Citizens of Ebey's Reserve (COER) Comments:
Draft Environmental Impact Statement
for Naval Air Station Whidbey Island
Feb 10, 2018

Prepared by Robert Wilbur and CORE Board of Directors

The following comments from Citizens of Ebey's Reserve (COER) on the Draft Environmental Impact Statement (DEIS) for Naval Air Station are submitted this day to EA-18G EIS Project Manager, Naval Facilities Engineering Command (NAVFAC) Atlantic – Attn: Code EV21/SS, 6506 Hampton Blvd., Norfolk, VA 23508.

OVERVIEW

In 2015 Citizens of Ebey's Reserve (COER) sought an injunction to stop Growler flight carrier landing practice (FCLP) at Outlying Field Coupeville (OLFC) until the EIS was completed. The injunction was denied by Judge Zilly primarily due to the reasoning he explain on page 27.3 of his decision:

> In *Winter*, [involving new sonar device harm to marine mammals]… [t]he Supreme Court, [held] that 'even if plaintiffs have shown irreparable injury from the Navy's training exercises, any such injury is outweighed by the public interest and the Navy's interest in effective, realistic training' and that '[a] proper consideration of these factors alone requires denial of the requested injunctive relief.' *Id*. at 23. Similarly, plaintiff here has failed to demonstrate that the balance of interest tips in its favor." And pg. 28.7: As the Ninth Circuit has stated, "when a district court balances the hardships of the public interest against a private interest, the public interest should receive greater weight." *F.T.C. v. World Wide Factors, Ltd.*, 882 F.2d 344, 347 (9th Cir. 1989). Accordingly, plaintiff has not shown that the public interest weighs in its favor.

Whether the balance of interest was served by denying the injunction is arguable, but regardless, it did provide a roadmap that assisted COER in preparing for the draft EIS (DEIS). In the *Winter* case, there was no realistic option for the Navy to conduct its submarine sonar training exercises without putting marine mammals in harm's way. This is not the situation with for OLFC because putting citizens in harm's way is **not necessary for national defense**. There are viable off-Whidbey Island FCLP options without the severe, inescapable impacts attended to on-Whidbey training. The DEIS rejects those sites largely due to inconvenience, costs, and contrived operational criteria. COER submits, as explained in the attendant numbered comments, that the

Navy has not in its DEIS established that its convenience and/or costs rise above the huge costs and impacts on central Whidbey Island civilians and businesses. Furthermore, the DEIS has failed to establish why this WW II relic, which is far short of standard acreage and runway length and can only operate under a DOD waiver, is superior for training its pilots than would be a 21st century site that is not encroached on and surrounded on all sides by residences, national parks, schools, businesses, and government offices.

Understanding and recognizing the challenges of documenting the impacts, COER undertook acquiring additional input from acoustical experts, expanded its educational reach to other areas of Northern Puget Sound to better understand the impacts they were experiencing, was a catalyst in generating an independent and critically needed economic study, and continued to expand its knowledge of the detrimental effects of jet noise on health and well-being, especially as related to FCLPs. The following comments are derived from that information base.

The DEIS recognizes and presents many of the relevant impacts, but highly important others are not considered, considered but unjustifiably dismissed, or slanted to minimize or mask the actual impact (see Overview Table below). Furthermore, the DEIS presented only superficial reasoning as to why its FCLP operations must be retained on Whidbey Island, as opposed relocating to an environmentally suitable off-Whidbey site. As a result, the DEIS has not documented that its needs for on-Whidbey FCLPs outweigh the enormous damages inflicted. Nor has the DEIS examined or considered that, were the FCLPs moved to a 21st century venue, pilot training and safety would be enhanced, the endless turmoil and controversy over devastating impacts would end, and public support for the Navy would grow.

The DEIS does not demonstrate that the Navy's proclaimed needs tip the scale Judge Zilly quoted from the Ninth Circuit: "When a district court balances the hardships of the public interest against a private interest, the public interest should receive greater weight." <*F.T.C. v. World Wide Factors, Ltd.*, 882 F.2d 344, 347 (9th Cir. 1989)> The reality is that the national public interests and the local public interests can both be achieved by sensibly relocating the NASWI Growler FCLP operations to an environmentally appropriate location.

In the numbered comments that follow COER examines major deficiencies in the DEIS that require judicious attention. Quotes from the DEIS appear in red font so they may be easily discerned from other text.

Overview Table
-- Summary of DEIS Failings and Need Actions --

DEIS Failure	Action Called For	Page
Comment 1: NONCOMPLIANCE WITH NEPA		**7**
The DEIS did not comply with the National Environmental Policy Act (NEPA). Fails to provide judicious evidence for dismissing off-Whidbey Island sites to conduct flight carrier land practice (FCLP).	Document conclusively why off-Whidbey FCLP costs and inconvenience rise above civilian impacts.	
There is no quantitative analysis of the monetary cost/benefits or qualitative analysis of pros/cons, as stipulated in NEPA 1502.23.	This failing must be corrected with substantive analysis to include two or three of the most promising off-Whidbey FCLP training options.	
DEIS obfuscates comprehension of the environmental impacts by artificially inflating the number of options to be analyzed. Exceeds page limits by about 1100 pages.	Analyze full range of off-Whidbey FCLP training locations and select the 2 or 3 most promising for as full alternatives to weigh against 2 or 3 on-Whidbey alternatives.	
Comment 2: DNL FAILINGS		**16**
The annual DNL noise contours used inappropriate use of annual average day rather busy day averaging,	Redo all DNL contours based on annual busy day averaging.	
The annual DNL noise contours used a scientifically invalidated DNL threshold for high noise annoyance.	Revise all ≥65 DNL discussion to ≥55 DNL.	

Comment 3: HEARING CONSERVATION ZONES and MORE		**21**
The Navy has adopted standards that protect their personnel from health and hearing harm due to excessive noise, yet these standards were ignored by the DEIS for civilians exposed to the same or greater levels of noise.	Explain why protections for Navy personnel are important, but are not needed for civilians.	
Ignores impacts of noise on pregnant women and fetuses, yet has adopted protection measures for its pregnant personnel.	Explain why protections for pregnant Navy personnel are important, but are not needed for pregnant civilians.	
Asserts that noise impacts are affected by "*intermittency*," yet it never defines it or explains how or why.	Define "*intermittency"* and why it is not relevant in Navy protection measures for its personnel but is relevant to civilians.	
Comment 4: JGL STUDY UNDULY FAULTED		**28**
Claims dismissal of the JGL noise study as "flawed" is unsupportable.	Claim is bogus as JGL studies validated. DEIS needs to accept and use that important on-site data in evaluating single noise event impacts.	
Comment 5: EBEY'S RESERVE		**33**
Misconstrues an important finding of the National Park Service's 2015 noise study.	Revision called for.	
Low-frequency noise (LFN) of the Growler not addressed in the DEIS as an exacerbating impact on Ebey's Landing Historic Reserve. LFN carriers much further than other noise, and therefore traverses the full Reserve.	The impacts of LFN on visitor experience and damage to historic structures needs to be forthrightly addressed.	
Obfuscates credible understanding of the of the National Park Service's 2015 noise study as related to impacts on visitor experience.	Revision called for.	
Comment 6: PATH 14 versus 32		**39**
The 30% use projection for path 14 is unrealistic and greatly understates the DNL noise impacts for path 32.	This mistake must be corrected to reflect actual usage potentials of 5% to 10%.	

