Draft Environmental Impact Statement for EA-18G "Growler" Airfield Operations at Naval Air Station Whidbey Island Complex

January 2017 Detailed Comments

1. According to the Navy, "The Growler is recognizable by the low frequency "rumble" of its jet engines." Nevertheless, low frequency noise impacts are ignored in the Draft EIS. Section 3.2 - Noise Associated with Aircraft Operations - makes no mention of the signature low frequency noise of the Growler. All of the noise analysis is based on A-weighted sound (dBA), which ignores the lower frequencies, and is therefore deficient.
   http://www.cnic.navy.mil/regions/cnrnw/installations/nas_whidbey_island/om/environmental_support/growler-fact.html

   Nevertheless, the Draft EIS at 4-194 states "... the 2012 study included a brief examination of low-frequency noise associated with Growler overflights at 1,000 feet AGL in takeoff, cruise, and approach configuration/power conditions ... The study found that takeoff condition ... overall C-weighted sound level of 115 dBC. The Growler would exhibit C-weighted sound levels up to 101 dBC when cruising and 109 dBC (gear down) at approach." Page 4-193 states "According to Hubbard (1982), a person inside a structure can sense noise through vibration of the primary components of a building, such as the floors, walls, and windows; by the rattling of objects; ..."

   The World Health Organization "Guidelines on Community Noise" (Berglund, 1999) states:

   > "When prominent low frequency components are present, noise measures based on A-weighting are inappropriate;"
   >
   > "Since A-weighting underestimates the sound pressure level of noise with low frequency components, a better assessment of health effects would be to use C-weighting"
   >
   > http://apps.who.int/iris/bitstream/10665/66217/1/a68672.pdf

   Closing windows and doors provides limited reduction for low frequency noise entering a building as measured by sound Transmission Loss tests. Therefore assumptions throughout the Draft assuming an average noise level reduction across the frequency spectrum with windows closed are not based on scientifically observed behavior of low frequency sounds.

   See graph on http://windowanddoor.com/article/04-april-2007/understanding-basics-sound-control)

   RECOMMENDATION: Evaluate impacts of the Growlers at low frequencies using C-weighting (dBC) in addition to A-weighting (dBA).

2. The Draft EIS states (page 3-16) that aircraft noise levels represented in this draft EIS are "generated by a computer model and not actual noise measurements at Ault Field or OLF Coupeville." It further states that the computer model draws from "a library of actual noise measurements" (page 4- 20). There is no documentation on whether Growler measurements were used or if the model is based on another jet. We also do not know the conditions for the measurements, e.g. engine power, afterburners, distance, orientation, etc.

   For more information on this issue see Sections 2 and 3:
   http://media.wix.com/ugd/f9226a_af2c68d0670d466591fbdd7f062bab13.pdf

RECOMMENDATION: Provide the noise measurement data used for simulation and an explanation of how the data was captured and processed. Provide Growler noise measurements with afterburners in one-third octave bands at various distances and orientations from 6 Hz to 20 kHz. Calibrate the computer model with actual noise measurements in locations throughout the region.

3. The Draft EIS states (page 3-16) "The computer modeling program used for this EIS is NOISEMAP Version 7.2 (October 29, 2015), developed by Wyle Laboratories. …The U.S. Department of Defense (DOD) uses NOISEMAP as the accepted standard noise modeling program for assessing potential noise exposure from fixed-wing aircraft." A 2004 study performed by Wyle for DOD states "The latest NOISEMAP package of computer programs consists of … NOISEMAP Version 7.2 …" The version used in the Growler EIS is at least 12 years old, not a year old.

http://www.nctcog.org/trans/aviation/jlus/noisestudy04.pdf

The DOD Strategic Environmental Research and Development Program (SERDP) found that NOISEMAP was outdated and might not be able to "provide legally defensible noise assessments of current and future aircraft operations." SERDP project WP-1304, led by Principal Investigator Dr. Kenneth Plotkin of Wyle issued a final report titled "Advanced Acoustic Models for Military Aircraft Noise Propagation and Impact Assessment" in 2010.

