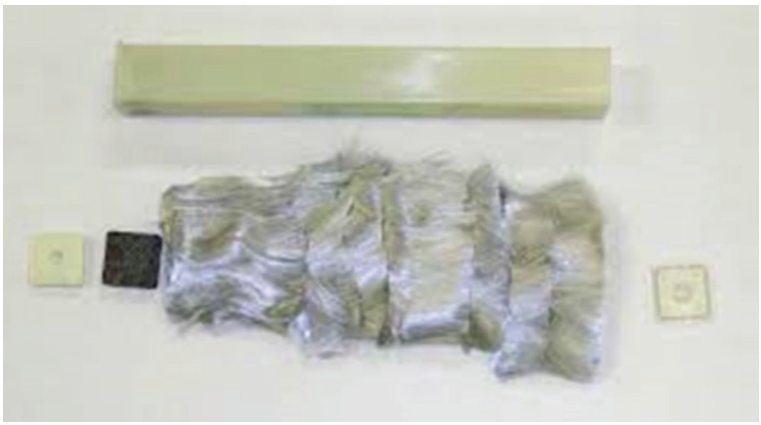
Environmental Impact Statement for Special Use Airspace Optimization

Factsheet: Chaff and Flares

Chaff and flares, also referred to as defensive countermeasures, are dispensed by military aircraft to avoid detection and targeting by enemy air defense systems. Pilots deploy these countermeasures when threats are detected. It is vital that pilots train to become proficient in their use.



A chaff "bundle" is packed inside a cartridge that remains inside the aircraft (top of photo). The black felt spacer and the two white plastic end caps are released with the chaff fibers and fall to the ground.

A bundle of **chaff** consists of millions of aluminum-coated silica fibers. When dispensed from the aircraft the fibers form an electronic "cloud" that temporarily obscures the aircraft from radar detection. Chaff fibers are approximately half the thickness of a human hair and are less than an inch long. Chaff is nontoxic and does not pose a health or safety risk.

Flares are ejected from aircraft to produce high-temperature heat sources that mislead heat-sensitive or heat seeking targeting systems. Flare pellets are primarily mixtures of magnesium and Teflon (polytetrafluoroethylene) molded into rectangular shapes approximately 8-inches long. Flares burn out completely within 3 to 5 seconds during which time they fall between 200 to 400 feet. Flares are only used in approved airspace at altitudes designated for the airspace (i.e., the minimum release altitude).

Fire risk associated with flares stems from an unlikely, but possible, scenario of a flare reaching the ground while still burning. The minimum release altitude from which flares are dropped is regulated by the airspace manager and based on a number of factors including flare burnout rate and Fire Danger conditions of the area.

The flare pellet is packed inside an aluminum case that remains inside the aircraft (top of photo). The felt spacer and the two plastic end caps are released with the flare and fall to the ground.

Where are chaff and flares currently used?

All of the Military Operations Areas (MOAs) proposed for optimization are currently authorized for the use of chaff and flares, except for Tombstone MOA which is not authorized for chaff. The table below provides the existing chaff and flare authorizations in the MOAs and the changes associated with the proposed action. Under the Proposed Action, the minimum altitude for flare release would be no less than 2,000 feet above ground level in any airspace which would result in flare burnout by 1,600 feet above ground level.

Airspace	Existing Authorization		Proposed Authorization	
	Chaff	Flares	Chaff	Flares
Tombstone MOA	Not authorized	minimum release 5,000 ft	Authorized	minimum release 2,000 ft
Outlaw/Jackal MOAs	Authorized	minimum release 3,000 ft	No change	minimum release 2,000 ft
Morenci/ Reserve MOAs	Authorized	minimum release 5,000 ft	No change	No change
Bagdad/ Gladden MOAs	Authorized	minimum release 5,000 ft	No change	minimum release 2,000 ft
Sells MOA	Authorized	minimum release 3,000 ft	No change	No change
Ruby/Fuzzy MOAs	Authorized	minimum release 2,000 ft	No change	No change