Comment 7: SAFETY		**44**
Actual safety risks are only superficially analyzed for FCLP operations at NASWI and OLFC. An effective solution to dispel the FCLPs risks associated with unchecked encroachment around OLFC is not presented.	This shortcoming needs judicious analysis, especially given the Growler is much more likely to crash than the Prowler.	
Comment 8: FAA ELEVATION RULES IGNORED		**52**
FAA rules, as related to FCLPs, have not been properly addressed in the DEIS.	DEIS needs to explain how it intends to operate at OLFC without violating very important components of federal law.	
Comment 9: DISPROPORTIONATE IMPACTS		**55**
Claims the proposed alternatives will not create disproportionate impacts on children or minorities, but that finding is very dubious.	Disproportionate impacts are expected and need to be identified and forthrightly justified.	
Comment 10: NO ACTION DOES NOT EQUAL NO IMPACT		**58**
Misrepresents the no-action alternative as the existing condition.	The correct existing condition needs to be corrected to the no-Prowler noise level.	
Incorrectly focuses on the increased impacts of the action alternatives as opposed to the total impacts of the no-action plus the action alternatives.	The comparative increases in noise need to be corrected to a no-jet-noise baseline.	
Understates the number of Growlers to be stationed at NASWI as 118 but seems it is actually 160.	DIES needs to identify the full number of Growlers planned and correct analyses accordingly.	
Comment 11: TOTAL IMPACTS, A CHARADE		**62**
Non-auditory health impacts, inappropriately excused via a scientifically un-defendable dismissal of the noise–health research literature. Not one of the preparers of DEIS had medical or auditory credentials.	Total revision of health impacts needed by qualified medical experts is needed.	
Misrepresents the no-action alternative as the baseline, making impacts of action alternatives on health appear far less pronounced.	Revised to address impacts relative to the true no-FCLP baseline.	

Comment 12: Weak Analysis of Classroom Interruptions		**68**
Obscures the effects of FCLP jet noise on classroom interruptions.	A more illuminating analysis of classroom interruption impacts is necessary.	
Comment 13: PFCs and EMR Not Considered		**73**
DEIS dismissal of PFC issue as irrelevant and the lack of any mention of EMR, both very important environmental issues, cannot be justified. The impacts on air quality have not been presented in a form most people can comprehend.	The DEIS has to be revised to address impacts related to both PFCs and EMR.	
Comment 14: AICUZ Ignored		**74**
Island County and the Navy have failed to comply with land-use planning guidelines of the 2005 AICUZ.	The DEIS needs to explain how it will ensure AICUZ compliance or in turn justify ignoring it.	
Final Wrap-Up: DEIS Full Revision Is Necessary		**76**
In regard to Growler FCLP operations the DEIS is so poorly prepared and non-compliant with NEPA that a revised draft is absolutely necessary—one that does legitimate jurisprudence to off-Whidbey FCLP options.		
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COMMENT 1:
- NONCOMPLIANCE WITH NEPA -

The Problem: The DEIS did not comply with the National Environmental Policy Act (NEPA) by **(a)** failing to provide judicious evidence for dismissing off-Whidbey Island FCLP options, and **(b)** obfuscating comprehension of the environmental impacts by artificially inflating the number of action alternatives to be analyzed.

The Explanation:

(a) Failing to provide judicious evidence for dismissing off-Whidbey Island FCLP options. In developing its proposed range of alternatives, the Navy states in DEIS Section 2.2 (Development of the Range of Action Alternatives) that it "carefully reviewed important considerations for the Growler community…" And in section 2.4 (Alternatives Considered but Not Carried Forward for Further Analysis) the Navy clearly dismisses off-Whidbey FCLP training sites, stating, "The following alternatives were considered but **not** carried forward for detailed analysis in this EIS as they did not meet the purpose of and need for the project."

Actually, the DEIS did **not** "carefully review important considerations for the Growler community," and thereby did not comply with NEPA Sec. 1502.14 (Alternatives Including the Proposed Action).

That section is the heart of the environmental impact statement. Based on the information and analysis presented in the sections on the Affected Environment (Sec. 1502.15) and the Environmental Consequences (Sec. 1502.16), it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public. It requires agencies to: *"(a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated*."

The DEIS did surely "briefly discuss the reasons for*"* eliminating off-Whidbey sites, but presumably that discussion is to follow not preempt, "*Rigorously explore and objectively evaluate all reasonable alternatives."* There is no substantive explanation how rigorously and objectively any off-Whidbey sites were explored.

Given the huge impacts related to the Navy-proposed actions, as well as a strong likelihood that one or more off-Whidbey sites c**ould effect a ubiquitously acceptable solution**, off-Whidbey FCLP training demanded an in-depth explanation, rather than a window-dressing dismissal.

The same need for rigorous consideration is reflected in parallel in requirements that the U. S. Department of Transportation must follow under sections 4 (a - f) of the Department of Transportation Act of 1966 (Title 49, USC) — https://www.law.cornell.edu/uscode/text/49/303 . Section (c), which states:

> (c) Approval of Programs and Projects.—Subject to subsections (d) and (h), the Secretary may approve a transportation program or project (other than any project for a park road or parkway under section 204 [1] of title 23) requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) **only if (1) there is no prudent and feasible alternative** to using that land…

The DEIS failed to judiciously examine or substantiate that no alternative off-Whidbey site was feasible. The reasons that were advanced to support the putative impossibility of such sites were superficial, unconvincing, manufactured, and the requisites were not analytically supported. DEIS section 2.4 heading (*Alternatives Considered but Not Carried Forward for Further Analysis*) says as much; paraphrased it says, "we considered it and decided no." The absence of reasoned explanation and analysis disrespects the clear and certain intent of so very many Northern Puget Sound residents who have, for years, adamantly implored the Navy to judiciously consider off-Whidbey locations for FCLP training. Instead, the DEIS provided trivial and misleading statements, as examined below.