The project summary states that "Classic Department of Defense (DOD) noise models are based on NOISEMAP technology, using linear acoustics and an integrated formulation. … The acoustic environments in the vicinity of newer aircraft such as ... the F/A-18E/F [which uses the same GE F414 jet engine as the Growler] differs from those of most prior aircraft, with high noise levels associated with higher thrust engines. ..."

"Moreover, the … modeling approach typical of integrated noise models do not properly account for the complex operational and noise characteristics of the new aircraft. ... A new aircraft noise model, the Advanced Acoustic Model (AAM), has been developed for the assessment of noise from military aircraft operations. It is a … model that produces more physical realism and detail than traditional … model."

https://www.serdp-estcp.org/Program-Areas/Weapons-Systems-and-Platforms/Noise-and-Emissions/Noise/WP-1304

For more information on this issue see Section 1 -
http://media.wix.com/ugd/f9226a_af2c68d0670d466591fbdd7f062bab13.pdf

RECOMMENDATION: Redo the noise level simulation using the more recent Advanced Acoustic Model.

4. Day-Night Noise Level (DNL), the fundamental noise metric in the Draft, represents "the energy-averaged sound level measured over a 24-hour period" (Section 3.2.2.1). An FAA study, "Technical Support For Day/Night Average Sound Level (Dnl) Replacement Metric Research," finds "… DNL has another major practical limitation. It doesn't work particularly well as a predictor of aircraft noise impacts. FICON's 1992 relationship accounts for less than a fifth of the variance in the association between aircraft noise exposure and the prevalence of high annoyance in communities (Fidell, 2003; Fidell and Silvati, 2004)."

https://www.faa.gov/about/office_org/headquarters_offices/apl/research/science_integrated_modeling/noise_impacts/media/6-14-2011_FinalReport_MetricsMestre_etal_061411_part1.pdf

The Day-Night Noise Level (DNL) was developed for the FAA to established a threshold for annoyance at commercial airports with typical operations 16 hours a day, 7 days a week. The noise events experienced during Growler training flights is intermittent in a region with very low background noise. The noise assessment in the Draft instead spreads the annual training operations over 365 days to calculate Annual Average Daily (AAD) day and night events (at 4.2 on page A-35). In actual experience these events are concentrated into some number of days in a year, which is not specified in the analysis. We use actual data below to demonstrate this.

Figure 4.1 shows training flights from Ault Field in 2014 using data provided by the Navy. Ault Field has significant impact on San Juan County. Included are weekly totals of Field Carrier Landing Practice (FCLP) and Controlled Carrier Approach (CCA) activities. The FCLP is the focus of the Proposed Action (page ES-1). Flying is intermittent and concentrated into certain periods. The maximum number of weekly flights was 1088. On the other hand there were 16 weeks with no flights and 25 weeks, or half of the year, with fewer than 100 flights.

There were 13,422 flights reported in 2014. Spread over 52 weeks in a year that yields an average of 258 flights per week. Considering only the 27 weeks with more than 100 flights there were an average of 497 flights per "active flying week." During "active flying weeks" citizens experienced 93% more jet noise impacts than an annual average portrays.

