

Holloman Airspace EIS  
c/o Cardno, Inc.  
501 Butler Farm Rd., Suite H  
Hampton, VA 23666

Subject: NEPA Scoping Comments; Environmental Impact Statement (EIS) for Special Use  
Airspace Optimization at Holloman Air Force Base, New Mexico

September 18, 2017

Dear Sir or Madam,

I thank the USAF (and NEPA) for the opportunity to provide NEPA scoping comments for the “Environmental Impact Statement (EIS) for Special Use Airspace Optimization at Holloman Air Force Base, New Mexico” (**hereafter called “Holloman Expansion”**).

I submit the following comments in response to the notification posted in the Federal Register on August 25, 2017. I hope that they will be considered and influence the obvious need for public input, good science and accurate data.

**1a. I ask that each of these comments be addressed, and that these comments and the USAF response be part of the public record.**

**1b. I ask that I be notified about further NEPA actions and other USAF actions concerning this project. I further ask that I be notified about planned (NEPA) actions for Holloman AFB.**

I have identified my USAF NEPA EIS helpful information comments by prefacing them with the word “**COMMENT:**” in bold type. This generally defines subject areas. Requests to include specific USAF NEPA EIS discussion, analysis, data etc by the USAF in the EIS are indicated by **BOLD TYPE** and a reference number. There are 161 numbered NEPA scoping comments. “SUA” refers to special use airspace and when I use this acronym I include all the numerous USAF/FAA acronyms such as MTR, IR, MOA, Restricted Air Space, ATCAA and on and on.

First some background, I am a long time resident in the area affected by the Holloman Expansion. My home is on land that was homesteaded in 1918, long before the USAF existed and long before Holloman or WSMR were operating. I have a BSEE degree. I am a private pilot, with about 800 hours flight time. I have owned and built aircraft. I am an amateur radio operator, licensed by the FCC and operate a radio station. I am a volunteer firefighter and have over a decade of experience with fires and emergency services in the Holloman Expansion area (in Otero County, NM). I have experience in business and database management. I own a business in Weed, NM.

As Americans we all understand and appreciate the need for our military to provide the quality training necessary to defend our country when the time for deployment arrives. Moreover, we support the need of the USAF to provide this training to ensure that our aircrews are ready and prepared to serve their country. Indeed the residents affected by much of the Holloman Expansion project have borne this support burden for over 75 years. We have seen continuous expansion by the DoD, year after year.

**HISTORICAL PERSPECTIVE COMMENT:** Our United States Congress has already provided the Department of Defense (hereafter called DoD) with over twenty five million acres (25,000,000) for our military to use for their needs. The Holloman/Fort Bliss / White Sands Missile Range complex alone (hereafter called “Holloman”, “Fort Bliss” or “WSMR”) covers over 3.14 million acres (3,140,000) plus thousands of cubic miles of airspace, just for use as the military wishes. This existing, huge area, larger than the State of Connecticut, is controlled and coordinated by DoD.

Cumulative adverse impacts to the environment from these Holloman/WSMR/Fort Bliss takings, including impacts to local economies are significant. Many of the Air Force's low-level flights are conducted over National Wilderness Areas (the proposed Talon MOA expansion in this Holloman Expansion Project is located over the Brokeoff Wilderness Study Area as well as the Otero Mesa), National Parks, National Wildlife Refuges, and other sensitive public lands that are set aside for wildlife and recreation. Intrusion of noisy, low flying military aircraft on these special public lands undermines their ability to serve the functions for which they were created, and adversely impacts local economies. Other USAF flights take place over populated areas where sonic booms and flight noise destroy private property (and property values) and cause physical and psychological health problems (see comments below). Indeed, the German Air Force conducts low-level training flights in New Mexico because it was outlawed in Germany due to adverse health effects on German citizens. Close to one million square miles -- 25% of the United States -- is already subjected to low-level military flights. This is greater than the total area of western Europe, including all of France, Germany, Italy, Spain, Portugal, Switzerland, Denmark, the Netherlands, Belgium, Luxembourg, Great Britain, and Ireland combined. Yet this is not enough. The USAF now claims it needs a little more. Much of the land in the Holloman - Fort Bliss – WSMR Department of Defense complex was taken, at gun point, from unwilling citizens. Much of the airspace was taken over bitter objections (and lawsuits) of those below. I believe we should acknowledge these significant environmental impacts, thousands of sonic booms, tons of chaff/flare debris, thousands of sudden onset jet noise events, all inflicted on families and children below the new Holloman airspace. I believe we should acknowledge the historical sacrifices made by these private citizens, as DoD has repeatedly expanded the Holloman - Fort Bliss - WSMR complex by taking private property. Perhaps the John Prather “taking” is the best example, but there are many more. Acknowledgment of these sacrifices is germane to this EIS as they relate to custom, culture, cumulative impacts and DoD creditability.

**2a. I ask that the EIS discuss this history as it relates to custom and culture. I also ask that the EIS Introduction recognize the above facts alongside the usual recap of the Holloman's mission.**

**2b. I ask that the USAF in the EIS not minimize this project's impacts by declaring each of the impacts not significant, when so clearly they are.**

**2c. The USAF conclusions are often reached with the aid of 40+ year old obsolete “science” some of which is, in fact, bogus. USAF controlled reports are often cited which are not peer reviewed. Facts are cherry picked. New data, such as human health impacts from noise, is ignored, and on and on. In the following few pages I cite examples of this USAF disingenuousness. I hesitate to attribute motives, but clearly finding little or no impact in the NEPA process aids the USAF in its “mission first” culture, at the price of the “fly over” country environment and families. I ask the USAF to discuss these assertions in light of the all the provided facts in the EIS.**

**2d. I ask that the USAF discuss in the EIS the greater Holloman area airspace volume, including**

**all DoD Agencies. Include SUA, ATCAA, MOAs, IR, MTR, Restricted and airspace reserved for DoD by the FAA. Include all SUA used by Holloman (include Arizona) Provide an overview of DoD takings (from the NAS). I am attaching an example showing the format, see figure 1 and figure 2, (these are in color). Figure 2 is the most informative. This will show stakeholders the extent of the DoD airspace around Holloman.**

**NEEDED CHANGES IN USAF NEPA PROCESS - USAF NEPA PROCESS FAILURES AND QUESTIONABLE PAST USAF ANALYSIS/DATA**

**COMMENT:** I am an interested stakeholder and I reiterate,

**3a. I want to be notified about all Holloman AFB NEPA activities.**

I have requested this before. I want to be added to the notification list for Holloman AFB NEPA actions. Other stakeholders have complained to me that Holloman AFB has not included them, even after repeated requests.

**COMMENT:** The official USAF website ([www.hollomanafbairspaceeis.com](http://www.hollomanafbairspaceeis.com)), (hereafter referred to as "Official Website") for this Holloman Expansion project is broken, fails to provide adequate who, what, where, when, why information (per NEPA) and lacks project contact information. This is the website referenced in the Federal Register Notification. The public can not make informed comments based on the provided information. Until these failures are addressed,

**3b. I ask that the NEPA Scoping Comment period be extended.**

The Federal Register Notification provides somewhat more information and is linked on the Official Website. However, this is less than transparent and many stakeholders will be confused (I am). Specifically the website obfuscation includes (but not limited to):

- The "Contact Us" link on the project website is broken. Public comments are impaired (or disabled).
- Airspace map of Alternative 2 is not clear and does not show Alternative 2 properly. NEPA requires the "where" be properly defined. No accurate location information is provided (see below). No altitudes are given in the map for the floor and ceiling of the airspace (see below). Stakeholders and those under this new airspace can not provide quality comments or properly participate in Scoping when key facts are withheld or obfuscated.
- The airspace maps provided for all the Alternatives on the official USAF Project website lack specificity. They can not be used to judge impacts to stakeholders. For example new Talon MOA boundaries are not defined (Lat/Lon). Altitudes are briefly discussed in the Federal Register Notification, but again this is not made clear on the Official Website. Altitude boundaries on the Official Website main page are only defined as "Low", "High". Stakeholders are left to guess what "Low" means in feet above the ground (or sea level) or any other measure. NEPA requires the "where" be properly defined. This information is obscured on the Official Website.
- Planned aircraft traffic density data is not given. One flight a week or 1,000? NEPA requires impacts be described.

- How many flights will take place after dark? After midnight? On Sundays? All flights on one day of the week? Stakeholders are not provided with any information on scheduling. Scheduling is a key issue and impacts stakeholder environment.
- Access routes to service the new/modified training areas (MOAs), including altitudes and supersonic/subsonic information is not provided. NEPA requires “where” and “when” as well as numbers.
- Airspace maps are incomplete and fail to properly show military training routes, some of which are over 12 miles wide. How can quality scoping comments be submitted when key information is withheld? Stakeholders need to visualize coordinated, cumulative impacts from DoD operations in the greater Holloman area. Please refer to figure 1 for an example of a better format.
- US Army aviation plans to use Talon “low” at 100' AGL. Does the USAF know about this plan?
- The Scoping information is missing the types of aircraft the USAF plans to use over stakeholders below. Every type aircraft has unique impacts on the environment. The impacts variance is significant. Stakeholder are left to assume the very worst case. Holloman's mission changes frequently.
- Sonic booms planned by the USAF per day in the SUA? No mention of sonic boom numbers or intensity in psf. No mention of focused booms or boom coverage across the ground.

The USAF organization of the Official Website and the insufficient NEPA Scoping “documents” on the Official Website are so poor it is hard to comment on impacts and alternatives. Note that no other information has been made available. Just the (poor) website and marginally better Federal Register notice.

**4a. I ask that the scoping period be extended while complete project information is made available to stakeholders and the public. This information should include each alternative's flight corridors used for transitions (and their speed limits and allowed altitudes), MOA descriptions including proposed changes complete with floor, ceilings, speed limits, latitude - longitude of MOA boundaries, underlying features and landmarks, number of aircraft sorties, when the sorties will be flown (time of day/night, day of week) and so on.**

The MOA airspace is best described, in my view, by providing an isometric view (or three dimensional sketch) complete with altitudes and airspeed limits.

**COMMENT:** Federal Agencies such as the USAF could “cheat” NEPA requirements by breaking a Federal Agency action into several small pieces (all the pieces are needed in order for the Agency's project to be functional). This is called segmentation. Each “mini action” could be found to have no environmental impact. The pieces added together however add up to a significant environmental impact. This “cheating” of NEPA is hardly original for the USAF, and the CEQ has a rule just for these kind of cheaters.

This USAF project (“*Special Use Airspace Optimization at Holloman Air Force Base, New Mexico*”) is

integral to the success of another USAF project titled, “*Environmental Assessment, Interim Relocation of Two F-16 Squadrons*” which was just (2017) waved through NEPA with a FONSI despite opposition by stakeholders. Not mentioned by the USAF in this F-16 expansion project was that other significant actions must be instituted to make the “Relocation” project viable. One of these added actions is the project I'm commenting upon today: “*Special Use Airspace Optimization at Holloman Air Force Base, New Mexico*”. More airspace is needed for all the new aircraft in the “Relocation” Project. This is an obvious NEPA “cheat” to avoid an EIS for the original “Relocation” Project.

The Council on Environmental Quality Executive Office of the President Regulations For Implementing The Procedural Provisions Of The NATIONAL ENVIRONMENTAL POLICY ACT state, in part, I quote (emphasis added):

*“1502.4 Major Federal actions requiring the preparation of environmental impact statements. (a) Agencies shall make sure the proposal which is the subject of an environmental impact statement is properly defined. Agencies shall use the criteria for scope (§1508.25) to determine which proposal(s) shall be the subject of a particular statement. **Proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.**”*

**5a. I ask that the USAF in the EIS discuss their segmentation of this large project into (at least) two “mini-actions” in light of the NEPA CEE regulations.**

**5b. I ask that the USAF in the EIS discuss the fact that the original expansion of F-16 aircraft, significantly increasing the number of flights, is not viable without a supporting airspace expansion.**

**5c. I ask that the USAF in the EIS discuss what other “hidden” expansions are planned?**

**5d. I ask that the two mini-actions, relocating aircraft and expanding airspace be combined into one proper NEPA project. Environmental impacts can then be properly analyzed and coordinated. I ask that the USAF discuss this in the EIS.**

**COMMENT:** The project Official Website lists a series of “needs” that the USAF used to select and scope project alternatives/options. I quote the Official Website:

*“The U.S. Air Force made a set of needs to screen and select possible options. These included:*

- *Need 1: Use U.S. Air Force Scheduled Airspace*
- *Need 2: Maximize Training Time, Minimize Transit Time*
- *Need 3: Support Required Airspace Size and Configuration*
- *Need 4: Limit Impacts to Civil Aviation”*

Notably missing in this list is concern about the civilian community's health and safety (in fact the project documents show indifference to health/safety/civilian economy). The screening list is poor and incomplete and has resulted in poor project alternatives. For example, the above list shows USAF recognition of adverse Civil Aviation impacts, yet fails to consider any other adverse civilian impacts such as those on human health, human safety, and economic losses. Outside of this Expansion project

Holloman AFB has recognized the need for these impacts to be considered. I quote “Holloman Air Force Base (HAFB) Environmental Scope and Commitment Statement” dated January 10, 2017:

*“HAFB is committed to conducting its mission in an environmentally responsible manner to protect human health, natural resources and the environment.”*

Certainly the USAF recognizes that the civilian community, that they are protecting and serving, deserves consideration in the “USAF needs” criteria”? Yet these factors have not been included in the Project's screening list.

**6a. I ask the USAF to go back and screen for these human health, human safety and economic factors. Failing to consider these needs as part of the selection process is a serious mistake. The Alternatives are flawed by the USAF's own criteria. I ask that the USAF discuss this in the EIS.**

**6b. COMMENT: I request copies of ALL the alternatives evaluated by the USAF, including those six that the USAF, without stakeholder input, found "did not meet all of the needs". I ask that the USAF discuss why they refuse this request in light of the above flaws in the EIS.**

In light of the above flaws in the needs criteria all the alternatives need to be re-examined, and new alternatives proposed.

**6c. COMMENT: I ask that Otero County NEPA Scoping meetings be scheduled. I ask that the USAF discuss why they refuse this request in light of the above flaws in the EIS.**

These meetings would allow stakeholders to provide needed input to the USAF. They would also provide the USAF an opportunity to answer questions. Areas most adversely affected such as Weed, NM and Pinon, NM both in Otero County must be included. Despite this the USAF plans to ignore Otero County entirely. I quote the Federal Register project notification:

*“Public Meeting Dates and Locations: Public scoping meetings will be held in Carlsbad, Truth or Consequences and Las Cruces, New Mexico . . .”*

Please note that Otero County is excluded, no meetings. Otero County is home to Holloman AFB and the Talon MOA covers a significant part of the county. The USAF Federal Register Notice states, I quote (emphasis added):

*“The Talon MOA is located in the vicinity of Carlsbad, New Mexico and covers approximately 1,848 square nautical miles. Under this alternative, the dimensions of the existing MOA/ ATCAA would be expanded approximately 1,375 square nautical miles **generally** to the east.”*

The “1,375 square nautical miles **generally** to the east” expansion planned by the USAF in Alternative #1 still affects Otero County. The supersonic airspace expansion over Otero County is no minor matter. County tax base, recreation, families, businesses, aviation, and on and on are all impacted. Yet not one scoping meeting is proposed by the Holloman/USAF NEPA Team in Otero County. This Talon MOA includes parts of the Brokeoff Wilderness study Area (Otero County). These are the same area/airspace

that the USAF (and US Army) plans to fly thousands of flights over (at “Low” altitudes and supersonic at 24,000' AGL). Note also that traveling hundreds of miles to attend a meeting outside Otero County imposes an unfair burden on impacted Otero County stakeholders. It also will curtail needed USAF NEPA project input from these stakeholders. It is hard to understand why the USAF has chosen to put an onerous burden on Otero County participation.