"*The NAS Whidbey Island complex is home to the Navy's Growler mission, including the training squadron, all U.S.-based squadrons, and substantial infrastructure and training ranges that have been established during the past 40-plus years and as supported by previous NEPA analysis regarding Growler operations.*" That statement is disingenuous and misleading. It insinuates that FCLPs over the 40-year history of NASWI were compatible with the island community, which hardly comports with the historical record. In fact, FCLPs from the 1960s forward have been controversial. The Growler arrived at NASWI around 2009/2010, and the EA for transitioning from Prowlers to Growlers was only approved in 2012. The FONSI for both the 2005 and 2012 EAs were derived based largely on five questionable or spurious irregularities. Those included, (1) 50:50 split in use of paths 14 and 32 when actually it was almost entirely (>90%) path 32, (2) projected night operations of 5% when actual night ops were 4 to 10 times that percentage from 2007 to 2012, (3) cherry picked a single high-operations year (2003) to represent as the base year, which made the projected operations less than the base year, (4) used SEL values for Prowlers and Growlers that did not agree with 2005 Air Installation Compatible

Use Zones (AICUZ) values and made the Growler seem quieter than the Prowler, and (5) used an annual DNL averaging for all days of the year which noise experts say is misrepresents proper DNL averaging protocol. All of this is thoroughly explored in Section 2.2 of the White Paper[1]. The main point, however, is that the 2005 and 2012 EAs based largely on that misinformation do not really support a 40-year NEPA compliance record.

Another distortion: "*field elevation is at or below 1,000 feet above mean sea level, in order to duplicate the atmospheric conditions at sea."* The 1000-foot criterion is misleading because actually density altitude is the critical metric, not actual altitude. That is, 1000 feet MSL has only partial relevance to atmospheric conditions at sea. Density altitude is a mix of actual altitude and atmospheric conditions that represent the altitude at which the aircraft feels it is flying—i.e, the way the plane handles and responds. Landing or taking off during high-density altitude conditions heavily influences approach speed, lift, and engine power output, changing length of landing roll and takeoff roll. Because a pilot is trained with feeling the aircraft, not just instrumentation, training is best when conducted in density altitudes the pilot will experience when landing on the carrier. Otherwise, pilots can hit the carrier deck too hard or miss it by flying too high. On May 29, 2016, for instance, a Growler landing aboard the carrier John C. Stennis in the South China Sea engaged the carrier arresting gear while still in flight.**[5]** Result: millions in damage.

Table 1.1.—Density altitude comparisons at four west coast FCLP training options versus actual carrier launch conditions in the Persian Gulf and South China Sea. These examples are based on an "average day" at each location [from www.USA.com].

Location	Elevation (feet)[a]	Air Temp. (°F)	Barometric Pressure[b]	Dew Point	Density Altitude
FCLP Training at OLF Coupeville					
OLFC	200	51	29.92	35	**337**
FCLP Training Sites, U.S. West Coast					
Lemoore NAS, CA	230	62	29.92	56	**678**
Moses Lake, WA	1189	50	29.92	45	**1010**
El Centro, CA	–40	75	29.92	40	**1284**
Yakima Training Area	1370	77	29.92	43	**2963**
Actual Carrier Launch Sites					
Persian Gulf	60	88	29.92	88	**2182**
Manilla[c]	60	88.2	29.92	79	**2367**
Ho Chi Minh City[3]	60	90.3	29.92	81	**2525**

[1] Technical Committee of Citizens of Ebey's Reserve. 2016. (White Paper) Outlying Field Coupeville: Its Time Has Passed, An Analysis of the Arguments. (See White Paper at http://citizensofebeysreserve.com/Index.html)

[a] Airfield elevations were taken from FAA Airfield Diagrams, and actual carrier elevations are mean sea level plus 60 feet to the flight deck.
[b] FAA "standard day" barometric pressure is 29.92.
[c] Historical climatological data was not available for the South China Sea, as bounded by Manila and Ho Chi Minh City, but weather for these two cities should closely approximate.

As evident in Table 1.1 above, OLFC does **not** reflect the density altitude in the South China Sea or in the Persian Gulf. However, many of the off-Whidbey sites casually dismissed in the DEIS are much closer to the actual density altitude in those distant trouble spots, and hence, the conditions pilots will experience there are much better achieved at the dismissed off-Whidbey sites. Yakima training area, for instance, a proposed OLFC alternative, has far greater clear area and, while 1400 feet above sea level, has a density altitude of 2963 (around that of the South China Sea). Training there might have prevented the costly Stennis accident and reduced loss of aircraft and pilot.

And, from DEIS Section 2.4.2 (Moving Some or All of the Growler Community Aircraft Elsewhere): *"Some members of the public have suggested moving all Growler squadrons to another installation. No installation exists that could absorb the entire Growler community* ***without excessive cost and major new construction***." There was no cost analysis to document that costs would be "*excessive*" or what sort of dollar amount would establish an "*excessive*" threshold, or how such putative excessive costs would be subtracted from the socioeconomic costs of maintaining the Growler FCLPs on Whidbey such that a bottom line could be derived. Likewise, how many dollars constitute "*major*"? With 60% of our national budget and millions of construction and new aircraft costs for NASWI, the military is certainly not so pinched that it cannot justify a 21st century FCLP training venue for its Growler pilots. Case in point, the Navy was fully prepared to construct a wholly new Growler OLF in the swampy lowlands of eastern North Carolina for its pilots based in Oceana. Why was that cost so irrelevant there and yet relevant here? Section 1502.23 of NEPA addresses cost-benefit analysis:

> **If a cost-benefit analysis relevant to the choice among environmentally different alternatives is being considered** for the proposed action, it shall be incorporated by reference or appended to the statement as an aid in evaluating the environmental consequences. To assess the adequacy of compliance with section 102(2)(B) of the Act the statement shall, when a cost-benefit analysis is prepared, discuss the relationship between that analysis and any analyses of **unquantified environmental impacts, values, and amenities**. For purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and **should not be when there are important qualitative considerations.** In any event, an environmental impact statement should at least indicate those considerations, including factors not related to environmental quality, which are likely to be relevant and important to a decision.

By iteratively dismissing off-Whidbey FCLP sites due to monetary costs, the Navy has made monetary costs "*relevant to the choice among environmentally different alternatives*." That analysis was not presented. The EIS lists total employee earnings but there is no analysis of where those earnings go or and how they affect the local economy, or most importantly how they balance against the costs to the public (e.g., schools, community services, and infrastructure costs), as an efficacious cost/benefit analysis would. For example, DEIS Section 4.5 addresses land use, but even though designation of APZs around OLFC would have a huge impact on property values, the DEIS does not evaluate those costs quantitatively or qualitatively, but instead skirts and trivializes those impacts with statements like this on page 4-147:

> For the purposes of this analysis, conceptual APZs for OLF Coupeville are proposed for some action alternatives…If APZs are created, they could influence future land use decisions by the community **and may have a minor impact on the land under the APZs**.