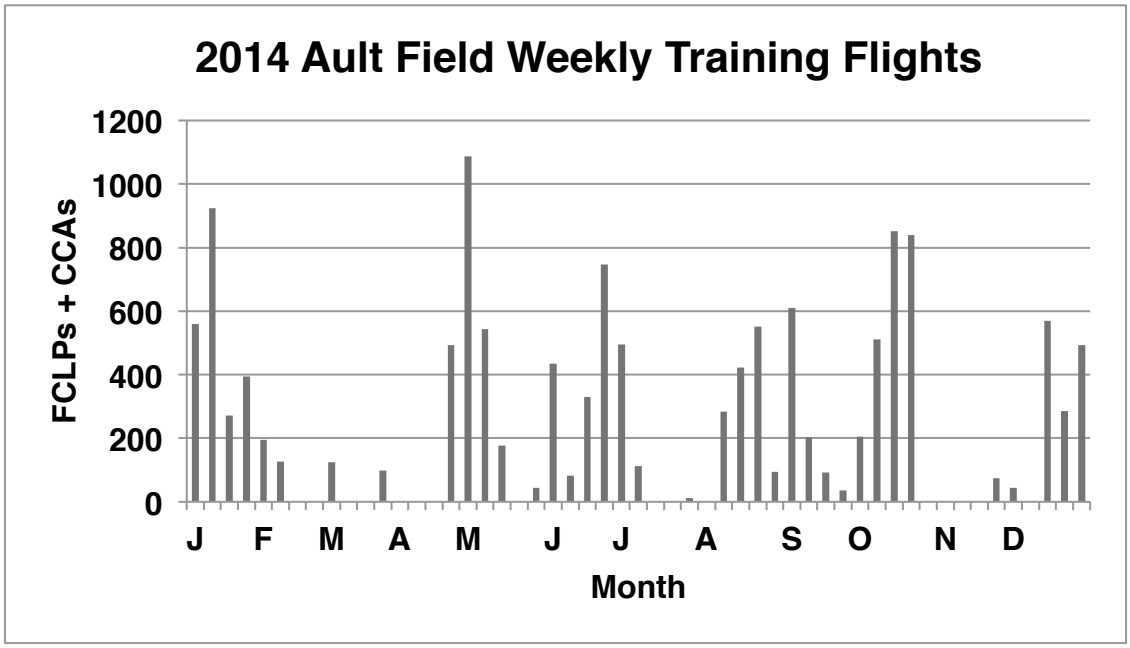

Figure 4.1

San Juan County collects Growler noise reports from citizens (see Comment 6). Figure 4.2 is a chart of the daily reports from 2016. The number of reports over an hour, day, week or other period indicates a level of annoyance. Looking at the daily variability, impact on citizens in San Juan County is clearly intermittent.

The maximum number of noise reports in one day was 75. There were 112 days with no reports. Assume that a day with 5 or fewer reports represents limited annoyance. There

were 242 days with 5 or fewer reports. That leaves 124 days with significant annoyance, or about one-third of the year. Averaging significant noise events over 365 days rather than 124 days greatly diminishes the impact citizens experience when Growlers are flying.