**7a. I ask that this exclusion of Otero County be discussed. I ask that the USAF discuss why they refuse this request in light of the above flaws in the EIS.**

**7b. I ask that the USAF schedule NEPA Scoping meetings in Otero County. I ask that the USAF discuss why they refuse this request in light of the above flaws in the EIS.**

**7c. I ask that the NEPA Scoping period be extended until the USAF can, at the minimum, conduct Scoping Meetings in the most adversely affected communities in Otero County (Weed – Pinon). I ask that the USAF discuss why they refuse this request in light of the above flaws in the EIS.**

Note that in past USAF community presentations Weed, NM has had a large turnout of stakeholders.

**COMMENT:** Correctly following the NEPA process ensures that important effects will not be overlooked or underestimated only to discover, that after resources have been committed, serious issues confront stakeholders.

**7d. I ask that the Otero County stakeholders be given equal footing with other stakeholders. I ask that the USAF discuss why they refuse this request in light of the above flaws in the EIS.**

**7e. COMMENT: I ask that the USAF coordinate with the Otero County Commissioners. The Project will impact Otero County including its residents, businesses, economy and tax base. I ask that the USAF discuss why they refuse this request in light of the above flaws in the EIS.**

**COMMENT:** The USAF fails to discuss the number of square miles of “expansion” planned under Alternative #2. Stakeholders are told that USAF SUA will be returned to NAS and private use but the planned total size of the USAF expansion minus “returned” airspace is not discussed (see Federal Register Notice).

**7f. I ask that the USAF divulge and discuss in the EIS the planned expansion (square miles) scope and give precise boundaries.**

**COMMENT:** The Federal Register Notice states, I quote:

“Reconfiguring this MOA would result in returning the northern portion of the existing Cato/Smitty MOA back to the NAS.”

**7g. I ask that the USAF provide the size of the returned airspace. I ask that the USAF discuss this airspace and give specific boundaries.**

## **PREVIOUS NEPA ANALYSIS ERRORS THAT MUST BE AVOIDED BY THE USAF**

**COMMENT:** The USAF NEPA EIS noise analysis is usually designed to be consistent with the provisions of the report from the Committee on Hearing, Bioacoustics, and Biomechanics report, titled, “*Guidelines for Preparing Environmental Impact Statements on Noise*” (Committee on Hearing, Bioacoustics, and Biomechanics, 1977). This report is 40 years old and like Holloman airspace was for a significantly different mission. It is concerned primarily with “community annoyance” and very little with actual human health impacts (little was known in 1977). In fact the report so states, I quote (emphasis added):

*“A sound-level weighting function for general impact and environmental degradation analysis is proposed, based on the **average annoyance** response **observed in community response studies.**”*

This “observed” annoyance metric is a measure of voter acceptance. The “Guidelines for Preparing Environmental Impact Statements on Noise” was published prior to modern research that shows significant human health impacts from noise (such as sudden onset noise). In 1977 these impacts were not understood and the report attempts to cover all possible physiological health impacts by one simplistic, add on factor. I quote the report (emphasis added):

*“ . . . this weighting function is supplemented by an **additional weighting function** at higher noise environments to quantify the potential of noise-induced hearing loss and **general health effects.**”*

“General health effects” covers a big area! The 1977 study goes on to state, I quote:

*“However, a firm causal link **between community noise and extra-auditory disease** has not been established at this time.”*

This was probably true in 1977 but is not true today (Refer to references cited in another comment below). This old study leaves out known impacts to children (at very low levels ~ 35dB) and proven impacts on the elderly. In fact this document is only valid for measuring voter annoyance. Despite it's obsolescence the USAF continues to use it to justify a crude noise EIS analysis. This has the effect of marginalizing real human health impacts from noise while at the same time reducing USAF NEPA workload. In my view the USAF seems more interested in annoyance than children's learning impacts caused by USAF operations over rural areas.

**8a. I ask that the USAF in the EIS discuss why “annoyance” as it relates to voters irritation is the main focus of USAF analysis, as opposed to the noise health impacts to children and elderly.**

**8b. I ask the USAF to discuss in the EIS the history of DoD base closings in California as related to noise annoyance and how that might relate to the Holloman Expansion, include a discussion of encroachment, both civilian on military and military on civilian. This would be for Otero County/Holloman area.**



**9a. I ask that the USAF discuss in the EIS, the age of the report titled “Guidelines for Preparing Environmental Impact Statements on Noise” that is used by the USAF for NEPA analysis. Include discussion of current human health impacts not addressed correctly by this report such as sudden onset jet noise and learning impacts to children. Relate this to the Holloman Expansion EIS.**

**9b. I ask that the USAF discuss in the EIS the adjustment of annoyance measurement (dnl) for sudden onset jet noise and how this is not a measurement of health impacts but of annoyance.**

**COMMENT:** In the usual USAF practice an EIS examines noise impacts extensively, at least as it relates to **annoyance**, while at the same time providing little or no current data on more serious human physiological impacts. Noise is often scientifically measured by USAF NEPA Team and those measurements are then related (at length) to voters complaints (called “annoyance” by federal agencies). That “**annoyance**” term effectively marginalizes the human impact from noise. It belittles real impacts from noise and vibration. Annoyance is just displeasure. Noise causes actual human learning and health damage, not just “displeasure” and the resulting voter rebellion. Noise for example can cause permanent deafness. It can cause disorientation and cognitive damage. This real (as opposed to “annoying”) physiological damage. It also includes: learning disability in children, convulsions in babies, low birth weight babies, and cardiovascular damage and more. Studies in the past five years confirm serious human health impacts from noise. The German Air Force brought their training to Holloman partially because of health impacts in Germany (see Ising, et al). Yet the USAF often chooses to marginalize or ignore these newly documented impacts. Instead the Air Force measures how annoyed residents (voters) are likely to be. DoD has failed to acknowledge independent, scientific human health noise studies (see below) conducted largely in Europe, and by WHO, relying instead on “research” conducted by DoD paid contractors, often without any independent review. Much of this so called research is over 30 years old. The USAF offers poor research and poor “average number” analysis (when they bother to analyze at all). The USAF presents page after page of “average” noise numbers (such as DNL) which are all related to “annoyance” but in some cases not one word on human health impacts. In fact the USAF makes a point of claiming that noise impacts are properly characterized by mere annoyance measurement, with human health left completely out of the USAF NEPA analysis. For example, the 2017 Holloman Environmental Assessment, titled *Interim Relocation of Two F-16 Squadrons*, has many pages devoted to average number annoyance measurements for aircraft noise impacts, but not one word on human health impacts from this noise. In my view the USAF seems to care more about votes than about the health of the children and elderly (the most impacted by noise) under their airspace.

**9c. I ask that the USAF in the EIS include investigation and discussion of noise impacts other than annoyance, other than average numbers and include metrics such as rate of noise increase.**

**9d. I ask that recently documented noise physiological impacts be investigated, analyzed and discussed in the Holloman Expansion EIS, including sudden onset jet noise and children's health.**

**9e. I ask that the USAF discuss in the EIS the failure to include human health impacts in the above referenced EA and whether this failure will be perpetuated in the Holloman Expansion EIS analysis.**

**10a. I ask that the USAF discuss in the EIS these health impacts over time and over the thousands of flights planned, include data for the expected total number of flights over the life of the project.**

**10b. I ask that sudden onset jet noise (> 60dB/second) be discussed in the context of human health and that impacts on the elderly, children and babies be discussed in the EIS.**

Sudden onset rise is generated by low, high speed jets. For example an F-16 flying at 500 mph at 500' AGL at high power. This sudden sound has proven negative health impacts on children and babies (Ising, et. al.). In addition the USAF itself has recognized other significant impacts, impacts not recognized or addressed in past Holloman EIS. For example, the USAF EIS titled, "*Powder River Training Complex Ellsworth Air Force Base South Dakota Environmental Impact Statement*" August 2010 states, I quote (emphasis added):

*"Sudden onset sounds, such as the noise created by low-altitude high-speed aircraft, can be startling to humans and animals. In specific cases where ranching operations herd livestock for weaning and branding, low-level overflights have caused cattle to spook and resulted in damage to both the livestock and fencing".*

Land below the Holloman Expansion SUA is used for, among other things, ranching.

**10c. I ask that USAF discuss in the EIS the impacts to the environment, including economic and health and safety from the damages reported above to families and businesses below the SUA.**

**COMMENT:** In addition to a failure by the USAF to use best data and best studies available to show human health impacts from noise and sonic booms the USAF also uses flawed, misleading "average" noise number analysis. Unlike the USAF the Army has recognized some of the problems with the USAF "average number" type noise analysis (see Army report dated 2007 (ERDC/CERL SR-07-24, October 2007). The problems are well known by the DoD, yet the USAF refuses to act to provide proper noise analysis, analysis that would allow stakeholders to understand impacts. These failures conveniently tend to mitigate USAF Project noise impacts and they "ease" project constraints (and costs). A DoD contractor (Wyle) provided a report that explains the missing USAF analysis. I quote the report cleverly titled "Noise Basics Noise Effects" (emphasis added):

*"As used in environmental noise analysis, a metric refers to the unit or quantity that quantitatively measures the effect of noise on the environment. To quantify these effects, the Department of Defense and the Federal Aviation Administration use three noise-measuring techniques, or metrics: first, a measure of the **highest sound level** occurring during an individual aircraft overflight (single event); second, a combination of the maximum level of that single event with its duration; and third, a description of the noise environment based on the cumulative flight and engine maintenance activity."*

The DoD (and the EPA) persist in using only noise averages to quantify sound levels and thereby voter "annoyance". DoD admits that this is to prevent voters from forcing closure of DoD facilities through political action (like that in California some decades ago). This "average" method usually under reports and minimizes noise health impacts (see references below). The USAF often fails to thoroughly use the above guidelines, specifically the "**highest sound level**" mentioned above. An excellent Army report

from 2007 (ERDC/CERL SR-07-24, October 2007) illustrates some of the most egregious fallacies in USAF/EPA “average” noise numbers and the adverse impacts those errors can have on both human, livestock and wildlife health. I believe this report has a direct bearing on the Holloman Expansion project as it makes clear that the focus on noise averages by the USAF for NEPA are often a poor metric. More than just “average” measurements are needed. The poor USAF analysis impacts both stakeholders health and the environment impacts. As an example, I quote the 2007 Army report (emphasis added):

*“Long-term-average noise level does not adequately guide land use. As an example, 100 events of 142 dB peak pressure level yield an annualized CDNL of 62 dB, which is supposedly suitable for all land uses. However, a peak level of 142 dB is so loud that it would almost certainly cause a strong negative public reaction, and in fact exceeds the 140 dB threshold for human hearing damage (Military Standard [MIL-STD]-1474D; Occupational Safety and Health Administration [OSHA] 1983).”*

and from the same US Army report,

*“Average noise levels provide no indication of the loudness of individual events to which citizens are exposed.”*

and from the same US Army report,

*“Another difficulty is that impact assessment results depend strongly on the selection of the time period over which the noise is averaged. The method ignores any effect of the timing of noise events; **there is no difference between 10,000 noise events spread over 1 year or all occurring in 1 day.**”*

**11a. I ask that the USAF discuss in the EIS this US Army report and how it relates to the data and analysis presented by the USAF in the EIS.**

**11b. I ask that the USAF in the EIS relegate average numbers metrics (developed primarily for “annoyance”) to secondary measurement and offer human health impacts as primary in the EIS.**

**11c. I ask that the USAF discuss in the EIS and furnish complete metrics for SUA noise, both sonic and subsonic, peak and average, filtered and unfiltered, including worst case.**

**11d. I ask that the USAF in the EIS focus on the real, hazardous impacts on human health resulting from USAF activities, such as, but not limited to: peak noise events, sudden onset noise, clusters of noise events, night noise (peak, clusters), child learning impacts, baby convulsions from sudden onset noise (Ising), cardiovascular impacts and so on.**

**11e. I ask that the USAF in the EIS recognize and discuss the low existing ambient noise levels in the airspace expansion area (the US Army has measured this at less than 35 dB-A), include the usual USAF 65 DNL number and discuss the increase in noise between 35 dba and 65 dnl. Noise levels, including peak noise and sudden onset noise have human impacts. They have been studied. Data is available. Please discuss these factors, include US Army comments (see above).**

While the Courts have held that the USAF is entitled to rely on their own experts, these experts' decisions must not be arbitrary and capricious. The USAF should evaluate recent data.

**COMMENT:** The USAF has access to current study information for the SUA noise environment from Germany. The USAF has used this same data in past reports. This information and data is for modern aircraft flown at the 500' AGL levels planned for the Holloman Expansion SUA. It is specific to the critical low altitude high speed jet environment. The authors of the study are recognized researchers. They are quoted and their studies used by the USAF, USMC and the US Navy. Ignoring this data would be arbitrary and capricious. According to the USAF it is the only study targeted specifically at the low altitude high speed jet environment. I quote from the USAF Report dated 1989 that confirms this:

***“The Ising ad Michalak study is the only research to date which specifically addresses low altitude, high speed flight aircraft noise.”*** - USAF

***“FEASIBILITY OF EPIDEMIOLOGIC RESEARCH ON NONAUDITORY HEALTH EFFECTS OF RESIDENTIAL AIRCRAFT NOISE EXPOSURE”***, Noise and Sonic Boom Impact Technology, Human Systems Division, Air Force Systems Command, Brooks Air Force Base, TX 78235-500, (see [www.dtic.mil/dtic/tr/fulltext/u2/a219862.pdf](http://www.dtic.mil/dtic/tr/fulltext/u2/a219862.pdf))

**12a. I ask that the USAF use this up to date noise impact information in the project EIS and discuss why not if not included.**

By not using available, accepted study data the USAF is arbitrary and capricious, in violation of NEPA. Here is a snippet from one study by Ising and his team of researchers. A study that indicates the gross impact to the land below the SUA (known as a MLAF in Germany) and to the impact of the proposed environment on children:

*“In another study of 115 test subjects between 18 and 50 years old, temporary threshold shifts were measured after laboratory exposure to military low-altitude flight (MLAF) noise (Ising, et al. 1999).*

*According to the authors, the results indicate that repeated exposure to MLAF noise with Lmax greater than **114 dB, especially if the noise level increases rapidly**, may have the potential to cause noise induced hearing loss in humans.”* - Wyle 2008

Note the rapid noise increase mentioned. Under the rural SUA in this Holloman Expansion noise increase rates of 60+ dB/s are likely (using USAF numbers).