Simply put, there is no quantified evaluation of cost/benefits or unquantified or qualitative evaluation of pros and cons of maintaining OLFC for FCLP use. However, Michael Shuman, economist and attorney, in a recent independent study[2] of the economic benefits of NASWI found the real costs related to Growlers on Whidbey Island to pale when matched against the unspoken costs to Island County.

The reasons offered to continue on-Whidbey FCLPs in Chapter 2 were not supported factually, as further examined below.

The DEIS in Section 2.4.2 goes on to state, "*Furthermore, moving all Growler squadrons to another installation would only move the potential environmental impacts from one community to another community*." And what specifically is that imagined community? There is no analysis to substantiate what community might be affected, the acreage, or number of people, if any, that would be impacted. None of the mentioned off-Whidbey training sites received any such examinable analysis. The Navy's conclusion, without backup, seems pulled out of thin air. But recall that eastern North Carolina OLF where the Navy was going? It encompassed about 30,000 relatively undeveloped acres. OLFC is less than 1000 acres and significantly encroached on at all sides. The impacts some generic unspecified community need serious consideration and site specificity, not out-of-hand dismissal.

And these two arguments skirt reality as well: "*The runway is aligned with the prevailing winds, with a painted simulated carrier landing area for day operations and flush-deck lighting to*

[2] Shuman, M. H., 2017. Invisible Costs: The $122 Million Price Tag of Naval Air Station Whidbey Island. Available at http://citizensofebeysreserve.com/LinksAndFiles.html .

simulate the carrier landing area for night operations…Ambient lighting is low in order to duplicate the at-sea carrier environment at night as closely as possible." As for runway alignment, although portrayed as an asset, it actually is a problem. Pilots should land and take off into the wind, as they always do on a carrier, but at OLFC they often land/takeoff with a tailwind of not more than 5 knots. The DEIS calls for 70% use of OLFC Path 32, but it cannot be used when southerly winds exceed 5 knots (i.e., landings on carriers are always into the wind, not with an unsafe tailwind). That is a problem at OLFC because southerly wind conditions predominate from fall through spring, often precluding use of Path 32. For example, in 2016 there were 46 days when OLFC was scheduled for practice, and of those, practice on 15 days was cancelled (33%), mostly in the winter and early spring when wind, rain, and fog conditions made use unacceptable. If Scenario A or B is implemented this cancelation rate would force far greater number of operations at OLFC into the more benign acceptable days of weather, mostly in summer when windows need to be open and folks are outdoors.

As for the putative dark conditions at OLFC, during the final 20-30 seconds of the approach on Path 32 pilots cross Admirals Cove at 200 to 300 feet above typical suburban residential lighting. On the rare occasions when Path 14 is used, pilots approach over residences and then cross at 200 feet directly over state route 20[3] with its vehicle lights (i.e., the only island route linking Deception Pass and the Keystone and Port Townsend Ferries), as well as two county roads immediately bounding the landing strip. In that area cars run parallel and within a few hundred yards of the air strip, so headlights are coming at and with the pilots during landings and takeoffs. While there is some darkness, the peripheral residential and highway lighting is surely not something pilots would experience when landing on a carrier.

And from page 1-8 this: *"…Growlers do not normally land at OLF Coupeville. The proximity of OLF Coupeville to Ault Field allows for more training to be conducted per fuel load and provides a safe divert field if an emergency arises. Finally, OLF Coupeville is close enough to Ault Field so the LSO…may brief the participating aircrew on training procedures and then drive to the OLF in a reasonable amount of time to be present for the training."* This really is working hard to come up with a reason. First, on December 28, 1982, a Prowler jet crashed into a wooded area a few hundred yards west of the OLF runway. Three died. It is hard to accept that existence of the Ault Field runway 10 miles away would have been of any use whatsoever. But the statement is correct; OLFC is too short to allow a landing and takeoff, so if a problem developed, the pilot might divert to Ault and perhaps not make it all the way there. For example, on December 16, 2016, a Growler at NASWI had the canopy blow off due to an over-pressurized cabin, critically injuring its two airmen. Had that over-pressurization occurred during

[3] Traffic numbers along state route 20 in 2013 were recorded by the Washington Department of Transportation at an average weekday total of 8,483.

FCLP operations at OLFC, the Growler would never have made it back to NASWI. So, conversely, at off-Whidbey FCLP sites the pilot would be able to land right at the site potentially saving crew and aircraft. And finally, regarding the ISO crew briefing and the then short convenient drive to OLFC, how was that going to work for Oceana (Virginia Beach, VA) where the planned OLF in eastern North Carolina was well over a 100-mile road trip south?

And this even more curious stretch: *"Maximum transit distance from the home field is 50 nautical miles, which is the distance a Growler can travel on a fuel load in order to conduct eight to 10 FCLP passes with sufficient fuel to return to its home field."* That was reiterated on page 2-17, *"Regional military airfields:…Training locations need to be located within 50 nm of their home base due to fuel constraints."* Those are strangely curious and misleading statements because the Growler has a distance range of 1,275 nautical miles http://planes.axlegeeks.com/l/135/Boeing-EA-18G-Growler; so, allowing 15 miles per circuit of OLFC and 10 circuits equals 150 miles + 25 miles both to and from Ault Field, is 200 miles and well short of 1275. Further, recall from above that the new Growler OLF proposed by the Navy in eastern North Carolina for pilots based in Oceana was 100 miles to the south, or about 10 times the distance between OLF Coupeville and Ault.

Importantly, and as an example of superficial analysis, on page 2-18 "*Detachment training out of the region*" is dismissed with logical-sounding reasons. But on greater scrutiny, they all boil down to cost and convenience. There is no juxtaposed analysis of the cost and impact of FCLPs on Northern Puget Sound.

Also on page 2-8, the DEIS dismisses building a new OLF in an appropriate location, stating "*Constructing a new OLF is highly speculative and would require years, if not decades, to accomplish.*" The fact that this decision and action should have been done years ago should not be held up as an excuse to not begin the process today, rather than double-down on ignoring the problem. OLFC is obviously a substantially inappropriate site for FCLPs and trying to myopically continue to fit a larger square peg is hardly a viable long-term solution. The solution is perhaps to use detachment training (or some other off-Whidbey option) until the new OLF is constructed. The dollar excuses go on to say, *"…and it is unclear how to justify funding when OLF Coupeville fully satisfies the Navy's requirements."* Again, the Navy highlights costs and totally dismisses and discounts the residents it claims to be a good neighbor of. However, and importantly, a 21st century OLF for NASWI in an appropriate location in eastern Washington would certainly be economically beneficial to the state and would permanently solve the square peg disaster the Navy can no longer fit at OLFC.