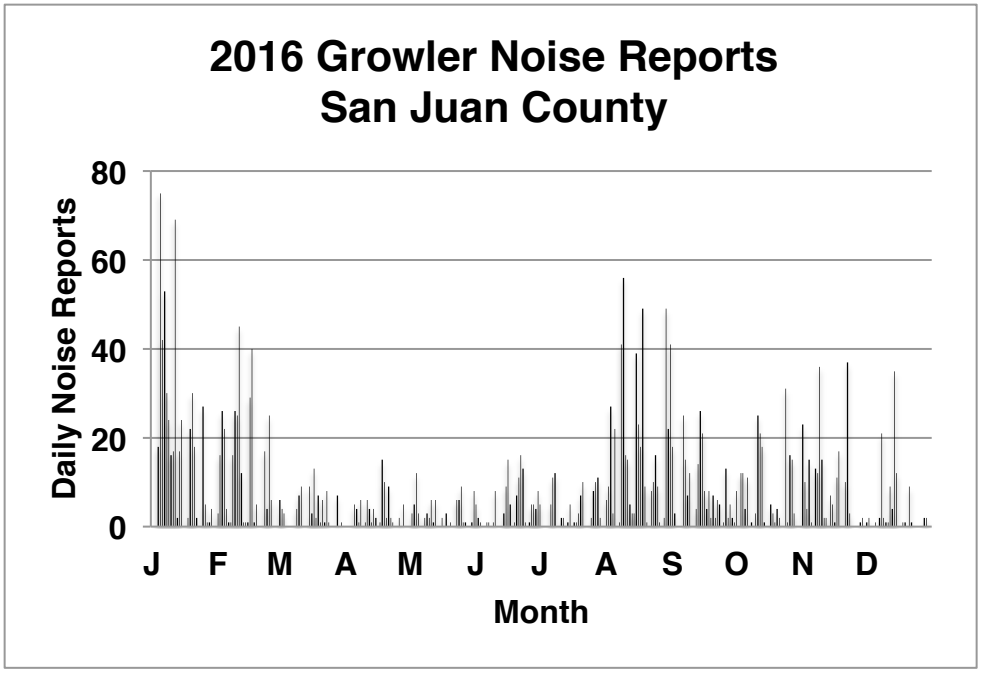

Figure 4.2

Both the Navy flight data and citizen noise reports paint the same picture. Growler noise events are intermittent. While commercial airports have busy periods at certain times of the day, they are active 365 days a year. Growler training flight activity at Ault Field has extended quiet intervals, lasting for days or even weeks. When Growler flights resume after a quiet period the noise is startling, increasing the annoyance. Averaging Growler noise events over 365 days when the events are intermittent assumes that quiet days mitigate the noisy days. No scientific evidence is provided in the Draft to support that assumption.

The averaging inherent in the DNL metric developed for commercial airports is inappropriate for analysis in the Draft. Averaging over the year greatly underestimates the impacts on citizens and leads to an incorrect conclusion that the region is not significantly impacted by the Proposed Action. Under all the Alternatives, Total Operations increase by 47% over the No Action Alternative (Table 2.3-1). The DNL metric is inappropriate for understanding the consequences.

RECOMMENDATION: For averaged noise metrics, noise levels should only be averaged over active flying days.

5. The Draft EIS at 3-22 states "No studies have shown a definitive causal and significant relationship between aircraft noise and health. Inconsistent results from studies examining noise exposure and cardiovascular health have led the World Health Organization (WHO) (2000) to conclude that there was only a weak association between long- term noise exposure and hypertension and cardiovascular effects."

The statement above disagrees with multiple findings in the WHO "Guidelines on Community Noise" (Berglund, 1999):

> "For a good night's sleep, the equivalent sound level should not exceed 30 dB(A) for continuous background noise, and individual noise events exceeding 45 dB(A) should be avoided."
>
> "For noise with a large proportion of low frequency sounds a still lower guideline is recommended"
>
> "It should be noted that a large proportion of low frequency components in a noise may increase considerably the adverse effects on health"
>
> "The evidence on low frequency noise is sufficiently strong to warrant immediate concern"

Waye (2004) finds "As low frequencies propagate with little attenuation through walls and windows, many people may be exposed to low frequency noise in their dwellings. Sleep disturbance, especially with regard to time to fall asleep and tiredness in the morning, are commonly reported in case studies on low frequency noise. However, the number of studies where sleep disturbance is investigated in relation to the low frequencies in the noise is limited. Based on findings from available epidemiological and experimental studies, the review gives indications that *sleep disturbance due to low frequency noise warrants further concern*." http://www.noiseandhealth.org/text.asp?2004/6/23/87/31661

Specific guidelines are found in the "WHO Night Noise Guidelines for Europe" (2005), Table 5.1, "Summary of effects and threshold levels for effects *where sufficient evidence is* ***available***." http://www.euro.who.int/__data/assets/pdf_file/0017/43316/E92845.pdf

During Scoping 1785 comments were submitted on Noise and Vibration and 914 on Health Effects (Table 1.9-5). Under all the Alternatives, Total Operations increase by 47% over the No Action Alternative (Table 2.3-1). The Navy has not demonstrated that there are no health impacts from the proposed Growler additions.

RECOMMENDATION: Recognize the impacts of Growler noise on health as documented in the World Health Organization "Guidelines on Community Noise", "Night Noise Guidelines for Europe" and other published studies.

6. The Draft includes some independent noise measurements and ignores others. Section 1.9.5 states "The Navy continues to evaluate noise reports that have been developed by independent sources and review their findings in conjunction with this EIS analysis."

   Not included in the Draft EIS is data collected by San Juan County (SJC) Data collected since May 14, 2014 has been regularly sent to NASWI. More than 6000 citizen reports include date, time, location and noise characteristics. See a sample chart in Figure 6.1. The Navy should correlate that data with the information they collect on flight tracks to understand what activity causes disruptive noise in SJC. Actual noise reports and measurements should be used to benchmark the computer modeled noise impacts relied on for decision-making. Noise reports can also help to understand the benefits of mitigation measures. http://sjcgis.org/aircraft-noise-reporting/