The 1999 Study cited above further states,emphasis added:

**“3.8 Inner ear damage**

*Noise can cause inner ear damage either by acute overload or by chronic high exposure, which leads to metabolic exhaustion. Examples for the first mechanism is impulsive noise of toy pistols, fire crackers etc. **and military low altitude flight (MLAF) noise**. MLAF noise is a danger for the inner ear if Lmax exceeds 115 dB(A) **and/or the level increase exceeds 60 dB/s**. In Germany, the percentage of inner ear pain in 12-17 year olds caused by MLAF noise in area with 150 m and 75 m military flights were 0.7% and 1.1% respectively. Children with inner ear pain after MLAF noise had significantly elevated hearing thresholds as compared*

*with controls (Ising et Rebutisch, 1993). The percentage of **convulsions in babies** after extreme MLAF noise exposure reported by parents from 75 m areas was found to be 0.17%. **Six years later these children were found to have permanent hearing threshold shifts at high frequencies**” (“Exposure and Effect Indicators of Environmental Noise”) (www.dfld.de/Downloads/IsingPaper.pdf)*

**13a. I ask that the USAF discuss these study results and the planned Holloman Expansion with respect to human health. Please include baby health, sudden onset jet noise and sonic booms.**

**COMMENT:** USAF (and others) have reported a loss of task performance in humans from random noise such as sonic booms and sudden onset jet noise. I quote one report (of many):

*“In humans, unpredictable or intermittent noise has **more serious effects** on performance than predictable or continuous noise (Sundstrom 1987).”*

**13b. I ask that the USAF in the EIS discuss the loss of work performance on families, businesses, hunters, horseback riders, etc on the land below the SUA. Please include loss of efficiency and the resulting economic impact. Please include safety concerns from human task interference and startle effects. Please discuss the total number of sonic booms and sudden onset jet noise events expected over the life of the Holloman Expansion Project.**

**COMMENT:** Supersonic flight is planned in the Holloman Expansion. I quote the Federal Register Project Notice (emphasis added):

*“Each alternative includes aircraft activity down to 500 feet above ground level (AGL), **supersonic activity** at or above 30,000 feet mean sea level (MSL), . . . .”*

Sonic booms are often grouped by the USAF NEPA Team into a single over pressure metric (at a given altitude)(see various USAF EA/EIS). This simplistic analysis is incorrect and does not represent true environmental impacts. Sonic booms in fact are also characterized by “focus”, speed, width, etc.. For example, “focus” is caused by maneuvering a supersonic aircraft (such as in an MOA or SUA). Sound energy is focused, sometimes into a very small moving area across the ground below. NASA measurements indicate that straight and level sonic boom levels may need to be multiplied by a factor of ten to account for focus. Older USAF numbers for a focus factor conveniently show a factor of five times. (reference USAF (Source: CABOOM (Carlson 1978) numerous other USAF reports) in a focused area. So if an F-22 (just an example) generates 5 pounds per square foot of over pressure at 20,000' **AGL** then that same F-22 will generate 50 psf in a supersonic “pull up” maneuver over people and homes on the ground below. USAF data has shown that buildings are damaged structurally at 10 psf. Here are a few references (I quote):

*“When a supersonic aircraft accelerates to its cruise speed, a focusing effect occurs that makes the sonic boom five to 10 times louder than its normal cruise sonic boom over a small region,”  
- **Edward Haering, NASA's Dryden Flight Research Center, CA, May 27, 2011***

*“. . . Although the focused sonic booms have the potential to be five to eight times greater than normal sonic booms, . . . .” - **Federal Register Volume 66, Number 53 (Monday, March 19, 2001) NOA A & USAF***

*Focused sonic booms may be of much greater intensity than unfocused booms and are typically generated by fighter aircraft in "dogfight" maneuvers. - AFESC TR 88-14, NERC-88/29, June 1988, EFFECTS OF AIRCRAFT NOISE AND SONIC BOOMS ON DOMESTIC ANIMALS AND WILDLIFE: A LITERATURE SYNTHESIS*

**14a. I ask that the USAF discuss in the EIS focused sonic booms and use the independent NASA study numbers to assess Impacts. I ask that the USAF discuss in the EIS structural damage to homes, barns, businesses and family possessions. I ask that the USAF not (as in numerous EA/EIS) “blow off” damage impacts by stating (I quote):**

*“The Air Force has established procedures for damage claims that begin by contacting the Holloman Public Affairs Office.”*

**14b. This “damage Claims” process is not an analysis of environmental impacts. I ask that estimates of damage be made and discussed in the EIS based on historical data (see below).**

I also want to point out that supersonic transition corridors are sometimes used for maneuvers that generate focused booms (see my letter of September 29, 2009, Colonel Jeffrey L. Harrigian, Commander, 49th Fighter Wing, Holloman AFB).

Over the past few years the USAF has began quoting 16 psf as the threshold for structural damage. However, numerous past USAF studies show that damage begins to occur at 10 psf. The change from 10 psf (with a dozen supporting studies) to 16 psf (with no supporting studies) aids the USAF in minimizing environmental impacts but does not reflect actual impacts (or many past studies). Perhaps the new 16 psf number applies to USAF reinforced concrete bunkers?

As recently as 2011 the USAF recognized 10 psf as the structural damage threshold for sonic booms. I quote the USAF, Holloman AFB Environmental Assessment (of 2011) titled: *“Recapitalization of the 49th WG Combat Capabilities and Capacities”*, page C-19, Table C 6. (emphasis added):

*“Possible Damage to Structures from Sonic Booms”. Note 10 PSF is USAF accepted level.”*

**14c. I ask that the USAF discuss the correct sonic boom over pressure for damage to likely civilian structures (not USAF reinforced government buildings) under the SUA.**

**14d. I ask that Air Force assertions be backed up by citing available references.**

**14e. I ask that the USAF discuss their changing story on overpressure damage thresholds and cite references.**

**14f. I ask that the USAF discuss past studies and the 2011 Holloman EA all of which indicate 10 psf as the correct beginning pressure for structural damage..**

In past EIS the USAF has claimed that focused booms only impact a limited area. However, this simplistic statement fails to take into account the thousands of training flights proposed over, say a ten year period. The result of all the flights and focused booms over time will be that all areas beneath the

MOA and likely the transition corridors, will be subjected to focused boom overpressure. Some areas many, many times.

**15a. I ask that the USAF discuss focused boom distribution over time. I ask that damage impacts to structures and historic sites be discussed in this regard.**

**15b. I ask that data and analysis numbers be provided to stakeholders.**

**COMMENT:** In my view, in order to determine sonic boom exposure level one must know several parameters and then conduct an appropriate survey. First, one must know the distribution of the population in the operations area. Second, one would need a saturation map showing the density of booms as a function of surface area as an operations area would not be uniformly utilized.

**15c. I ask that the USAF provide this data and discuss sonic boom exposure in light of this data.**

**COMMENT:** In past NEPA EIS the USAF has asserted that sonic booms generally do not produce structural damage. For example, the EIS titled, “*Final Environmental Impact Statement (EIS) for the Initial F-22 Operational Wing Beddown*” states, I quote:

*“Although scientific evidence indicates that sonic booms generally do not produce forces of the magnitude necessary to cause structural damage, claims alleging such damage are thoroughly investigated by the Air Force on a case-by-case basis.”*

At the best this statement is misleading at worst it is disingenuous. Sonic Booms have been used by the USAF, and recently by the Israeli Air Force as a weapon. I assume this means that the USAF knows sonic booms are bad for those that experience them. Here is a partial fun list of documented cases with severe damage from sonic boom over pressure, there are many, many more:

**USAF. fighter pilot demonstrated his Lockheed F-104 Starfighter** to Canadian officials at Ottawa's Uplands Airport. It was a trial run. Next day the pilot was to put on a show at the dedication of the airport's new terminal building, a great, shiny green-glass cavern with an aluminum and stainless-steel structure. Answering an official's request to see him buzz the field, the pilot swung the Starfighter out in an arc, then leveled and came in low and flat. Like a bullet, he was gone. And—boom—so was the new terminal. Only splinters were left of more than \$10,000 worth of glass; the whole north wall was smashed; tiles fell from the ceiling, and insulating material poured to the floor. Door frames, window frames, and even structural beams were twisted. Damage: \$500,000.

**On August 6th, 1969, Captain Vince Donile broke the sound barrier over downtown Kelowna**, British Columbia, and blew out nearly every window for about 8 blocks - or as BlueAngels.com diplomatically puts it - the majority of the windows in the area parted company with their frames. (funny unless it was your window)

**An initial exercise, Operation Bongo, took place around Oklahoma City during 1964.** It was a joint FAA-Air Force experiment that sought to determine whether people could learn to accept

sonic booms as just another type of noise, akin to that of railroad trains or trucks on a highway. For six months the Air Force sent supersonic F-104 fighters over the city, day after day and at specified times. Observers found reason to believe that there might indeed not be much of a problem, for a number of people put the booms to their advantage. In several respects, these tests were biased toward minimizing citizen complaints. Oklahoma City was strongly aviation-minded, with a major FAA center and an Air Force base. The booms came by day, never at night, and people knew when to expect them. They also knew that the test would run for only a few months. The booms themselves were weaker than those of an SST and carried less energy, though they did increase in strength over the months. Nevertheless, the results were enough to give pause, as some 4,900 people filed claims for damages. Though most involved little more than cracked plaster, one man did receive a payment of \$10,000. Two high-rise office towers sustained a total of 147 cracked windows. During the first three months of the [310] tests, polls indicated that 90 percent of the people felt they could live with the booms. After six months, this number was down to 73 percent. This meant that some one-fourth of these citizens believed they could not live with them and would regard them as unacceptable. This was bad news at the FAA in Washington. The news soon grew worse, as a second series of tests, at Edwards Air Force Base, introduced the use of larger supersonic aircraft. These included the XB-70, the only plane in the world with the size and speed of an SST. The workhorse of the new studies, the B-58 bomber, was only slightly smaller. Already it had shown its uses in sonic-boom tests, flying from Los Angeles to New York in two hours. Unfortunately, it had shattered windows as well as speed records, showering offices and living rooms alike with broken glass. Police switchboards from coast to coast had lit up with calls as frightened people reported they had heard a terrible explosion.

**During 1964 the FAA had the Air Force wallop Oklahoma City with eight sonic booms** every flyable day for six months, using the area's 700,000-odd inhabitants as unwitting and unwilling subjects in an experiment to determine society's threshold of auditory pain. Dismayed by the negativity of the Oklahomans and curious about how much of the claimed damage was boom-caused, the **FAA built a small mock village on the White Sands Missile Range in New Mexico** and bombarded it in January 1965 with F-104 thunderclaps producing as much as 10 pounds of overpressure per square foot—far more than the Oklahoma test's levels. Nothing broke, so the **FAA proudly called in the press and did the demo for the TV cameras. Asked to make one more pass (“and get it real low so we can get a good shot...”)**, the **Starfighter pilot got carried away: his 39-pounds-per-square-foot blast turned the town into what could have passed as the set for a spaghetti-Western barfight, with broken glass everywhere.** ---  
Reported by Stephan Wilkinson

**The Sound of Security; In 1965 the Air Force made a series of supersonic mock attacks on Chicago** with B-58 Hustlers. Among other damages, the entire plaster ceiling of a large conference room in an Evanston church collapsed during one run, and during another **a 14-year-old boy took an 11-stitch cut from an exploding pane of glass in his high school classroom.** Though sonic booms were sometimes referred to in those days as “the sound of freedom,” 2,520 unimpressed Chicagoans filed damage claims and were paid over \$65,000, just over \$1,000 per bombing run. --- Stephan Wilkinson, *Air & Space Magazine*

**Air Force pilots boomed for the fun of it during the '50s.** “We used to hear sonic booms all the time when I was teaching at Texas A&M,” reminisces Howard Wolko, a curator at the National



Air and Space Museum. “Whenever a graduate joined the Air Force and finished training, he’d come back and buzz the campus supersonically. You’d hear it and just think, Oh, yeah, another Aggie got his wings.” That tradition ended when one fighter job centerpunched his own field with a particularly powerful shock wave created by a dive to 8,000 feet. **He broke windows, loosened door frames, and cracked ceilings all over the base**, ending the era of casual sound-barrier breaking, although isolated incidents continued to cause damage and injuries.

**17a. I ask that the USAF discuss sonic booms and structural damage in light of the above facts versus the USAF NEPA EIS statement, I quote: “sonic booms generally do not produce forces of the magnitude necessary to cause structural damage.” Please discuss the lowest altitude (above ground level) and the most focused sonic boom (worst case) in the Holloman Expansion SUA and the number of families, their possessions and their structures potentially affected in the SUA.**

**COMMENT:** The USAF often lists the Air Force Claims Process as the only (see possible other mitigation, called “hotline” below) mitigation measure for damage (such as sonic boom overpressure damage). For example, the Holloman Environmental Assessment titled “Transforming the 49th Fighter Wing’s Combat Capability”, I quote this EA:

***“In case of damage, the Air Force has established procedures for handling damage claims, which begin by contacting the Holloman AFB Public Affairs Office”.***

This is a typical “boiler plate” mitigation list by the USAF in NEPA environmental documents.

My experience with the USAF claims process has not been positive. Others with losses have also had poor experience with the process. In past years reports show 90% of claims have been denied or reduced significantly. I was told by the USAF if I did not approve of the USAF offering I could take it to the Federal Court system. As you know this is not a viable option for disadvantaged and most stakeholders due to Federal Court costs. Apparently the USAF attitude is “my way or the highway”.

The data from the USAF on the claims process shows that actual payments for claims are less than 15% of the total amount claimed. **Or 85% of the claim amounts are not deemed legitimate.** That saves the USAF money but is not a viable mitigation for stakeholder losses. For example, from 1959 to 1970 (only data available to the public), the Air Force paid only \$1.7 million dollars in structural damage claims out of \$30.6 million dollars in total claimed, a paltry 6% (or **94% of the claims were rejected**). Furthermore, the Air Force paid only \$128,000 out in claims against stakeholder claims of \$900,000 for animal damage, or 14% (**86% of the claims were rejected!**). Of claims against damage to chickens, horses, and cattle, only \$21,500 against \$144,000 in claims, or 6.7%.

How can a reject rate of 85 to 90% be considered as an available remedy for public losses? Worse is the impact from unrecoverable losses on the poor and minorities.

**17b. I ask the USAF show that this “claims” process is a viable mitigation for stakeholder's losses from USAF operations. I ask that the USAF cite references for their assertions.**

**17c. I ask that the USAF show that this claims process works and is effective for all, including disadvantaged and minorities. I ask that the USAF cite references and provide data for their**

assertions.

**18a. I ask that claim data for the past ten years be presented to show how effective the process is. This data would include number of claims submitted, number of claims allowed, amount asked and amount actually paid (all personal identifying information should be redacted).**

**18b. I also ask that this data be furnished for other Air Combat Command bases as stakeholders need to see what the USAF ACC claim patterns are and whether they are effective as mitigation or if another alternative is needed.**

**18c. I ask the USAF to discuss the actual claims process and its results historically and not just a statement, without basis, as in the quote above. I ask that the USAF cite references for their assertions.**

**COMMENT:** In USAF NEPA documents a possible mitigation action is claimed by Holloman AFB. I quote the USAF “*Draft Environmental Assessment for Holloman Air Force Base F-16 Use in White Sands Missile Range R-5111 C/D Airspace .1-4*”:

*“Furthermore, Holloman AFB would continue to maintain a hotline to identify noise-related issues and track trends associated with military aircraft operations.”*

It is not clear how this hotline will be used. In the DoD “*Southern New Mexico-El Paso Joint Land Use Study*” (2013) complaint hotlines were proposed. Land owners who complained were singled out for special, more stringent, land use controls.