But then this*: "Although moving FCLPs away from OLF Coupeville to a new OLF may reduce noise impacts to the community immediately surrounding OLF Coupeville, it would result in*

significantly more adverse impacts to the environment by result in significant new construction in another." <sentence construction not COER's mistake> Once again, gratuitous speculation with no backup is presented whatsoever. It smells like a cross between a cover-up and a contrived excuse.

While some of the Navy arguments may have some relevance, they cannot be evaluated without first subtracting the huge socioeconomic costs to central Whidbey Island—cost that:

- put our civilian health and hearing at risk
- poison our well waters due to use of toxic, life-time-lasting fire retardant foam,
- deflate our property values,
- interrupt and frustrate the education of our children,
- put our homes and businesses in harm's way from crash risk,
- thwart us from conducting business conversation or to socialize with neighbors and friends,
- desecrate our historic Ebey's National Reserve among other nearby refuges for peace,
- strain our civilian local taxes to cover support service costs for Navy personnel,
- tacitly allow a pregnant civilian to carry her child at documented risk to child, while the military's noise-safety standards remove the pregnant enlistee from even lesser levels of noise exposure (see COER Comment 3.b).

These are reasonable civilian expectations to be safeguarded against. They are, in fact, our givens--our rights to life, liberty and the pursuit of happiness. There is nothing in the constitution to subjugate those rights to a military *preference* or mere convenience. There is no constitutional article or amendment granting the military carte blanch to place convenience and preference over the people. If off-Whidbey FCLP training were to actually jeopardize our "national defense," all of this would be a non-issue. Moot. But this issue is not a matter of such jeopardy, but rather, paraphrasing the Navy's own reasoning, it is a matter of its efficiency, duplication of equipment, costs, and convenience. Furthermore, as explained in CORE Comments Addendum 1, there are very strong reasons to not locate all the Growlers on Whidbey Island.

Conclusion: It is certain and inarguable that if on-Whidbey FCLP training became, for whatever reason, not available, the Navy would very quickly find and implement a viable FCLP training alternative. None of the Navy's criteria and problems are insurmountable; instead they seem largely manufactured from arbitrary, disingenuous, and unsupported criteria. In failing to seriously evaluate off-Whidbey sites, the DEIS does not meet the critical above-discussed NEPA requirement (i.e., Section 1502.14, Alternatives Including the Proposed Action). The DEIS has not established that Navy interests, other than unspecified costs and its operational convenience, rise above the detriment that FCLPs are inflicting on the Northern Puget Sound area. There is no analysis of the cost/benefits or the pros/cons to show that the overall balance of interests tip to

military interests above the huge civilian impacts. This failing must be corrected with real and substantive analysis of the two or three of the most promising off-Whidbey FCLP training options. Among those dismissed in the DEIS his web site lists hundreds of potential western sites that might have produced a suitable location for such training, albeit in need of upgrading (http://members.tripod.com/airfields_freeman/index.htm).

(b) Obfuscating comprehension of the environmental impacts by artificially inflating the number of action alternatives to be analyzed.

The NEPA process seeks to ensure clarity and simplicity. Section 1502.7 addresses page limits:

> The text of final environmental impact statements (e.g., paragraphs (d) through (g) of Sec. 1502.10) shall normally be less than 150 pages and for proposals **of unusual scope or complexity shall normally be less than 300 pages**.

The DEIS spans nearly 1400 pages. Most of those pages are largely redundant because of the nine possible actions analyzed, only three are notably different from each other, making the other six largely clutter. That is, the three Alternatives (1-3), for all practical purposes, differ very little (i.e., accept 35-36 new Growlers), whereas the three Scenarios (A-C) addressing the number of operations at OLFC and NASWI do notably differ. Even worse, the nine action alternatives are each expanded by a factor or two to accommodate average year versus high-tempo years. Consequently, there are up to 18 different action options and one no-action non-option, creating reams of redundancy and exhaustive minutia.

The issues the DEIS should have seriously addressed off-Whidbey training sites for FCLPs, as demanded by comments received during the scoping period. Those comments were trivialized and cavalierly dismissed as discussed in COER Comment 1 (a) above. Simply put, the Navy did not make a good faith effort to explore meaningful and consequential alternatives as NEPA requires in Section 1502.14 (a), and therefore, a realistic and simplified analysis of the actually consequential alternatives is necessary.

Conclusion: The 9 DEIS action alternatives (to 18 when average and high-tempo years are factored in) must be reduced to two or three on-Whidbey and two or three off-Whidbey alternatives. Because the Navy has shown strong resistance to off-Whidbey FCLP training and has not demonstrated a good faith effort in this regard, it cannot be entrusted to mount this effort independently. Therefore, the selection of off-Whidbey sites to be evaluated should be turned over to a select committee of impartial military and civilian experts who can reliably winnow down and identify the two or three most realistic and promising options for effective Growler FCLP training.

Comment 2:

- DNL FAILINGS -

The Problem: The annual Day-Night Noise Level (DNL) noise contours depicted in the DEIS are misleading and fallacious for two reasons: (a) used inappropriate annual average day rather busy day averaging, and (b) held up as scientifically valid an outdated and scientifically invalidated DNL threshold for high noise annoyance.

The Explanation: First, note that the Code of Federal Regulations 40 CFR Section1502.24, Methodology and Scientific Accuracy, states unequivocally that "*agencies shall insure the professional integrity, **including scientific integrity**, of the discussions and analyses in environmental impact statements.*" In fact, below COER notes iterative DEIS excerpts indicating the Navy's full support for applying the most current and efficacious science to the DEIS process. It appears, however, to have experienced some difficulty in applying that objective, as revealed in COER Comments 2(a) and (b) below.

(a) Used inappropriate of annual average day rather busy-day averaging.
The Day-Night Noise Level (DNL) averages do not inform as to the noise magnitude, duration, or number of single hazardous noise events but attempt to characterize the overall noise experience in a 24-hour period. Indeed, as stated in USACHPPM (1998; page 28), [4] "although the DNL has been emphasized by the DoD and especially the Army as the primary noise exposure metric, this metric applies to community annoyance and is seldom related to behavioral or reproductive effects of wildlife;" nor is it effective or used to evaluate noise impacts on human health. It is strictly a controversial metric that dates back to the 1950s and is in need of contemporary updating.