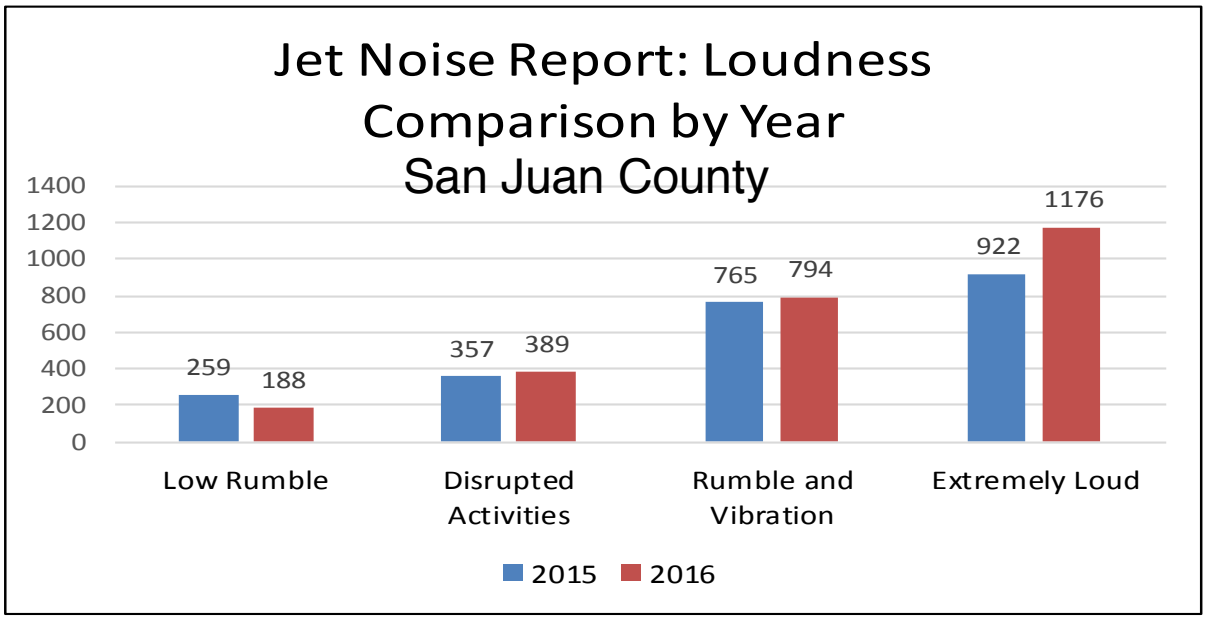

Figure 6.1

Also not included is the study sponsored by Citizens of Ebey Reserve. They engaged an independent noise study by JGL Acoustics in 2013 to obtain actual on-site Growler noise data at Outlying Field Coupeville because "rather than simply accept the computer-modeled data used by Wyle Labs because we believed on-site validation was critical."
http://citizensofebeysreserve.com/References/Files/JGL Noise Report.pdf

RECOMMENDATION: Incorporate the San Juan County noise reports and the Coupeville noise measurements performed by JGL Acoustics into the EIS analysis.

7. The Draft EIS suggests that the lands and waters of the San Juan Islands National Monument are exempt from National Environmental Policy Act protection because the 2013 proclamation establishing the Monument states: "Nothing in this proclamation shall be deemed to restrict safe and efficient aircraft operations, including activities and exercises of the Armed Forces in the vicinity of the monument."

   Legally, this only has the effect of preserving the status quo: it clarifies that the creation of the National Monument does not place any additional burden on the Navy to justify its operations in the vicinity. The President did not--indeed, he did not have the power to exempt the Monument area from federal laws that already applied to wildlife there. Hence creation of the Monument did not exempt the Navy from NEPA or Endangered Species Act with respect to wildlife in the Monument, such as Marbled Murrelets or marine mammals.

   At 3.5.2.4 the Draft EIS acknowledges "However, the Bureau of Land Management (BLM) has determined that BLM-owned and controlled lands in the San Juan Islands National Monument possess wilderness characteristics." It also concedes that the Monument is subjected to a maximum noise level of 95 dB (SEL) an estimated 372 times per year (at 3-34).