**18d. I ask the USAF to discuss the “hotline” process.**

**18e. I ask the USAF to discuss the use of a “hotline” by the public including negative impacts or retaliation on private citizens from using the hotline (see above for JLUS plan for complaints).**

**18f. I ask that the USAF discuss in the EIS how “hotline” complains will affect USAF operations.**

**18g. I ask that the USAF discuss in the EIS the historical performance of the “hotline” including number of complaints and the resulting actions by the USAF.**

## **COMMENTS ON ENVIRONMENTAL IMPACTS**

**COMMENT:** The Holloman Expansion, Alternative #1 proposes a 72% increase in the Talon MOA. This is 1,375 square nautical miles or almost 1,600 regular people square miles. This is a significant amount of airspace and a significant amount of land area that is environmentally impacted by this Project. Further, this land is partially over the BLM managed Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa. Both of these areas are under consideration for BLM Backcountry designation. The USAF plans (in Alternative #1) to fly thousands of jet flights at 500' at 500 mph with aircraft generating 114 dBA down on people on the ground. The USAF also plans

thousands of supersonic flights over these areas, flights that will have focused sonic booms and sonic over pressures up to 23 psf. These are major impacts.

**19a. I ask that the cumulative airspace “taken” or dominated (by agreements with the FAA) by USAF operations at Holloman be quantified over time and volume data presented.**

**19b. I ask that the airspace changes (expansion) over the past fifty years be discussed (cubic miles of airspace shown over time would be a good metric).**

**19c. I ask that cumulative impacts on the environment, especially the economic impacts, be discussed in light of the data provided in my NEPA Scoping comment 19a and 19b above.**

Airspace controlled or dominated by Holloman is airspace denied private stakeholders. Air commerce is a key element in any local economy. It is a corner stone to attracting businesses. The impacts from airspace removed, or effectively removed, from public use should be discussed and the DoD airspace expansion shown over time. Airspace is a key economic factor for stakeholders. **Cumulative impacts are important.**

**COMMENT:** Several Federal Agencies have actions currently (2017) underway and completed recently that impact the Holloman Expansion area.

**19d. I ask that these Federal Actions be listed and the cumulative impacts be discussed in the EIS.**

A few of the Federal Agencies that have projects over past years that impact the environment include (but not limited to): US Army (including Army Aviation), USAF (non-Holloman), USFS, BLM, USFWS.

**COMMENT:** Currently, the Army has at least two airspace expansions planned (in the NEPA stage) for the greater Holloman area.

**19e. I ask that the USAF talk to the US Army, and that all current or planned DoD actions in the greater Holloman area be coordinated and cumulative volumes and impacts discussed in this EIS.**

**19f. I ask that impacts from these DoD projects be discussed and that data and analysis be provided to stakeholders. I ask that each airspace expansion be discussed as well as the overall takings.**

**COMMENT:** The Holloman Expansion, Alternative #1 proposes a 72% increase in the Talon MOA. This is 1,375 square nautical miles or almost 1,600 regular people square miles. This is a significant amount of airspace and a significant amount of land area that is environmentally impacted by this Project. Further, this land is partially over the BLM managed Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa. Both of these areas are under consideration for BLM Backcountry designation. The USAF plans (in Alternative #1) to fly thousand of jet flights at 500' at 500 mph with aircraft generating 114 dBA down on people on the ground. The USAF also plans thousands of supersonic flights over these areas, flights that will have focused sonic booms and over pressures up to 23 psf. These are major impacts. Taxpayers deserve excellence from USAF managers.

Facilities should be managed efficiently. Inefficient operations should not be encouraged by overlooking/rewarding sloppy management.

An investment of just a few million dollars in civilian facilities can justify 24/7 staffing and use, plus an extensive, ongoing, use (efficiency) analysis. The value of the Holloman/Fort Bliss / WSMR complex is not just millions of dollars but billions of dollars. The Holloman Expansion proposal must address efficient management of area DoD resources (Holloman, Fort Bliss and WSMR) and how efficient coordinated use might mitigate the need for the continuing expansions of operations outside existing DoD holdings. For example, when I questioned the Holloman AFB Base Commander a couple of years ago about the fact that WSMR (and Holloman AFB) had minimal utilization on Friday – Saturday – Sunday – Monday (for example) the Holloman Base Commander acknowledged these facts but refused to utilize these idle DoD resources (see quote below). He preferred to expand operating areas and not fully utilize DoD existing airspace.

**20a. A discussion and analysis is needed of resource utilization (including airspace) and possibly another Alternative offered based on the analysis results. I ask for this analysis.**

The USAF/DoD controls nearly half of the airspace in New Mexico.

**20b. I ask that this airspace be listed in the EIS along with the volume, square miles and utilization percentages.**

Stakeholders will then be able to assist the USAF with NEPA suggestions, including possible improved NEPA alternatives.

**COMMENT:** Federal Agencies manage 41% of New Mexico land. They control, or limit private access to, an estimated 49% New Mexico airspace. This has a significant impact on the economy.

FAA ORDER JO 7400.2L states in part, I quote:

*“21-1-6. MINIMUM NUMBERS AND VOLUME The dimensions and times of use of SUA must be the minimum required for containing the proposed activities, including safety zones required by military authority. When it is determined that a specified SUA area is no longer required, the using agency, or the appropriate military authority, must inform the service area office that action may be initiated to return the airspace to the NAS.”*

And, I quote from the USAF Federal Register notification for the Holloman Expansion:

*“The U.S. Air Force is issuing this notice of intent (NOI) (40 CFR 1508.22) to advise the public of its intent to prepare an Environmental Impact Statement (EIS) to assess the potential environmental consequences associated with modifying existing or creating new special use airspace (SUA), and relinquishing to the National Airspace System (NAS) SUA incompatible for today’s Air Force mission. ”*

**20c. I ask that the USAF discuss the history of airspace it has “released to the NAS” in the Holloman area. I again ask for utilization numbers for USAF/DoD SUA.**

**COMMENT:** FAA ORDER JO 7400.2L states in part, I quote (emphasis added):

*“21-7-2. REPORTING REQUIREMENTS*

*a. Using agencies are required to submit annual reports to the FAA detailing the use of all assigned restricted areas and/or MOAs. Actual utilization data are required. See FIG 21-7-1 for report format. Instructions for preparing the report are contained in FIG 21-7-2.”*

And

*21-7-5. REVIEW REQUIREMENT a. The service area office must perform a **thorough review of all annual utilization reports for restricted areas and MOAs within its jurisdiction.***

*At a minimum, the following utilization report items should be analyzed:*

- 1. Activities. Are the reported activities appropriate for the airspace type and designated purpose?*
- 2. Altitudes. Do the reported activities and altitudes reflect a requirement for the altitudes published in the area’s legal description?*
- 3. Utilization Data. **Consider whether actual use supports the published parameters,** or if discussions should be held with the user to determine if an airspace amendment action is appropriate. Calculate the following percentages for reference in comparing the published parameters of the area with its reported actual utilization. **(a) Hours actually utilized as a percentage of hours activated. (b) Hours scheduled as a percentage of hours published in the area’s legal description. (c) Hours activated as a percentage of hours scheduled. (d) Days actually utilized as a percentage of days activated.***
- 4. Joint Use Information. Is the airspace being made available for joint use (if applicable)?*
- 5. Remarks. Consider any mitigating factors that explain or clarify reported data. Are any other issues identified that require further action? **b. If additional information is needed to complete the utilization report review, request the user to submit a supplementary report as described in paragraph 21-7-3. c. As required, initiate discussions to resolve issues or forward recommendations for corrective action, to the regional military representative or responsible official for nonmilitary SUA. d. Refer to Section 8 of this chapter for additional information regarding SUA review procedures and utilization standards.***

**21a. I ask that the USAF discuss DoD existing Special Use Airspace (SUA) in the Holloman AFB extended area in light of the above FAA requirements and the proposed expansion. This discussion should include utilization data (see above) for each day of the week and each hour of the day (see comment below for the USAF approved format and USAF approval document)..** This will aid stakeholders and will assist them in impact analysis and comments.

**COMMENT:** Holloman AFB allows low altitude supersonic flight (below 14,000’AGL over Orogrande/Hwy 54 and 20,000’ AGL (BEAK & COWBOY MOA). This low altitude supersonic flight is conducted over private property. Private property and civilian families are over flow rather than have the USAF work on Friday, Saturday, Sunday and to some extent on Monday. During these long weekends the DoD/USAF/WSMR Operations Group commander schedules less work. This long weekend planning also promotes low utilization of the multi-billion dollar investment at Holloman and at White Sands Missile Range. Why are private holdings used for low level supersonic flight when

uninhabited government property sits idle and is available? A New Mexico resident asked the Air Force that question:

In a community meeting, Mrs. Margo Wilson from Elephant Butte, NM asked the Air Force about the limited use of the ranges on weekends. Mrs. Wilson did not understand the need to fly over private property when time was wasted by poor Air Force management on weekends. The USAF answered Mrs. Wilson (I quote):

***“. . . In addition, a change to a routine weekend-training regimen would, in peacetime, result in unwarranted hardship on the family life of U.S. Air Force aircrew and support personnel. . . .“***

Apparently imposing sonic booms and noise on civilians is okay in order that airmen will not have to work weekends (Friday, Saturday, Sunday, Monday - “Train like we Fight” must mean no weekend was allowed). Looking at Holloman airspace use in 2012, I find that weekends and Fridays are not used. Scheduling for the huge WSMR complex is similar (Army has the same reluctance to work weekends). An estimate based on publicly released Holloman schedules for Holloman airspace use is:

Sunday	- 0.0 % used
Saturday	- 1.6 % used
Friday	- 10.3 % used
Monday	- 18.6 % used
Wednesday	- 21.2 % used
Tuesday	- 23.9 % used
Thursday	- 24.4 % used

Given the availability of uninhabited DoD owned land and given its poor current utilization the USAF is, in fact, shifting what it calls “*the unwarranted hardship on the family life*” onto the backs of civilian families living under the pollution, booms and intense noise. (*The Federal holdings in New Mexico are immense, Perhaps 40% of New Mexico is federally owned. WSMR alone is 2.7% of all of New Mexico and is 3,200 square miles.*)

**22a. I ask the USAF to discuss the quote above (response to Mrs. Wilson) in light of the Holloman Expansion.**

**22b. I ask the USAF to discuss this shifting of burden to private citizens and their families, including the size and percent utilization of DoD holdings in the greater Holloman area.**

**22c. I ask the USAF to discuss full use of WSMR/Holloman/Fort Bliss, including 24/7 full utilization of these facilities by DoD. This would include full staffing and working on Fridays, Saturdays, Sundays and Mondays and flying over uninhabited WSMR/Holloman/Fort Bliss DoD “owned” land 24/7.**

**22d. I ask the USAF/WSMR/Fort Bliss/DoD to discuss their planned work schedules (generally) and the planned weekend scheduling for the Holloman Expansion.**

Such valuable facilities should be utilized 24/7. Stakeholders need to understand the USAF/Army/DoD

ground rules for operations as this greatly impacts alternative definition and alternative selection. For example, if the USAF/DoD plan to limit training activity on Friday-Saturday-Sunday-Monday this greatly impacts sonic boom / jet noise numbers on Tuesdays, Wednesdays and Thursdays.

**23a. COMMENT: I ask that the USAF release historical flight data on airspace utilization of Holloman SUA (see above).**

This data release is per USAF Guidance Memorandum to AFI 13-201, 1 December 2006 (updated March 2012). I quote that memorandum:

*“5.5. Release of SUA/ASU Utilization Data. Although USAF does not release detailed information to the public, generic data (i.e., we flew XX sorties on XX route, MOA, etc., during the month of \_\_\_\_\_) is an acceptable response to inquiries requesting information on SUA/ASU utilization.”*

Stakeholders need to have this information to evaluate the Alternatives and provide meaningful comments. The USAF allows release of this information (see above).

**COMMENT:** The Holloman Expansion, Alternative #1 proposes a 72% increase in the Talon MOA. This is 1,375 square nautical miles or almost 1,600 regular people square miles. This is a significant amount of airspace and a significant amount of land area that is environmentally impacted by this Project. Further, this land is partially over the BLM managed Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa. Both of these areas are under consideration for BLM Backcountry designation. The USAF plans (in Alternative #1) to fly thousand of jet flights at 500' at 500 mph with aircraft generating +114 dBA on campers, horseback riders, hunters, businesses, etc, using the ground below. The USAF also plans thousands of supersonic flights over these areas, flights that will have focused sonic booms and over pressures up to 23 psf. These are major impacts over a large area.

**23b. I ask that the USAF in discuss in the EIS the reaction time a pilot has to avoid persons (campers, horseback riders, hunters, businesses, etc) using the ground below the SUA while flying at the proposed 500 mph and 500' AGL. Please discuss the distance traveled in on second. Please discuss the likelihood of avoiding overflight of these private citizens who may be hidden in the rough terrain beneath the SUA.**

**23c. I ask the USAF to discuss the impacts on, for example, a horseback rider over flown by an F-16 at 500 mph, 500' AGL, full military power. Include startle reaction by the horse as studied by previous USAF studies and the peak dBA noise levels experienced by the horse and rider.**

**23d. I ask that the USAF discuss in the EIS focused boom distribution (over time) in the project SUA.**

**23e. I ask that damage impacts to structures and historic sites from focused sonic booms (use NASA numbers) and low altitude high speed jet flight be discussed in the EIS. I ask that data and analysis numbers be provided. Include helicopter noise/vibration impacts at 100' AGL unless DoD will state they are not to be used in the SUA as is now planned.**

**24a. I ask that the USAF cite references for their assertions in the EIS.**

**COMMENT:** In order to determine sonic boom exposure level one must know several parameters and then conduct an appropriate survey. First, one must know the distribution of the population in the operations area. Second, one would need a saturation map showing the density of booms as a function of surface area as an operations area would not be uniformly utilized.

**24b. I ask that the USAF, in the EIS, provide this data and discuss sonic boom exposure in light of this distribution of sonic over pressure vs population data.**

**COMMENT:** The Holloman Expansion, Alternative #1 proposes a 72% increase in the Talon MOA. This is 1,375 square nautical miles or almost 1,600 regular people square miles. This is a significant amount of airspace and a significant amount of land area that is environmentally impacted by this Project. Further, this land is partially over the BLM managed Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa. Both of these areas are under consideration for BLM Backcountry designation. The USAF plans (in Alternative #1) to fly thousand of jet flights at 500' at 500 mph with aircraft generating 114 dBA down on people on the ground. The USAF also plans thousands of supersonic flights over these areas, flights that will have focused sonic booms and over pressures up to 23 psf. These are major noise environmental impacts.