The well-established standards for calculating an annual 24-hour average DNL is different for airports used daily versus those used intermittently. Those used daily are to be calculated based on all 365 days of use in the year; DNLs for airstrips used intermittently are customarily based on just the "busy days" of use. If airport use is just 50 days of use per year, the DNL should be averaged over just those 50 days, not all 365 days. Because the objective of the DNL is to analyze noise annoyance, that evaluation must focus on the days when the noise is occurring. If,

[4] *Ecological Risk Assessment Framework for Low-Altitude Overflights by Fixed-Wing and Rotary-Wing Military Aircraft.* January 2000. Rebecca A. Efroymson (Oak Ridge National Laboratory), Winifred Hodge Rose and Sarah Nemeth (U. S. Army Construction Engineering Research Laboratory), and Glenn W. Suter II (U. S. Environmental Protection Agency). Research sponsored by the Strategic Environmental Research and Development Program of the U. S. Department of Defense under Interagency Agreement 2107-N218-S1 under contract DE-AC05-00OR22725 with UT-Battelle, LLC. Publication No. 5010, Environmental Sciences Division, ORNL. https://www.researchgate.net/publication/252522677

for example, one is trying to understand noise annoyance related to fireworks, it makes no sense whatsoever to calculate the average DNL for the year by averaging the 4th of July in with other 364 other "quiet days." Those 364 days are not pertinent to understanding fireworks annoyance levels.

Because, the DNL relevant to evaluating jet noise annoyance can only be determined for days when the jets are flying, the use of 365-day or "average annual day (AAD)" averaging understates Growler FCLP noise annoyance and reduces the acreage and exposed population under each OLFC noise contour.

As explained by noise internationally prominent noise expert Sandy Fidell[5] (Fidell Associates, Inc.), "*DNL is, by definition, a 24 hour noise measure. Thus, DNL contours are intended to represent the aircraft noise exposure during a hypothetical, but "typical" or otherwise representative day.*" So, DEIS use of Average Annual Day (or AAD; averaging over all 365 days) artificially lowered the DNLs. As Fidell explains, "*averaging the exposure created on one night per month over a year is a pretty big stretch: 10·log(12/365) is about a 15 dB underestimate of exposure on nights when FCLP operations are conducted.*

That is reaffirmed by a 2013 noise study conducted by Wyle for the Avon Park Air Force Range Complex.[6] Because flight operations occurred, on average, 260 days of the year (not 365 days), Wyle appropriately used Average Busy Day (ABD) averaging: "*For noise modeling, total*

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[5] President, Fidell Associates; positions held at Bolt Beranek and Newman and successor organizations: Director, Environmental Technologies Department; Manager, Environmental Research and Data Systems Department; Senior Manager; Lead Scientist; Senior Scientist; Manager, Los Angeles Computer Laboratory. [Note: BBN Technologies (originally Bolt, Beranek and Newman) is an American high-technology company that provides research and development services. Based in Cambridge, Massachusetts, it is a military contractor, primarily for DARPA, and also known for its 1978 acoustical analysis for the House Select Committee on the assassination of John F. Kennedy. BBN of the 1950s and 1960s has been referred to by two of its alumni as the "third university" of Cambridge, after MIT and Harvard. In 1966, the Franklin Institute awarded the firm the Frank P. Brown Medal.BBN became a wholly owned subsidiary of Raytheon in 2009. On February 1, 2013, BBN Technologies was awarded the National Medal of Technology and Innovation.]

Fidell's Honors, Societies, and Advisory positions include: Acoustical Society of America (Fellow); Associate Editor, Journal of the Acoustical Society of America; U.S. Representative to International Standards Organization Technical Advisory Group on Community Response Questionnaire Standardization (ISO/TC43/SC1/WG49), and to ISO Working Group 45 on Community Response to Noise; Acoustical Society of America Representative to I-INCE Technical Study of "Metrics for Environmental Noise Assessment and Control"; Acoustical Society of America, Technical Committee; National Research Council Committee on Hearing, Bioacoustics and Biomechanics; Current or past member of the American National Standards Institute, Committee on Bioacoustics, Working Groups on Environmental Noise Measurement and Assessment and Auditory Magnitudes, and Community Response to Noise Levels; American Helicopter Society, Committee on Acoustics; IEEE Power Engineering Society, Audible Sound and Vibration Subcommittee; Design Review Group for FAA's Integrated Noise Model software; BBN Outstanding Publications Awards in1989, 1991, 1996.

[6] Revised FINAL Noise Study for the Avon Park Air Force Range, Florida. 2013. Wyle Report WR 13-05.

annual flight operations were converted to Average Busy Day (ABD) flight operations by dividing annual flight operations by the number of airfield operating days in a year…"

And still another study, this one for NAS Whidbey Island,[7] provided this proper application of ABD averaging.

> Noise contours for Naval air facilities are based on either the Annual Average Day or the Average Busy Day. The Navy document that addresses noise and land use compatibility around Naval facilities, OPNAVINST 11010.36A, Air Installation Compatible Use Zones (AICUZ), states:
>
> Noise exposure contours will be developed using either the Annual Average Day, or Average Busy Day where analysis indicates that the Annual Average Day would not properly reflect the noise environment. For example, at air installations which are closed on weekends or where weekend operations are substantially less than weekday operations, the use of Average Busy Day is appropriate.
>
> Because public attitudes toward an intermittent noise environment are most probably related to the days with higher noise exposure, **noise contours for a "busy day" of flying activity would be expected to relate more closely to public attitudes than contours for average annual daily activity**.

The 2005 AICUZ and related 2004 Wyle report for the NAS Whidbey Island likewise explain, "*For some military airbases, where operations are not necessarily consistent from day to day, a common practice is to compute a 24-hour DNL or CNEL based on an average busy day, so that the calculated noise is not diluted by periods of low activity*" (emphasis added).

Nevertheless, the DIES opted to use AAD with this rather strange explanation refuting its own AICUZ program (pages 3-12 to -13):

> The intent of this EIS is not to directly support the AICUZ program [which calls for ABD], but to use best available science as required under NEPA to develop an accurate analysis of potential noise impacts from the Proposed Action. Thus, while related, the AICUZ standard is not necessarily an appropriate NEPA standard. Using ABD would greatly overstate the nature of the noise impacts at OLF Coupeville, thus providing decision makers and the public with an inaccurate analysis.