   For more information on this issue see
   http://media.wix.com/ugd/f9226a_c2a40618270749a4b74a6d43bb2a19c3.pdf

RECOMMENDATION: Evaluate impacts of the Alternatives on the SJI National Monument and remove language stating that the Monument is exempt from NEPA.

8. The three Alternatives considered in the Draft are very similar and are based on old technology – a piloted jet that requires constant pilot training for safe carrier landing. In 2014 the Department of Defense successfully demonstrated carrier takeoff, landing, and formation flying capabilities of the X-47B prototype ("drone") that is part of the Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) program. http://breakingdefense.com/2014/08/x-47b-drone-manned-f-18-take-off-land-together-in-historic-test

   The UCLASS jets can meet the Purpose and Need, delivering the same capability for electronic surveillance and attack against enemy radar and communications systems as the Growlers.

   This Alternative has many benefits. Because of its inherent automation UCLASS would significantly reduce the amount of land-based training that impacts our region. It eliminates the high risk to the Growler's two-person crew from advanced anti-aircraft threats. The smaller UCLASS vehicle is lighter and uses less fuel. Eliminating the $3 billion purchase of 36 Growlers will save taxpayer money. Navy Secretary Ray Mabus said "[the F-35] should be, and almost certainly will be, the last manned strike fighter aircraft the Department of the Navy will ever buy or fly." With a focused effort the Navy can deploy the UCLASS while the existing 82 Growlers plus spares carry out the mission.

   RECOMMENDATION: Evaluate a new Alternative that deploys UCLASS jets (drones) instead of more Growlers to significantly reduce the need for land-based carrier training.

9. The Draft only examines socioeconomic impacts on Island and Skagit Counties (see Section 3.10.2). San Juan and Jefferson Counties are excluded from the socioeconomic impacts analysis but sites in those Counties appear in the Points of Interest (Figure 3.2-6) and experience significant Single Event Noise (Tables 3.2-4 through 3.2-8). Clallam County may also be impacted by Growler noise but no noise analysis was done for this area.

   The San Juan County Comprehensive Plan states "...the islands are places of peace ... We support a pattern of economic growth...which recognizes the rural, residential, quiet, agricultural, marine, and isolated nature of the islands." Anecdotal evidence from San Juan County realtors is that property sales have been lost due to Growler activity. The three counties excluded from the socioeconomic analysis are very dependent on outdoor recreation that is being harmed by Growler flight activity. These Counties receive little, if any, economic benefit from employment and other activity associated with NASWI.

   RECOMMENDATION: Examine socioeconomic impacts, including real estate values, on San Juan, Jefferson and Clallam Counties.

10. At 1-20 the Draft EIS discusses Noise Mitigation. The only cited measure in place is "to share flight schedules and other information and to solicit public feedback." Potential measures include construction and operation of a noise suppression facility for engine maintenance (Hush House), Engine Chevrons (noise reduction) and MAGIC CARPET (automating parts of carrier landing which will reduce FCLP training activity).

Further discussion on Existing Mitigation at 3-30 states “NAS Whidbey Island has noise-abatement procedures ... to minimize aircraft noise. Airfield procedures used to minimize/abate noise ... include optimizing of flight tracks, restricting maintenance run-up hours, runway optimization, and other procedures ... Additionally, aircrews are directed, to the maximum extent practicable, to employ prudent airmanship techniques to reduce aircraft noise impacts and to avoid sensitive areas except when operational safety dictates otherwise.”

Each Alternative is an irrevocable decision to add 35 or 36 Growlers at NASWI. Therefore the Navy should commit to Mitigation Measures as part of the Final EIS and Record of Decision. Since experts have identified the need for additional research on health effects of low frequency noise the Navy should sponsor this research.

RECOMMENDATION: Commit to noise Mitigation Measures and their timelines in the Final EIS and Record of Decision.

11. The Draft EIS analysis is deficient in numerous areas as described in the comments above and by others, and is inadequate to support a decision. Council on Environmental Quality (CEQ) Regulation 1502.9 (a) states “If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion.”

    RECOMMENDATION: Supplement the EIS to address deficiencies identified in comments and allow further opportunity for public comment before the Final EIS is prepared.