**24c. I ask that the USAF provide additional data and analysis that does not use average numbers or annoyance as central metrics. Annoyance is arguably the least significant noise metric, yet the USAF focuses almost exclusively on citizen annoyance measurement based on 40 year old, obsolete methodology.**

Annoyance is insignificant when compared to damaged human health from USAF flight noise. Average numbers are statistical approaches that have serious practical flaws (see below). Numerous studies show significant adverse human health impacts from noise, such as sudden onset noise. For example, the report titled, "Exposure and Effect Indicators of Environmental Noise" by Hartmut Ising, Berliner Zentrum, Public Health, Ernst Reuter Platz 7, 10587 Berlin, Germany found (I quote, emphases added):

*"Noise can cause inner ear damage either by acute overload or by chronic high exposure, which leads to metabolic exhaustion. Examples for the first mechanism is impulsive noise of toy pistols, fire crackers etc. and **military low altitude flight (MLAF) noise**. MLAF noise is a danger for the inner ear if  $L_{max}$  exceeds 115 dB(A) and/or the **level increase exceeds 60 dB/s**. In Germany, the percentage of inner ear pain in 12-17 year olds caused by MLAF noise in area with 150 m and 75 m military flights were 0.7% and 1.1% respectively. **Children with inner ear pain after MLAF noise had significantly elevated hearing thresholds as compared with controls** (Ising et Rebentisch, 1993). **The percentage of convulsions in babies after extreme MLAF noise exposure reported by parents from 75 m areas was found to be 0.17%. Six years later these children were found to have permanent hearing threshold shifts at high frequencies** (Ising et al.1991). For other studies on aural effects of MLAF noise see (Ising et al.1998 and 1999; Joachims et al.1999;). After shifting the minimal altitude for all flights to 300 m in Sept. 1990 none of the above described symptoms were reported and no area differences of hearing thresholds in children were observed (Ising et al. 1998)."*



Notice the changes made by moving the floor of the airspace from 500' AGL to 1,000' AGL. Many studies now tie military flight noise to a multitude of adverse human health impacts. Note that the F-16 has become more noisy as engine modifications have been made. This in turn exacerbates noise impacts. A joint empirical test by the AF & Lockheed, titled, “*Joint Communications Release JSF Program Office & Lockheed Martin Subject: F-35 Acoustics Based on Edwards AFB Acoustics Test*” Date: April 2009, reported that the ***F-16 at at 1,000 ft, and 500 mph generated 114 db*** of noise on the ground. The noise (and human health impacts) will be much higher in the Holloman SUA. The USAF plans to fly much lower than 1,000' AGL over private land with resulting significantly higher noise levels experienced by families, hunters, hikers, horseback riders, etc.. Human health is impacted by noise, including sonic booms and sudden onset noise. A few of the health impacts are, hearing impairment, hypertension, ischemic heart disease, changes in the immune system, birth defects, baby convulsions, tinnitus, vasoconstriction and so on. It is a very long list. Below is a partial list of studies supporting these health risks.

**25a. I ask that the USAF discuss the JSF-Lockheed report cited above, include discussion of the reported 114 dBA noise levels. Discuss the noise level in the SUA at 500' AGL based on the JSF-Lockheed data. If the USAF now claims this data is invalid please explain.**

**25b. I ask that the USAF review this human health literature (below), plus current peer reviewed studies and discuss the human psychological impacts from the Holloman Expansion noise, based on this current research. Include human health impacts from noise/vibration, sudden onset jet noise and sonic booms (see above for more comments) generated by this Project.**

The USAF should not continue to ignore the damage to citizen's health, including children's health and learning (see USAF EA titled: “*Draft Environmental Assessment for Holloman Air Force Base F-16 Use in White Sands Missile Range R-5111 C/D Airspace*” as an example). Offering EA and EIS that show zero impacts (as the USAF has done) is, in my view, defeating NEPA and does neither the USAF nor the public service.

British Medical Journal (BMJ), “Residential exposure to aircraft noise and hospital admissions for cardiovascular diseases: multi-airport retrospective study”, October 8, 2013

British Medical Journal (BMJ), “Aircraft noise and cardiovascular disease near Heathrow airport in London: small area study”, October 8, 2013

British Medical Journal (BMJ), “Airport noise and cardiovascular disease”, October 8, 2013

Journal of Audiological Medicine 6: 123-133 ISING, H., BABISCH, W., JACOBS, A., KRUPPA, W., REBENTISCH, E., VERSÜMER, A., DIEROFF, H.- G., SCHULZE, R. (1998) Auditory effects of military low-altitude flight noise. Journal of Audiological Medicine 7: 87-99.

ISING, H., JOACHIMS, Z., BABISCH, W., REBENTISCH, E. (1999) Effects of military low-altitude flight noise. Part I: temporary threshold shift in humans. Z. Audiol. 38: 118-127.

JOACHIMS, Z., ISING, H., GEHRIG, W., MEYER, P., WENZEL, M. (1999) Effects of military low-altitude flight noise. Part II: animal experiments. Z. Audiol. 38: 128-135.

European Commission Joint Research Centre, Institute for Health and Consumer Protection, FP7-ENV-2008-1, no. 226442, “Final Report ENNAH – European Network on Noise and Health” 2013

Evrard AS, Bouaoun L, Champelovier P, Lambert J, Laumon B. “Does exposure to aircraft noise increase the mortality from cardiovascular disease in the population living in the vicinity of airports? Results of an ecological study in France”. Noise Health 2015;17:328-36

MM Haines, SL Brentnall, SA Stansfeld, E Klineberg, “Qualitative responses of children to environmental noise”, Noise Health 2003

and many, many more.

**COMMENT:** The Holloman Expansion, Alternative #1 proposes a 72% increase in the Talon MOA. This is 1,375 square nautical miles or almost 1,600 regular people square miles. This is a significant amount of airspace and a significant amount of land area that is environmentally impacted by this Project. Further, this land is partially over the BLM managed Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa. Both of these areas are under consideration for BLM Backcountry designation. The USAF plans (in Alternative #1) to fly thousand of jet flights at 500' at 500 mph with aircraft generating 114 dBA down on people on the ground. The USAF also plans thousands of supersonic flights over these areas, flights that will have focused sonic booms and over pressures up to 23 psf. These are major impacts.

From USAF data, peak overpressures for F-16 aircraft that will operate over Otero County (including factoring focused booms using NASA and USAF factors) are as follows:

**Sonic Boom Peak Overpressures at Mach 1.2, Level Flight (structural damage can start at 10 psf)**

AGL (above ground level)	5,000	10,000	20,000	30,000	40,000
Level Flight F-16C	7.6 psf	4.4 psf	2.3 psf	1.5 psf	1.2 psf
NASA Focused (X10)	<b>76 psf</b>	<b>44 psf</b>	<b>23 psf</b>	<b>15 psf</b>	<b>12 psf</b>
USAF Focused (X5)	<b>38 psf</b>	<b>22 psf</b>	<b>11.5 psf</b>	7.5 psf	6 psf

The Holloman Expansion project states, I quote:

***“Each alternative includes aircraft activity down to 500 feet above ground level (AGL), supersonic activity at or above 30,000 feet mean sea level (MSL).”***

The use of MSL in the statement above makes some sense for pilots, but is not clear to most stakeholders on the ground below the aircraft (This also misleads stakeholders about lower altitudes flown in other Holloman SUA over families and private property). In fact, variations in barometric pressure may affect altitude above ground. Besides the altimeter setting, terrain will cause actual AGL to vary. For example, terrain below the Talon MOA supersonic area varies from about 3,500' elevation to about 6,600' elevation. Thus the actual altitude of an F-16 above the ground will not be 30,000' as many stakeholders may believe (and the poor USAF statement leads many to believe). In fact it may be 23,000' AGL (or less depending on barometric pressure). Referring to the above chart, residents living or playing in the Brokeoff Wilderness Study Area below the Talon MOA can expect overpressures of 2

psf up to 23 psf. The upper number is significant.

**27a. I ask that the USAF discuss in the EIS, the MSL vs AGL terminology and explain why MSL can not directly relate to height above the ground.**

**27b. I ask that the USAF give stakeholders unambiguous information about supersonic flight altitudes above ground level (not “MSL”) and discuss this in the EIS.**

This would aid stakeholder comments.

**27c. I ask that the USAF discuss, in the EIS, environmental impacts using both NASA and USAF focused boom overpressure numbers (see below for citations).**

**27d. I ask that overpressure structural damage be discussed in the EIS, including the USAF studies that show 10 psf as the threshold for damage.**

**27e. I ask that the USAF discuss, in the EIS, the US Army data that show damage to historical sites is possible from sonic booms and helicopter operations.**

**COMMENT:** I stated this in “process” comments above, and I want to reiterate, focused booms from USAF training in an MOA impact more than a limited area. With thousands of training flights proposed over, say a ten year period the result of all the focused booms over time will be that all areas beneath the MOA (and likely the transition corridors), will be subjected to focused boom overpressure. In order to accurately determine sonic boom exposure impacts the USAF needs data. First, they must know the distribution of the population below the MOA. Second, they need a saturation map showing the density of booms as a function of surface area as an operations area would not be uniformly utilized.

**27f. I ask that the USAF EIS provide this data (distribution of the population, distribution map for over pressure) and discuss sonic boom (including focused booms) distribution, considering pilot human factors and USAF procedures, over land below the MOA over time.**

**27g. I ask that the EIS discuss damage impacts to structures and historic sites. I ask that data and analysis numbers be provides. I ask that recent US Army studies be considered.**

**COMMENT:** The Holloman Expansion, Alternative #1 proposes a 72% increase in the Talon MOA. This is 1,375 square nautical miles or almost 1,600 regular people square miles. This is a significant amount of airspace and a significant amount of land area that is environmentally impacted by this Project. Further, this land is partially over the BLM managed Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa. Both of these areas are under consideration for BLM Backcountry designation. The USAF plans (in Alternative #1) to fly thousand of jet flights at 500' at 500 mph with aircraft generating 114 dBA down on people on the ground. The USAF also plans thousands of supersonic flights over these areas, flights that will have focused sonic booms and over pressures up to 23 psf. These are major impacts.

Sonic booms and jet noise travel considerable distances, affecting areas outside the SUA ground area.

**28a. I ask that the USAF discuss the area outside the SUA boundaries impacted by this noise. Include the area impacted in square miles (such as the LNF Guadalupe Mountains, Pinon, NM, etc). Please show the impacted area boundaries on a map. Discuss health impacts, structural damage and annoyance in these areas.**

**28b. I ask that human health impacts be discussed with respect to sonic booms and focused sonic booms.**

**COMMENT:** This request is not an “annoyance” or “average” measurement request. Holloman AFB has, in past EA cited a nearly 50 year old test as proof that sonic booms have no health impacts. The **144 PSF** test cited by Holloman was conducted with an F-4C aircraft flying very low. No proper medical evaluation was conducted in this study, nor any medical followup done. Most of the researchers were in fact USAF airmen and were ask questions such as “Are you okay?” or “Can you hear okay?”. In 1968 the airmen would be expected to say “I am fine. Sir” and so the report to this day makes statements not supported by any medical evidence. The report alluded to in the 144 PSF claim, is titled: “SONIC BOOMS RESULTING FROM EXTREMELY LOW-ALTITUDE SUPERSONIC FLIGHT: MEASUREMENTS AND OBSERVATIONS ON HOUSES, LIVESTOCK AND PEOPLE” dated OCTOBER 1968. I’ll just cite one passage, there are many that show how poor this “research” was, on page 19 the report states (emphasis is mine):

*“Although hearing acuity was not physically measured, subjects reported no indication of any observable symptoms of temporary hearing loss or other ear involvement.”*

This is just one quote of many showing the poor “science” of this report. Please read the entire document (32 pages) for a “feel” of it’s accuracy. Why cite such a poor report, except to again minimize the environmental impact from sonic booms? I ask the USAF not to use this test as justification for “no impact” and if it is used that the USAF discuss the lack of science, and lack of medical followup.

**COMMENT:** The Holloman Expansion, Alternative #1 proposes a 72% increase in the Talon MOA. This is 1,375 square nautical miles or almost 1,600 regular people square miles. This is a significant amount of airspace and a significant amount of land area that is environmentally impacted by this Project. Further, this land is partially over the BLM managed Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa. Both of these areas are under consideration for BLM Backcountry designation. The USAF plans (in Alternative #1) to fly thousand of jet flights at 500’ at 500 mph with aircraft generating 114 dBA down on people on the ground. The USAF also plans thousands of supersonic flights over these areas, flights that will have focused sonic booms and over pressures up to 23 psf. These are major impacts.

Sonic Booms can damage structures through seismic waves. The USAF itself has stated that the potential for such structural damage may be “significant”. The USAF report is titled “**SEISMIC RESPONSE OF SONIC BOOM-COUPLED RAYLEIGH WAVES**” it states (emphasis added):

*“Whenever sonic booms strike the ground a certain amount of energy is transferred to the ground which propagates as seismic waves. Under most conditions, the energy transfer is very inefficient, and the seismic wave energy is dissipated over a relatively short distance. **If, however, a supersonic aircraft flew in a manner so that the sonic boom car- pet velocity matched the propagation velocity of seismic surface waves (Rayleigh waves), the magnitude***

*of the seismic waves would be amplified. For special soil (ground) characteristics, the energy transfer into the ground becomes more efficient. The seismic energy can propagate with little dissipation, allowing the magnitude of the ground vibrations to build up to damaging levels. If the vibration characteristics of the ground match those of a structure, the potential for structural damage may be significant.”*

**29a. I ask that the USAF EIS discuss structural damage from operations in the expanded SUA including those from the above report.**

**29b. I ask that both sonic boom and aircraft noise be included in the EIS for structural impacts. I ask that helicopter vibration and the unique low frequency noise from helicopter operations be included, or a statement that no helicopter operations will be conducted by any DoD agency (Army, USAF, Marines, Navy etc.) in the Holloman Expansion SUA.**

**29c. I ask that the Air Force cite references for their assertions.**

**COMMENT:** The USAF (as well as other armed services) has recognized (see reference below) that random, low altitude high speed, jet noise and sonic booms are effective as terror weapons, especially on civilian populations. The USAF has conducted tests on the use of “focused” sonic booms as a weapon. The IAF (Israeli Air Force) and the USAF have used sonic booms and high speed low buzzing as tools of war in Gaza (2005) and Iraq. **I quote the document, titled, “USAF Special Operations Doctrine Manual version 2-5”** (emphasis added):

*“Harassing actions to limit enemy effectiveness, such as night attacks to interrupt rest, **sonic booms to terrorize**, etc.”*

**I quote the USAF document, titled, “Special Operations AIR FORCE DOCTRINE DOCUMENT 2–5.3”** of 27 August 1999, Titled Psychological Operations (emphasis added):

*“. . . as well as use of unopposed high-speed, low-level ingress or egress flights for noise and shock value”*

It is clear that the USAF considers that sonic booms and jet noise are weapons and that they terrorize those living below.

In addition to the USAF the IAF also considers sonic boom and jet noise as an effective weapon against civilians. In 2005 the IAF conducted PYSOPS over Gaza Strip, I quote ABC News (emphasis added):

*“It's Israel's latest weapon: Without notice, an Israeli jet fighter flies low over the densely populated Gaza Strip, breaking the sound barrier.*

*The massive sonic boom often breaks windows, shakes entire apartment buildings and terrifies the people of Gaza.”*

AND

*“The almost **nightly sonic booms** are the Israeli air force's attempt to turn the Palestinian*

*population against the militants in Gaza and help stop the attacks.*

*Targeting innocent civilians violates the Geneva Conventions. Both Israeli and Palestinian human rights groups have asked the Israeli High Court to stop the air force from this practice.”*

**COMMENT:** Families, children, visitors, businesses living and working below the planned Holloman Expansion SUA are subjected to a weapon of war as outlined by USAF Special Operations documents. The USAF has used the term “*to terrorize*” to describe this weapon (see above USAF quotes). **This is the USAF language** not mine.