That statement does not explain why AAD is more scientifically robust than ABD. In provides no scientific explanation at all, and in the absence of reason or evidence, leads only to the conclusion that AAD yielded lower impacts. Not only is such an unfortunate motive fully inconsistent with NEPA, it contradicts the assertion that the DEIS will "*use best available*

[7] Page 4-24 of the U.S. Navy's 1993 DEIS entitled "Management of Air Operations at Naval Air Station Whidbey Island." (Attributed to the Department of the Navy's Western Division Naval Facilities Engineering Command Engineering Field Activity Northwest for The Proposed Modification of Air Operations Management at Naval Air Station Whidbey).

science as required under NEPA to develop an accurate analysis of potential noise impacts from the Proposed Action."

(b) Held up as scientifically valid an outdated and scientifically invalidated DNL threshold for high noise annoyance.

In 1992 the Federal Aviation Administration (FAA), based on a synthesis of 1978 studies, established in Regulation Part 150 that a maximum average DNL of 65 dB or above is incompatible with residential communities, and that communities in affected areas may eligible for mitigation such as soundproofing. That 65 DNL was derived by the Federal Interagency Committee on Noise (FICON) based on a dose/response curve—the Schultz Curve—showing that 12.3% of the population is highly annoyed by aircraft noise at a 65-dBA DNL. Accepting that, the FAA and Congress subsequently adopted 12.3% as the *annoyance threshold that should not be exceeded*, and 65 DNL became the standard denoting high annoyance.

The Navy's Air Installations Compatible Use Zones (AICUZ)[8] similarly adopted the 65 DNL for its land-use compatibility determinations concerning aircraft noise, and the DEIS (page 3-19) reflects its acceptance of the annoyance science:

> As previously noted, the primary effect of aircraft noise on exposed communities is long-term annoyance, defined by USEPA as any negative subjective reaction on the part of an individual or group (USEPA, 1974). The scientific community has adopted the use of long-term annoyance as a primary indicator of community response, and there is a consistent relationship between DNL and the level of community annoyance (FICON [Federal Interagency Committee on Noise], 1992).

And AICUZ Section 3.2.2.1 further denotes reliance on DNL and the Schultz curve:

> Scientific studies have found good correlation between the percentages of groups of people highly annoyed and the level of their average noise exposure measured in DNL (Schultz, 1978; U.S. Environmental Protection Agency [USEPA], 1978). As such, DNL **has been determined to be a reliable measure of long-term community annoyance with aircraft noise and has become the standard noise metric** used by the U.S. Department of Housing and Urban Development, FAA, the USEPA, and U.S. Department of Defense (DoD) for assessing aircraft noise exposure.

However, the scientific international community has recently found that the 1978 studies and Schultz dose/response curve were flawed, invalidating the 65 DNL threshold standard. On

[8] AICUZ Study Update for Naval Air Station Whidbey Island's Ault Field and Outlying Landing Field Coupeville, Washington. Final Submission. March 2005. (This study was produced by The Onyx Group of Alexandria, VA and San Diego, CA, under the direction of the NAVFAC Southwest)

March 9, 2016, the International Organization for Standardization (ISO)—an independent, non-governmental organization of 162 national standards bodies(including the U.S.)—published a revision of ISO standard on measurement and assessment of environmental noise. The revised ISO standard reflects 5 years of analysis by an ISO technical committee, which produced the new dose/response curve based on 21st century research. An American National Standards Institute (ANSI) version of the ISO standard followed, which further mirrors ISO findings and validates the ubiquitous concurrence of worldwide noise experts. Consequently, to be consistent with 12.3% annoyance standard, the correct high annoyance threshold level is 55 DNL. It follows that at 65 DNL the percentage is approximately doubled.

Conclusions: The DEIS holds up that, "*The intent of this EIS is not to directly support the AICUZ program, **but to use best available science** as required under NEPA to develop an accurate analysis of potential noise impacts from the Proposed Action.*" Because that is entirely proper and to be expected by the U.S. government, the Navy cannot claim to honor and uphold science and concurrently rely on an undefendable, 40-year-old, scientifically discredited 65-dB DNL standard, which if used, would understate the long-accepted percentage for high annoyance (12.3%) by a factor of 2. Nor can it simply dismiss its own AICUZ program advocating use of ABD averaging for DNL contours at intermittently used air fields, and instead use AAD averaging because it suits their objectives.

Both these highly inappropriate DNL abuses render the DEIS noise (DNL) contours meaningless and invalidate all the environmental impact statistics derived from and based on those false contours. The DEIS must correct those shortcomings and honestly and forthrightly revise all the 65 DNL considerations to 55 DNL.

NOTE: comment and analysis addressing these two DEIS failings has been prepared for COER by Sandy Fidell and has been submitted separately.

Comment 3:

- HEARING CONSERVATION ZONES and MORE -

The Problem: (a) The Navy has adopted standards that protect their personnel from health and hearing harm due to excessive noise, yet these standards were ignored by the DEIS for civilians exposed to the same or greater levels of noise. **(b)** Furthermore, none of those Navy health hazard protection measures address "intermittency," yet the DEIS seems to portray intermittency as important, but never defines it or explains how or why.

The Explanation: (a) The Navy standards that protect their personnel from health and hearing harm due to excessive noise are ignored by the DEIS for civilians exposed to the same or greater levels of noise. If Admirals Cove (refer to DEIS point of interest R-06) and other areas under the OLFC flight path were a military installation, the area would be designated as a *hearing conservation* zone[9], and everyone living there would be required to wear significant hearing protection. A hearing conservation zone represents a "hazardous noise area" defined as those areas where the 8-hour time-weighted average exceeds 84 dBA (or 140 dB peak sound pressure level, SPL for impact or impulse noise) for more than 2 days in any month. Military and civilian personnel working in such areas are put in the Navy's Hearing Conservation Program and are identified as "at risk." The program requires frequent hearing tests and health monitoring, and according to section C1.3.2 of the program, when a permanent threshold shift (i.e., hearing loss) is identified, the commanding officer must act to prevent further hearing loss.

All Admirals Cove's 600+ suburban properties are candidate for hazardous noise zone designation, as are many other central and northern Whidbey Island. But the Navy chose not to reveal that in the DEIS and refused doing on-site noise testing to verify dose exposures, even though on-site testing is the cornerstone of the DoD's hearing conservation program for its

[9] Navy and Marine Corps Public Health Center Technical Manual NMCPHC – TM 6260.51.99-2. Navy Medical Department Hearing Conservation Program Procedures. Navy and Marine Corps Public Health Center, September 15, 2008. http://www.public.navy.mil/surfor/Documents/6260_51_99_2_NMCPHC_TM.pdf. Also see OPNAVINST 5100.23B, Navy Occupational Safety and Health (NAVOSH) Program Manual, and OPNAVINST 5100.19B, NAVOSH Program Manual for Forces Afloat.

personnel. Civilians supporting COER, however, did ante up and pay for the 2013 and 2016 JGL studies[10] to provide actual on-site testing at critical locations (also see COER Comment #4).