It is not clear to me if terrorism is defined by intent but it is clear that the Holloman Expansion has the same characteristics as the USAF manual (see above), the 2005 attack by the Israeli Air Force and actions by the USAF in Iraq. These USAF weapons are planned for use, not over Taliban in Afghanistan or ISIS in Syria but over New Mexico families, day after day, year after year. The planned USAF activities include random day/night sonic booms, random day/night jet noise, random day/night low altitude jet flight with high noise levels.

This noise is made without warning to the families below. Local families, churches, schools and communities beneath or adjacent to the Holloman Expansion SUA can not turn to the Geneva Conventions for help.

**30a. I ask that the USAF discuss what the differences are between the Holloman Expansion operations and physiological warfare weapons as outlined in the early USAF documents, titled, “USAF Special Operations Doctrine Manual version 2-5” as far as the impacts to civilians below SUA.**

The USAF has shown it believes this kind of action (Holloman Expansion) to be an effective weapon of war (see above).

**30b. I ask the USAF to discuss how the proposed operations differ from physiological warfare or from terrorism.**

**30c. I ask the USAF EIS to cite publicly available references for their assertions, not generalized statements.**

**30d. COMMENT: I ask that the USAF discuss in the EIS drone (UAV) activity in the proposed expanded SUA (MOA, ATCAA, MTR, etc, etc).**

**COMMENT:** The Holloman Expansion, Alternative #1 proposes a 72% increase in the Talon MOA. This is 1,375 square nautical miles or almost 1,600 regular people square miles. This is a significant amount of airspace and a significant amount of land area that is environmentally impacted by this Project. Further, this land is partially over the BLM managed Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa. **Both of these areas are under consideration for BLM “Backcountry” designation and are environmentally sensitive and used by the public.** There are

also home and families under the expanded airspace.

The Government Accounting Office offered a report concerning environmental impact of aluminum chaff in their report titled: “*DOD Management Issues Related to Chaff*” NSIAD-98-219, September 22, 1998. I quote that report:

*“In written comments on a draft of this report, DOD concurred with our findings and recommendations.”*

And, the report continues (I quote):

*“For example, the Army’s January 1992 report cites data gaps and recommends that the long-term risk and chronic exposure of inhaled fibers be evaluated. Specifically, it recommends*

- future research on the resuspension rates of uncoated and coated fibers;*
- studies to establish the weathering rates and chemical fate of metal coatings in soils, fresh water, and marine waters;*
- a comprehensive review of threshold metal toxicity values for humans, animals, and important fresh water and marine organisms;*
- a series of experiments to evaluate the potential impacts of fibers;*
- an examination of the respirability of fibrous particles in avian species;*
- aquatic and marine studies to establish the potential impacts of fibers; and*
- future research on the pathology of inhaled fiber”*

This recommendations are 25 years old yet the USAF has failed to complete them. The USAF must address the impacts on animal and human health. Tons of chaff will be dumped over private land. Dispersed or not, the fact remains that tons are dumped over someone's property. That property is not owned by USAF or DoD. It is not legal to release the chaff RR-188 into public airspace because of risk.

**31a. Considering the tons of chaff the Air Force plans to dump over private property and public lands, I ask the USAF EIS to discuss human health dangers and list the total tons expected to be dumped (not average per acre) for the estimated Holloman Expansion project lifetime. I ask that the total expected volume (cubic feet) of debris be discussed in the EIS.**

**31b. I ask the USAF EIS to cite publicly available references and provide data for their assertions, not generalized statements.**

**31c. Considering the tons of chaff the Air Force plans to dump over private property and public lands, I ask the USAF EIS discuss chaff waste after aging (sun light and rain). Intact chaff fibers do not pose an inhalation risk to humans; however, degradation of the fiber might result in reduction to a size amenable to respiration. I ask the USAF to cite references for its assertions.**

**31d. Considering the tons of chaff the Air Force plans to dump over private property and public lands, I ask the USAF EIS to discuss resuspension rates of uncoated and coated fibers as they affect livestock, wildlife and human health. Again, Intact chaff fibers do not pose an inhalation risk to humans; however, degradation of the fiber might result in reduction to a size amenable to respiration I ask the USAF to cite references for its assertions.**

**32a. Considering the tons of chaff the Air Force plans to dump over private property and public lands, I ask the USAF EIS to discuss *weathering rates and chemical fate of metal coatings in soils* and fresh water and how these impact endangered species, livestock, wildlife and human health.**

**32b. Considering the tons of chaff the Air Force plans to dump over private property and public lands, I ask the USAF EIS to discuss pathology of inhaled fiber from chaff including aged chaff (again, Intact chaff fibers may not pose an inhalation risk to humans; however, degradation of the fiber might well result in reduction to a size amenable to respiration). I ask the USAF to discuss wind-driven sand abrasion that may reduce chaff to respirable sizes. I ask the USAF to cite references for its assertions.**

**32c. Considering the tons of chaff the Air Force plans to dump over private property and public lands, I ask the USAF discuss chaff waste after aging (sun light and rain). I ask the USAF to cite publicly available references for its assertions.**

The Government Accounting Office offered a report concerning environmental impact of aluminum chaff in their report titled: “*DOD Management Issues Related to Chaff*” NSIAD-98-219, September 22, 1998. In 1997, the GAO confirms, the Air Force dropped “1.8 million bundles worldwide, Navy and Marine Corps aircraft used more than 354,000 bundles and 593 rolls, and Navy combat ships used about 10,000 large bundles” of aluminum chaff, not just in the United States, but around the world. ***Furthermore, the GAO concluded that the Department of Defense had been negligent, failing to follow up on promises to investigate the environmental and health effects of aluminum chaff.*** The GAO report states, I quote (emphases added):

*“ . . . DOD and other agencies have identified some unintended and potential side effects of chaff. Chaff can **affect safety by interfering with air traffic control radar**. Chaff can also **affect weather radar** observations and the operation of friendly radar systems, especially when vehicles stir up chaff that has settled on the ground. It has been reported that chaff has also caused **power outages and damaged electrical equipment**. Potential effects cited by Defense and other organizations include those on **health and the environment**. For example, the Air Force reported that chaff has a potential but remote chance of collecting in reservoirs and **causing chemical changes that may affect water** and the species that use it.”*

**32d. I ask that the USAF EIS discuss the impacts on air traffic control radar.**

**32e. I ask the USAF EIS discuss the potential to disrupt civilian infrastructure communications, networks, satellite etc. by chaff deployment. Many rural families and businesses rely on satellite services.**

**COMMENT:** The GAO report states, I quote:

*“Radar observations show that chaff can spread over several hundreds of miles and stay in the air for up to a day.”*

AND the report further states (emphasis added):



*“According to NOAA officials and scientists, chaff can be easily identified under clear skies, but it can give false readings under other weather conditions and can thus **impair the ability to make accurate forecasts**. Chaff may be interpreted as precipitation and in some cases **could result in inaccurate warnings of severe weather**. Chaff could therefore interfere with missions that rely on accurate weather forecasts. **One NOAA technical report describes chaff’s interference with normal weather observation data in at least two space-shuttle launch attempts.**”*

**33a. I ask that the USAF EIS discuss impacts on weather observations and the resulting impacts to private citizens, agricultural businesses and civil aviation. Please cite references for USAF assertions.**

COMMENT: The GAO report states, I quote:

*“Chaff can disrupt electrical power and directly affect electrical equipment.”*

AND the report further states (emphasis added):

*“San Diego Gas and Electric Company and Navy officials have identified two instances in which chaff caused power outages in 1985. In the first case, chaff accidentally blown over San Diego, California, during a **Navy exercise 75 to 200 miles from the coast** affected power to 65,000 customers and **disrupted air traffic control**. The Navy reimbursed the power company between \$50,000 and \$60,000 for damage. The second incident occurred 5 days later, again in San Diego, when a Navy jet inadvertently showered power lines with chaff on takeoff, causing interruptions in power service.”*

**33b. I ask that the USAF EIS discuss impacts on the power grid at distances listed in the above report (75 to 200 miles) away.**

COMMENT: The GAO report states, I quote:

*“Many military installations have local procedures to restrict the use of chaff near environmentally sensitive areas or population centers.”*

The Holloman Expansion, Alternative #1 proposes a 72% increase in the Talon MOA. This is 1,375 square nautical miles or almost 1,600 regular people square miles. This is a significant amount of airspace and a significant amount of land area that is environmentally impacted by this Project. **Further, this land is partially over the BLM managed Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa.** Both of these areas are under consideration for BLM “Backcountry” designation. Federal Regulations forbid noise impacts, 43 CFR 8365.1-4 - Public health, safety and comfort states, I quote:

- (a) No person shall cause a public disturbance or create a risk to other persons on public lands by engaging in activities which include, but are not limited to, the following:
  - (1) Making unreasonable noise;

(2) Creating a hazard or nuisance;

USAF guidance on Chaff states, I quote:

*“Use of chaff over or immediately adjacent to highly sensitive areas such as Wilderness Areas, Wild and Scenic Rivers, National Parks and Monuments, and other pristine natural areas may be incompatible with the land use management objectives for those areas,”*

**34a. I ask that USAF EIS discuss what procedures they have or plan to implement that protect the environmentally sensitive *Brokeoff Mountains Wilderness Study Area* and the *Otero Mesa* (in Otero County) from chaff impacts as listed above.**

**COMMENT:** Under current regulations for Bureau of Land Management administered lands, it is prohibited to dispose of trash and garbage, drain sewage or petroleum products, or dump refuse or waste, and dispose of any household, commercial or industrial refuse or waste. Hazardous waste poses a particular public health and safety hazard and may be encountered on BLM lands. Several sections of the Code of Federal Regulations forbid dumping. The State of New Mexico has regulations concerning dumping, litter and hazardous waste disposal. For example, New Mexico Stat 30-8-4, titled “*Littering*” states, I quote (emphasis added):

*“A. Littering consists of discarding refuse:*

*(1) on **public property in any manner other than by placing the refuse in a receptacle** provided for the purpose by the responsible governmental authorities, or otherwise in accordance with lawful direction; or*

*(2) on **private property not owned or lawfully occupied or controlled by the person, except with the consent of the owner, lessee or occupant thereof.**”*

Otero County, New Mexico also has “Dumping” laws. County Ordinance 13-05, Chapter 190 titled, “*Solid Waste 190-7, Prohibited acts. Dumping*” states, I quote:

*“No person shall discard solid waste, rubbish, or refuse anywhere outdoors within the boundaries of the County except at a time and place approved for collection of that person's solid waste under the terms of this chapter and regulations authorized by said sections or other provisions of this Code or ordinances of the County.”*

It is clear to any reasonable person that dumping is a problem. Private land owners do not want dumping on their land. Federal Land Agencies do not want dumping.

What is dumped by USAF flares/chaff? The USAF states in the another EIS that it will be I, quote; “*plastic, nylon, silicone foam, 17 inch graphite fabric*”. I believe that the USAF position on this dumped material is (paraphrasing) (from other USAF EIS) “It's not that bad just ignore the stuff” or “It's only 2 ounces per square furlong so who cares?”. This “analysis” may work for their land holdings or even for the USFS/BLM but most private land owners take pride in keeping trash off their land. **Those with cattle and horses try to keep items such as “*plastic, nylon, silicone foam, 17 inch graphite fabric*” away from their livestock as it can prove fatal to them when ingested. Otero County has regulations against dumping. A citizen dumping 109 tons of plastic on County land**

would be prosecuted. What are the actual numbers for the dumped trash so we can compare alternatives? How long will this material remain in the environment? Why have the numbers not been provided? This dumping is a significant environmental issue.

While the USAF often fails to address hazardous flare debris in their NEPA EIS, they have addressed it internally (and then they failed to report it to us in NEPA documents). A USAF, titled “*TECHNICAL REPORTS ON CHAFF AND FLARES, REPORT NO. 1-, REVIEW OF AVAILABLE DATA*”, U.S. Air Force, Headquarters Air Combat Command, Langley Air Force Base states I quote (emphasis added);

*“Other concerns include risks of injury from dud flares, which can be severe but have a low probability of occurrence. There is also some concern that dud flares qualify as a hazardous waste. Initiator cartridges used with some flares still contain chromium and, in some cases lead, which are hazardous air pollutants under the Clean Air Act. Potential impacts on biological resources are primarily related to fire, but there is some concern that burning flares might impair the vision of some animals. Although litter from flare debris is less than with chaff use, it may be a concern in certain pristine areas.” ---*

**35a. I ask that the USAF EIS discuss the legality, based on Federal, State and County laws, of dumping Air Force waste on private property.**

**35b. I ask that the USAF EIS discuss if the USAF is above the littering/dumping laws.**

**35c. I ask that the USAF provide the total weight of dumped litter / waste expected from the Holloman Expansion over the project lifetime.**

**35d. I ask that the USAF EIS discuss the legality, based on Federal, State and County laws, of dumping waste on public lands.**

**35e. I ask the USAF to discuss the difference, based on Federal, State and County laws, of a criminal discarding a cigarette or beer can onto private land vs the USAF dumping flare and chaff debris on that same land.**

**35f. I ask that the USAF EIS discuss the length of time chaff and flare debris will remain in the environment on family yards, businesses, cattle ranches, etc.**

**35g. I ask that the USAF EIS discuss what levels of dud flares/hazardous materials/chromium/lead and unexploded ordinance on private land or in a family's yard is considered “No Impact” by the USAF. I ask the USAF to cite references for their assertions.**

The weather service is affected by chaff, I quote(emphasis added):

*“NOAA officials suggested additional recommendations to address chaff’s effects on the weather, including improving NWS and DOD liaison and interaction, having DOD alert NWS of planned unusual chaff use, and having DOD limiting chaff use when significant weather is reported over or near the ranges.”*

**36a. I ask that the USAF EIS discuss the procedures they have or plan to implement that protect NWS and the public during severe weather, even when this weather is hundreds of miles away.**

**COMMENT:** Business may be negatively affected by dumping of chaff. Chaff is made of aluminum-coated thin fibers and is released by the military to create widespread radio wave echoes and, thus, confuse receivers. To maximize backscattering cross section, chaff length is chosen to equal one-half radar wavelength. While not designed to destroy or interfere with rural satellite service it has the potential to reduce or interfere with satellite network speeds, interfere with satellite telephone and television used by rural business / citizens. Many rural residents and emergency services must use satellite communications (especially network connections) as there is no other infrastructure available. Interfering with these communications will cause residents considerable loss. An analysis of signal degradation for the various frequency satellite up links / down links, including an estimate of speed reduction / signal degradation must be furnished.

**36b. I ask that the USAF EIS discuss environmental impacts to satellite networks and other communications infrastructure, include impacts to emergency services and sat phones.**

**36c. I ask that the USAF EIS discuss economic losses to businesses from chaff interference with infrastructure and weather forecasts.**

**COMMENT:** The Holloman Expansion, Alternative #1 proposes a 72% increase in the Talon MOA. This is 1,375 square nautical miles or almost 1,600 regular people square miles. **This is a significant amount of airspace and a significant amount of land area that is environmentally impacted by this Project.** Further, this land is partially over the BLM managed **Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa.** Both of these areas are under consideration for BLM Backcountry designation.

**36d. I ask that the USAF EIS discuss fire risks and use of flares during Red Flag weather conditions (NWS).**

**36e. I ask that impacts to livestock from chaff be discussed.**

**36f. I ask that the USAF EIS discuss emergency situations and the planned USAF response. In emergency circumstances, such as firefighting, air ambulance operations, law enforcement activities, or in-flight emergencies in an active MOA, will the military aircraft using the SUA respond to ATC direction to relocate to another airspace unit away from the emergency? Or will the USAF keep operations “business as usual” “mission first”?**

**36g. I ask that the USAF EIS discuss noise-related impact mitigation including establishment of reasonable temporary or seasonal avoidance areas for activities such as ranching operations involving penned animals (see above for USAF recognition of damage to cattle operations).**

**COMMENT:** The USAF Federal Register Notice alludes to the use of both chaff and flares in the Holloman Expansion. The USAF states (in past NEPA documents, I quote:

*“After a flare is deployed, residual materials fall to the ground.”*

Both of these devices will fall to the ground below after deployment. The land below is owned by families and various government land management agencies (not the DoD or USAF).

The USAF, in past NEPA documents claims that flares and chaff have little or no environmental impacts. The documents provide no information on the total weight of the material dumped on the land.

If only a few thousand flares were being planned perhaps the measurement of pounds dumped onto the ground over public lands and private homes would not be important. The USAF Scoping documents fail to provide expected flare use in the expanded airspace. Assuming 26,000 - 132,000 flares each year for perhaps 30 years (based on past Holloman NEPA data) there will be significant impact to the land below the new expanded airspace, both litter and hazardous materials. Flare debris and duds from USAF operations in the expanded airspace will be dumped on land beneath. This represents a lot of *“residual material”* to *“fall to the ground”*.

**37a. I ask that the USAF EIS discuss the number of flares and the tons of *“residual material”* that is likely to be deployed over the expected life of the project (30 years). Include total tons and estimated number of unexploded flares (“duds”).**

**COMMENT:** Since the USAF has not provided us any Scoping data on flare *“residual material”* weight or numbers, I found some information from another military source. The total weight listed for the MJU-7 defensive flares (used by F-16s) is 394 grams with 268 g of explosive. Assuming all the explosive burns, we are left with about 126 g of *“residual material”* dumped on the ground for every flare used (ignoring those explosive “duds”). This estimated weight will be somewhat high, but it gives an estimate (since the USAF has failed to provide one). So for 26,000 flares (lowest amount called for) this would be 0.278 pounds for each flare x 26,000 flares = 7,228 pounds of *“residual material”* dumped on private / public/ military land **each year**. Picture your self pulling up to someone's private property and dumping 3+ tons of material, some of which is dangerous. Note that Congress, USAF, our President, the USPS, etc. use ten years as a suitable period to look over for comparisons, so for a 10 year period the dumped materials would equal 72,280 pounds (for the lowest flare use). For the highest use the number is 366,960 pounds dumped. **This is 183 tons that are planned to be dumped on public land and private homes, families, livestock, children, etc.**

**37b. I ask that the USAF EIS discuss total flare debris volume and weight and the cumulative impacts to the environment, including in the BLM managed environmentally sensitive Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa. Both of these areas are under consideration for BLM “Backcountry” designation and both are environmentally sensitive and both lay under expanded airspace. Both are used by the public. The Holloman Expansion includes homes and families living beneath the expanded airspace.**

**37c. I ask that the USAF EIS discuss the impacts of the actual tons of materials and the explosive duds on these families and children (see below for USAF recognition of dangers to children).**

**37d. I ask the USAF to provide the expected volume and weight for flare debris over the expected life of the project (30 years).**

This will help stakeholders compare alternatives.

**38a. I ask the USAF to discuss how long will this flare material remain in the environment? I ask that the USAF cite references for their assertions.**

**COMMENT:** In my view this level of dumping is a significant environmental issue.

While the USAF failed to address flare debris in the Scoping Notice, they have addressed it internally. A USAF report about flares, titled: “TECHNICAL REPORTS ON CHAFF AND FLARES, REPORT NO. 1-, REVIEW OF AVAILABLE DATA”, U.S. Air Force, Headquarters Air Combat Command, Langley Air Force Base, Virginia states. I quote (emphasis added):

*“Other concerns include risks of **injury from dud flares, which can be severe** but have a low probability of occurrence. There is also some **concern that dud flares qualify as a hazardous waste. Initiator cartridges used with some flares still contain chromium and, in some cases lead,** which are hazardous air pollutants under the Clean Air Act. Potential impacts on biological resources are **primarily related to fire**, but there is some concern that burning flares might impair the vision of some animals. Although litter from flare debris is less than with chaff use, it may be a concern in **certain pristine areas.**” ---*

As mentioned above, the USAF often uses “average numbers” to describe the environmental impact to land below a SUA. The logic goes; The SUA is flown over uniformly and therefore stuff dumped in the air by the USAF aircraft must uniformly cover the ground. This simplistic analysis is quick, easy, and presents the lowest possible level of environment damage. **It is almost certainly incorrect.** Aircraft in training tend to follow relatively fixed corridors. The pilots use the best grid coordinates or the best landmark, or best navigational aides etc. They try to avoid SUA edges (see reference below) since flying out of bounds is not good. In other words human factors make a sham of the “average number” logic for environmental impacts. The USAF knows that this is true (see information below) and they know that the average number data is flawed, yet they often use the flawed data anyway as it puts the best face on the environmental impact. The USAF does nothing to randomize, or force uniform coverage of the land below the SUA with respect to noise, dumped materials or sonic booms. The “likely” flight tracks are readily available to the USAF and it would be easy to show the locations of the areas that are overflow often (and those that are not). From this data we could see the environmental impact from, noise and dumping 100+ tons of trash on the ground in a fixed dumping pattern, and we could evaluate the various Alternatives. It would let us see where the 200,000+ pounds of trash is likely to be dumped and where children's learning will be damaged by noise. The old USAF answer has often been given in “ounces per acre average” or noise averaged over a year over a 1,000 square miles. These are a poor measures and do not reflect the true impacts to the environment and to families. The data for actual airspace use is cheap to acquire (even cell phone and big trucks have GPS tracking these days) and easy to analyze.

**38b. I ask that the USAF EIS discuss the above human factors and to discuss SUA use patterns (routes – see below for citation).**

**38c. I ask that the USAF EIS discuss flare and chaff debris and noise impacts in light of a nonuniform use of the SUA (see below for citation).**

**38d. I ask that the USAF EIS cite publicly available references for USAF assertions.**

**39a. I ask that the USAF EIS consider the USAF data below in their discussion.**

**COMMENT:** SUA is not uniformly used by trainees and therefore ground impacts are not uniform. I quote USAF study (Lucas and Calamia 1994):

*“. . .Near the MOA edges, examination of radar track data has shown that the operations decrease at a linear rate. This means that as pilots come within one to two miles of the edge of an airspace boundary, they turn back into the airspace to avoid accidentally going outside the agreed-to airspace boundaries.” - USAF*

**COMMENT:** The USAF has asserted (For example, page HO-90 of the Holloman F-35 Draft EIS.) that the flare failure rate (based on range clean up, no details given) is 0.01 percent. In other studies the USAF (2001) has discussed flares, presenting very different numbers. For example (from USAF defensive flares). I quote:

*“The estimated one percent malfunction rate for defensive training flares is based on typical malfunctions.”*

and again in another USAF report (I quote):

*“While the possibility of a dud flare cannot be discounted, such failures are rare (less than 1 percent).”*

Other sources suggest that the failure rate is less than 1% and more than zero (The Quality Control in manufacturing flares mandates a reliability of 99 percent (assuming a confidence level of 95 percent)). So while the 0.01 percent failure rate stated in the F-35 Draft EIS falls within the range indicated it portrays a higher reliability than other sources in the USAF. The USAF often chooses to use the data that tends to mitigate impacts (in my opinion). The data that the USAF often uses comes from poor “range cleanup” studies that are not scientific. The number of dud flares quoted by the USAF are often very low and they strain creditability.

Taking a more reasonable number of 0.3 percent failure rate (still a low rate) changes the scope of environmental consequences for flare use. For example assuming a 0.3 percent failure rate, the use of 26,400 flares would result in 80 failures a year, for 132,000 flares there are 396 failures. Using our ten year period the numbers are 800 to 3,960 failed flares. Over the life of the project some 12,000 unexploded flares will be in the environment. These will be accessible to the public, families, children, livestock, wildlife, endangered species and firefighters. These failed flares increase the risk of fire and of *“potential fatal injuries from falling dud flares and dud flares on the ground”*.

**39b. I ask that the USAF EIS discuss the risks from falling dud flares.**

**39c. I ask that the USAF EIS discuss danger to children from dud flares and provide data for total dud flares over the life of the Holloman Expansion (30 years).**

**39d. I ask that the USAF EIS reference the report “TECHNICAL REPORTS ON CHAFF AND**

**FLARES, TECHNICAL REPORT NO. 6, FLARE FIRE RISK ASSESSMENT”, U.S. Air Force, Headquarters Air Combat Command, Langley Air Force Base, Virginia, to assist in their discussion.**

**40a. I ask that the USAF EIS cite publicly available references for their assertions.**

**COMMENT:** Dud flare dangers, whether for 8 or 800 or 12,000 flares, pose a real risk. The USAF has in the past provided the generic advice and description of impacts for duds. For example (paraphrasing) “call someone if your kids find one” kind of advice. The USAF has much better information available, they just often fail to report it to stakeholders or NEPA documents. The USAF report about flares, titled, “*TECHNICAL REPORTS ON CHAFF AND FLARES, TECHNICAL REPORT NO. 6, FLARE FIRE RISK ASSESSMENT*” states. I quote (emphasis added):

*“A dud flare on the ground has a hazard potential and **should only be handled by trained explosive ordnance disposal personnel**. While the component could be ignited, it is improbable that it would spontaneously ignite, or ignite under subtle stimulus such as stepping on it. Normally, the material would only respond to an external heat source of sufficient temperature to cause combustion.”*

and, from same USAF report (I quote):

*“A program of education of the public and, **especially, children** was noted as desirable by the public during scoping. “ -- (“TECHNICAL REPORTS ON CHAFF AND FLARES, TECHNICAL REPORT NO. 6, FLARE FIRE RISK ASSESSMENT”, U.S. Air Force, Headquarters Air Combat Command Langley Air Force Base, Virginia)*

**40b. If flares are explosive devices I ask that this be discussed by the USAF EIS.**

**40c. I ask that the USAF EIS discuss flare debris as hazardous materials. I ask that the USAF cite references for their assertions.**

**40d. I ask that the USAF EIS discuss education for children (with respect to unexploded flares) and the USAF plan to provide this education.**

**40e. I ask that the USAF EIS discuss firefighter safety during wildfires in the areas below the SUA with respect to unexploded flares. Dud Flares may be detonated by wildland fires (see report above).**

**COMMENT:** USAF flares cause fires but the USAF fails to discuss the risk issues. From past USAF NEPA documents, I quote:

*“Flare Use. As described in Chapter 2, Section 2.4.5, and in Section HO 2.2.2, the F-35A would use MJU-61/B defensive flares. These flares are similar to the flare types used by legacy aircraft such as the F-16s. Flares would only be used in airspace units approved for flare use and within authorized altitudes. For Holloman AFB, the standard minimum altitude for flares is 2,000 feet AGL. Flares typically burn out in approximately 500 feet, so altitude restrictions in SUA are established to ensure flare burnout before a flare reaches the ground*



*or water under the training airspace. Holloman AFB does restrict flare use during high or extreme fire danger to minimize the risk of wildland fires.”*

And Page HO-104 of another recent EIS:

*“Risks of starting a fire remain extremely small as long as the minimum altitude for flare deployment remains designated above 2,000 feet AGL and restrictions on flare use in extreme fire conditions continue to be established by a Command or base to reduce fire risks further. Flare use would be restricted to any authorized airspace where flare use is currently permitted. Restricting flare use to authorized airspace and altitudes reduces the potential for wildland fire ignition and spread. Periodic wildland fire is a regular occurrence in arid grassland ecosystems, and the vegetation and wildlife species are well-adapted to periodic fire, having mechanisms to escape and survive fire and to regenerate after fire. It is unlikely that flare use associated with the F-35A training would appreciably increase the incidence of wildland fires given measures in effect to reduce the potential for fire from flare use; therefore, impacts on vegetation and wildlife would be less than significant. Additional details on flares are presented in Chapter 2, Section 2.4.5.”*

Other USAF reports on flares and their use show the above statements are largely false (see below). The USAF persists in providing misleading (or disingenuous) information to stakeholders in NEPA documents concerning flares.

The USAF NEPA documents are often misleading, disingenuous, about fire risks, I quote:

*“For Holloman AFB, the standard minimum altitude for flares is 2,000 feet AGL. Flares typically burn out in approximately 500 feet, so altitude restrictions in SUA are established to ensure flare burnout before a flare reaches the ground or water under the training airspace.”*

This leads a reasonable person to conclude that the 2,000' AGL altitude for flare release is adequate to prevent flare fires on the ground. But is this true? Is altitude the most important factor? USAF NEPA documents imply that it is. Is this factual? Does the USAF have better data that they choose not to share with us?

Yes, the USAF has more complete information available. It has chosen not to use that information in current NEPA analysis. By omission they present an incorrect picture of fire risks from flares and they understate the environmental consequences.

The comprehensive USAF flare study titled: *“TECHNICAL REPORTS ON CHAFF AND FLARES, FLARE FIRE RISK ASSESSMENT, JANUARY 1995, Updated 1998, U.S. Air Force, Headquarters Air Combat Command, Langley Air Force Base, Virginia”* states, I quote (emphasis added):

*“. . . Raising the minimum release altitude, another common operating procedure currently employed, appears to be more **limited in its effectiveness** in reducing fire risk.”*

AND

*“ . . . dispensing of flares are established to reduce the probability of unplanned ignitions. However, there are several reasons that a self-protection flare could reach the ground while burning:*

- The flare could be released at too low an altitude with inadequate surface clearance.*
- The flare could descend unexpectedly rapidly due to vertical shear or wind burst.*
- The flare could burn at an unexpectedly slow rate due to manufacture error.*
- The igniter could malfunction, causing the flare to ignite late in the air or fall to the ground as a dud and ignite later.*
- The flare could land on a dead tree top while still burning.”*

The above USAF report concludes, counter to USAF NEPA documents, that flare use can cause fires in the vegetation below and that the altitude of flare release is limited in effectiveness for fire prevention.

How is it that many Holloman USAF NEPA documents fail to discuss this? In fact the USAF NEPA documents state the opposite. Fires are, in fact, likely below the SUA for the reasons listed above. How can reasoned selection of alternatives be made with poor, incomplete or false information? Fires impact the environment. Much of the land under the Holloman Expansion SUA is private or public land (not DoD). Much of the land is choked with fuels, ripe for wildfire (not just grassland). Data and analysts is needed to understand alternatives.

New Mexico has experienced huge losses due to wildfire over the past decade. The Holloman Expansion area is in arid southern New Mexico. SUA is located over varied fuel, from grass and scrub to forest. These areas have experienced months of extreme drought over the course of the last ten years. There is detailed data available to show this. Restrictions on SUA use from fire conditions will have a significant impact on operations in the Holloman Expansion SUA. For us to compare the various alternatives in the Scoping Notice we need to see the data and the analysis.

**42a. I ask that the USAF EIS discuss the fact that altitude of flare release is limited in effectiveness for fire prevention. I ask the USAF to cite references for their assertions.**

**42b. I ask that the USAF EIS discuss the fact that flares could descend unexpectedly rapidly due to vertical shear or wind burst and start a fire. I ask the USAF to cite references for their assertions.**

**42c. I ask that the USAF EIS discuss the fact that flares could burn at an unexpectedly slow rate due to manufacture error and start a fire. I ask the USAF to cite references for their assertions.**

**42d. I ask that the USAF EIS discuss the fact that the flare igniter could malfunction, causing the flare to ignite late in the air or fall to the ground as a dud and ignite later and start a fire. I ask the USAF to cite references for their assertions.**

**42e. I ask that the USAF EIS discuss the inevitable wildfire environmental damage (air quality, erosion, wildlife, structure loss, etc.) beneath the Holloman Expansion SUA. Consideration should be given to the ten of thousands of flares to be deployed and the known failure rates. I ask the USAF to cite publicly available references for their assertions.**

**42f. The Scoping Notice fails to mention how many days a year are likely to have restricted flare**

**use and how this will affect the training mission (and the listed Alternatives). How will the lost days affect the mission and the training traffic density? Include sonic boom density (not averages). I ask the USAF to discuss these issues.**

**43a. I ask that the USAF EIS discuss how often has Holloman restricted flare use historically? Has it ever restricted flare use?**

**43b. I ask that the USAF EIS discuss who decides when there is “*high or extreme fire danger*”.**

**43c. I ask that the USAF EIS discuss who establishes the criteria for “*extreme fire danger*”.**

**COMMENT:** In NEPA documents the USAF has seemingly taken the attitude that a fire is no big deal, I quote the USAF:

*“Periodic wildland fire is a regular occurrence in arid grassland ecosystems, and the vegetation and wildlife species are well-adapted to periodic fire, having mechanisms to escape and survive fire and to regenerate after fire.” – USAF DEIS*

Fire from flares is caused by many factors not just altitude of release or flare failure rate. For example, from the USAF report, wind shifts that cause a flare to fall rapidly, or undesirable parts of a flare burning, bringing fire to the ground. The fire risk is well understood and real yet the USAF NEPA documents often fail to address fire in any meaningful way.

**43d. I ask that the USAF EIS discuss USAF plans for firefighting. Who fights the fires? Is it the USAF plan to let the County Fire Departments? Please discuss.**

**43e. I ask that the USAF EIS discuss providing support to local fire departments departments.**

**43f. I ask that the USAF EIS discuss what resources will be available for wildfire suppression under the SUAs?**

**43g. I ask that the USAF EIS discuss what time table for response to flare caused wildfire (hours, days, minutes).**

**43h. I ask that the USAF discuss losses to families and the public from flare started fires (who pays and how?).**

**COMMENT:** The USAF in fact, has poor history with flares and fires. The USAF “management controls” proposed in previous NEPA documents have not been completely effective in flare fire prevention. Some recent examples showing the need to plan for fires include (emphasis added):

*Pinelands Fire burned 18,000 acres, **destroying four homes, damaging 53** - “**Pilot error, a lack of communication among key Air Force personnel and dangerous dry weather conditions** all led to the massive fire in May that consumed thousands of acres in the South*

*Jersey Pinelands, an Air Force Accident Investigation Board said today.” “The board confirmed the quickly spreading fire was sparked on May 15 by a flare or flares dropped from F-16 Air Force Fighter jet on a "show of force" training maneuver over the Warren Grove Gunnery Range in Ocean County.”*

[http://blog.nj.com/ledgerupdates/2007/07/report\\_pilot\\_error\\_caused\\_pine.html](http://blog.nj.com/ledgerupdates/2007/07/report_pilot_error_caused_pine.html)

*“WASHINGTON - Pilot error, a lack of communication among key Air Force personnel and dangerous dry weather conditions all led to the massive fire in May that consumed thousands of acres in the South Jersey Pinelands, an Air Force Accident Investigation Board said today. . . .”*

*“LAS VEGAS- Nellis Air Force Base, Nev., officials have begun an investigation of how flares from a B-1B bomber landed near a home in Lincoln County and why the incident wasn't investigated for almost two years.”*

<http://www.airforcetimes.com/legacy/new/1-292925-1651773.php>

<http://www.8newsnow.com/story/5559485/fire-in-las-vegas-sky-caused-by-military-flare>

**44a. I ask that the USAF EIS discuss response to wildfire. How will fires affect resources in the areas under the SUA?**

**44b. I ask that the USAF EIS discuss the hazards to children and families from unexploded flares. Please include the USAF publication concerning recommended action when finding “dud” flares.**

**44c. I ask that the USAF EIS discuss the likely number of dud flares, weight of dud flares, volume of likely dud flares and expected life of explosives in dud flares. Please give total over life of the project. Please do not give an “average pounds per acre” kind of statistic as the distribution of debris is not uniform (see USAF data).**

**COMMENT:** The USAF in past NEPA EIS has failed to consider socioeconomic impacts to areas under the SUA. NEPA requires analysis of significant environmental impacts. The Holloman Expansion impacts thousands of acres of land. Land that has homes and families, children, babies, hunters, hikers, businesses and on and on. The USAF plans to fly at 500 mph, at 500' above the ground at full power in aircraft making 114+ dB of noise. The USAF plans to dump tons of chaff and explosive flares. The USAF further plans to subject these citizens to supersonic flight with sonic booms and focused sonic booms. The plan includes these “attacks” day and night, year after year after year. The areas affected include the environmentally sensitive Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa.

The noise, sudden onset noise, sonic booms, flare debris, chaff, jet pollution all are inflicted day after day, night after night on the area. This USAF action can not be said to have no impact on the economic welfare of these people. The real impacts will NOT be positive. The economy in these SUA areas is partially driven by noise levels equal to or less than 35 dBA (see BLM Backcountry information)

hikers, hunters, GEO cachers, bird watchers, Native Americans etc. Native Americans expect this quiet for their enjoyment of the Otero Mesa. The Brokeoff Wilderness Study Area and the environmentally sensitive Otero Mesa both have had considerable environmental analysis completed, including the importance of preserving the quiet to enhance the enjoyment of the area and attract tourism and nature lovers.

**45a. I ask that the USAF EIS discuss the specific demographics of the area beneath the SUA. These areas are not well represented by the coarse data normally used by the USAF. The areas are rural, not urban or suburban and have a high proportion of elderly and disadvantaged.**

**45b. I ask that the USAF EIS discuss socioeconomic impacts to those living under the SUA. I ask that the USAF in this discussion cite current data specific to the areas beneath the SUA in the Holloman Expansion. I ask that the USAF cite references for their assertions. Note that Alamogordo is NOT part of the affected SUA.**

**45c. Noise disproportionately impacts children, babies and pregnant women (see medical reports listed above). Environmental Justice as defined by Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, requires that review must be made as to whether a proposed action disproportionately impacts children, minority, and/or low-income populations. I ask that the EIS use specific data from the areas impacted by the SUA and NOT diluted data with data averaged in from urban areas or nearby villages. The rural areas impacted by noise and sonic booms have unique demographics and little in common with urban/suburban populations.**

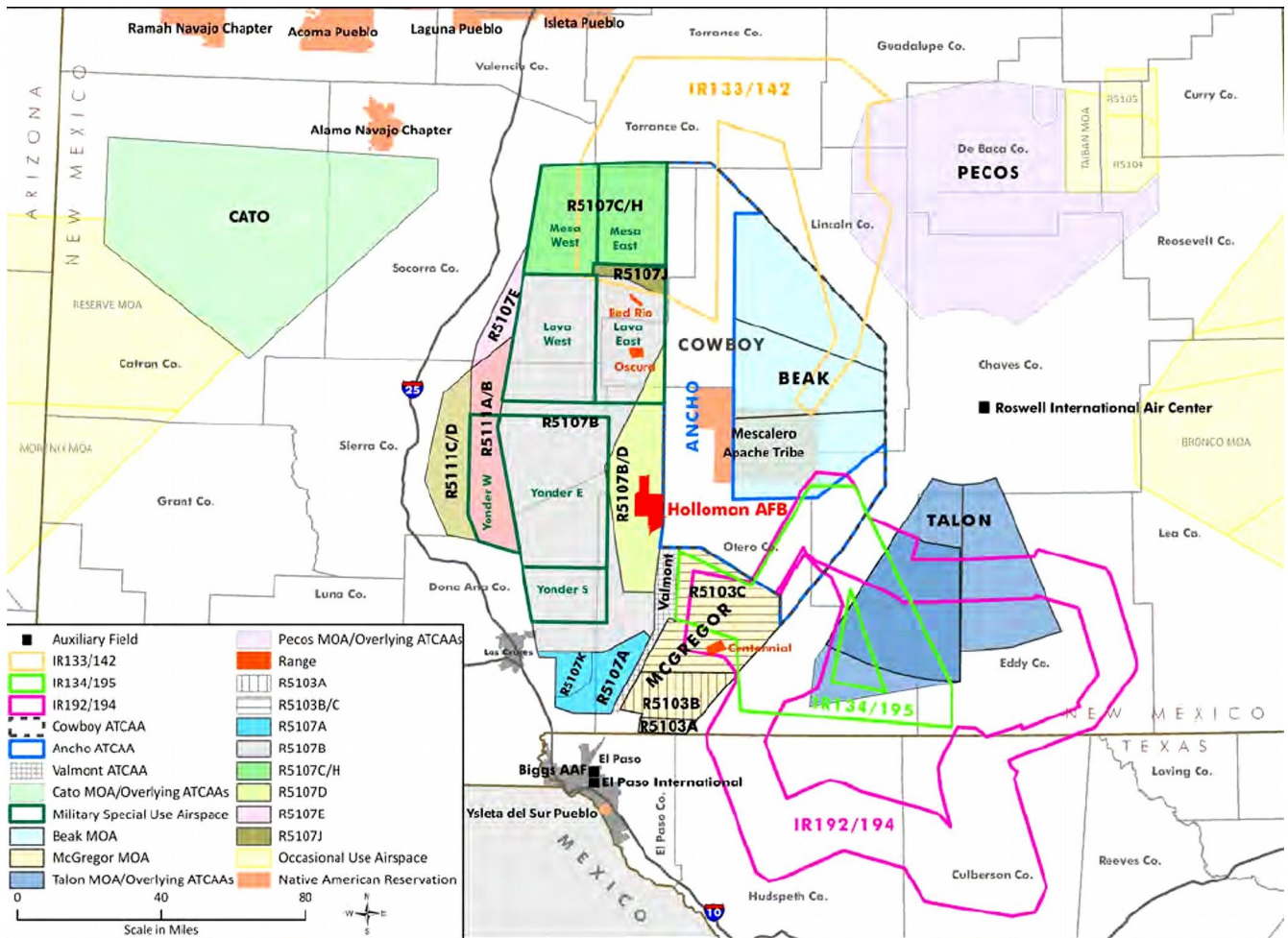


Figure 1 Color Image of part of Holloman Airspace

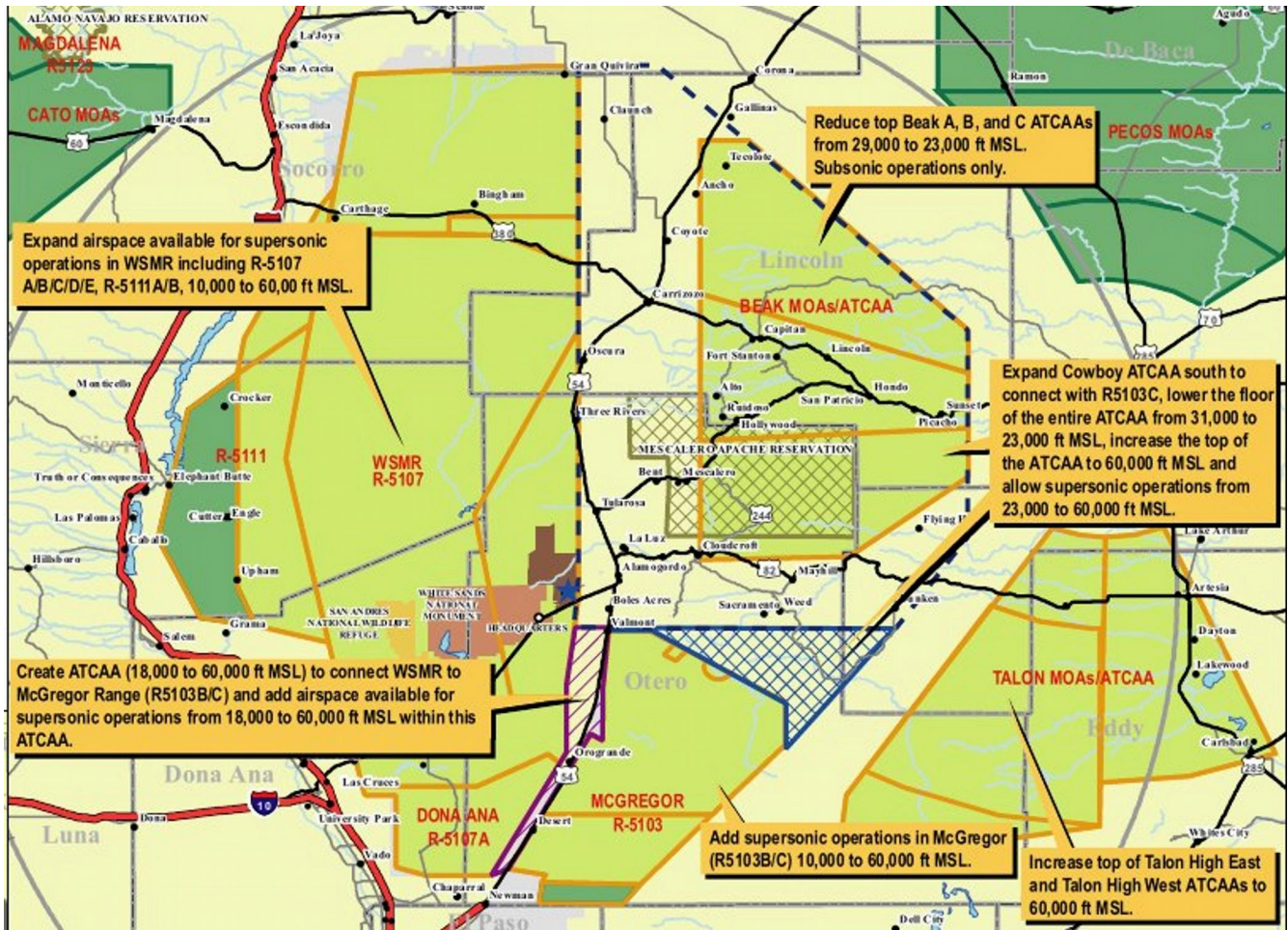


Figure 2 another color image of Holloman SUA (partial)

Thank you again for the opportunity to provide these few comments. With more time, and better information about the project, my neighbors and I could provide even more helpful feedback.

Sincerely,

*Walt Coffman*

Walt Coffman  
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 Weed, NM 88354

“We have met the enemy and he is us” – Pogo