In addition, COER had Paul Schomer (Standards Director, Emeritus, Acoustical Society of America, Schomer and Associates, Inc.)[11] analyze the 2013 JGL study data. First, he compared several different data sets related to overflights to assess whether and to what extent that data demonstrate that the overflights are causing noise levels in excess of the Hearing Conservation Program threshold. Using data from Table 2 of the 2013 JGL study (note JGL 2016 not available at that time), Schomer compiled Table 3.1 below, wherein he converted the JGL data to 8-hour time weighted average (TWA) doses for each outdoor JGL position and session of flyovers. He explains his methods in COER Comments Appendix A. Table 3.1 examines how exposure time (i.e., dose experienced by someone at a given station for the full session) compares with the Navy-defined "hazardous noise zone" threshold, requiring designation of a "hearing conservation zone."

Schomer found, for example, that anyone at position 1(Admirals Cove, just a few blocks from DEIS point of interest R-06) would, in just two flying periods in one day, accrue a noise dose equal to 115% of the Navy's dosage threshold for a hearing conservation zone--i.e., >84 dBA for 2 days in any given month (see Table 3.1 below). Yet Growler practices at OLFC often exceed two sessions in a single day and up to 10 to 15 or more days of such FCLP practice have been conducted in a single month, and that is at the DEIS no-action level of 6100 annual operations. So, the OLFC area is significantly above the threshold for the Navy designation of a hazardous noise hearing conservation zone. For example, in 14 days in July 2012 there were 1,122 overflights of Admirals Cove, or an average of 80 overflights for each flying day that month. The noise that residents experienced that July exceeded the Navy's Hearing Conservation Zone threshold by more than 18 fold, assuming overflight noise averages that are similar to the JGL findings, which is nearly irrefutable[12]. Keep in mind that at desired 35,000 operations level there would be an average of 1020 flyovers of Admirals Cove for every month --i.e., 35,000 total ops/(2 ops/flyover ·12 months) × 0.7 on path 32.

The Navy's 2005 Air Installations Compatible Use Zone study for NASWI predicted 6120 annual operations (equals 3060 flyovers) or an average of 255 flyovers per month (3060/12). That is the no-action alternative for the DEIS. That projected number of flyovers would amount

[10] Jerry G. Lilly, P.E., President JGL Acoustics, FASA Member INCE, ASTM, NCAC. Whidbey Island Military Jet Noise Measurements. Initial Study June 2013 and Follow-up Study February 2016. Both studies available at http://citizensofebeysreserve.com/LinksAndFiles.html .

[11] International expert in environmental noise. See http://www.schomerandassociates.com/pdfs/Resume.pdf.

[12] JGL 2016 results show strong similarity of noise levels between sample times (low standard deviation), so that assumption is entirely warranted.

to about 7.3 times the exposure recorded by JGL for position 1(255/35 flyovers), which suggests much larger exceedances of the "Hazardous Noise" threshold than the 15% exceedance Schomer estimated in Table 3.1 for just two sessions of 35 overflights each (also see 2013 JGL Table 1). Average monthly exceedances under the no-action alternative would be about 423% of the Navy's threshold for designating a hazardous noise zone (1.66 × 255), assuming similar noise levels per flyover[4]. The other positions are all likewise well above the Navy threshold.

Schomer also considered the extent to which the threshold would be exceeded inside homes. Table 3.2 (below) shows those related results when he converted the same outdoor 2013 JGL results to approximate indoor noise levels. The indoor levels for those two JGL sessions did not cross the hearing conservation zone threshold. His analysis assumed a 15 dBA decrease from the JGL outdoor readings, a generally accepted discount that is realistic for winter when all doors and windows are shut. But in the summer, with windows and doors open, the reduction will be far less. And most days of FCLP practice at OLFC occur during the 6 warm months of the year, largely due to frequent unacceptable wind events from late fall to early spring.

In considering impacts indoors versus outdoors, exposure/ dose is rarely all one or the other. Many flyovers will occur when residents, park visitors, and campers will be outdoors. Farm and construction laborers and gardeners, for example, have no option but to be outdoors. Position 1 is very close to an outdoor swimming pool used by Admirals Cove residents and another public pool is near position 2 and 3. Lifeguards put in a full day outside. Positions 2 and 3 are in agricultural fields, and position 4 is a youth athletic field where families gather for extended periods. Note, if it takes just two outdoor exposures during a month's time to cross the Navy threshold, then any additional indoor or partially indoor exposures would exacerbate the exposure dose.

The DoD limits criteria applied by Schomer's are further presented in COER Comments Appendix B. It is noteworthy that in the dose exposure table, there should be no exposure of Navy personnel to noise levels exceeding 115 dBA. Yet at Positions 1, 3, 4, and 6 that criterion was exceeded or very nearly exceeded and that was on both of the two discrete days of recording a single session at each station. Multiply that by many multiples of sessions and the problem is manifestly evident.

More--Another Navy criteria ignored by the DEIS: extensive literature analysis by the Navy indicated a number of correlations showing impacts of noise greater than 85 dBA on the developing fetus, as discussed in greater detail in COER Comments Appendix C. Consequently,

during pregnancy, the Navy has decided that women should not be exposed to extended periods of noise above 84 dB[13]:

> Pregnant women should wear hearing protection when exposed to ambient noise levels above 84 dBA, including infrequent impact noise…Brief exposure (5 minutes per hour or less) of hearing-protected pregnant women to ambient noise above 84dBA in order to transit high noise areas is probably safe. Prolonged exposure to this level of noise is not recommended…Pregnant women should avoid any exposure to ambient noise greater than 104 dBA (corresponding to the need for double hearing protection), unless absolutely essential for quickly moving through a high noise area. The abdominal wall muffles (attenuates) the noise only somewhat and these very noisy areas may pose significant problems for the developing fetus.

And another notable study documented health low-frequency (LFN) noise impacts on the developing fetus: http://oem.msu.edu/userfiles/file/News/Hv6n3.pdf . Of course, the Growler is named for its LFN. That study examined 131 children ages 4 to 10 from Quebec. It showed a 3-fold increased risk of LFN-induced hearing loss in children whose mothers had been exposed to 85-95 dB, which was much more acute when it was LFN. Many reproductive women live under the FCLP flight path and are exposed to levels of Growler noise, including significant LFN, that far exceed safe levels for not only themselves, but even more so for their developing fetus.

(b) Navy health hazard protection measures do not mention "intermittency," but DEIS tries to portray intermittency as an important consideration. Throughout Chapter 4 of the DEIS, as well as other chapters, there is much made of a putative distinction between workplace (i.e., sort of constant noise) versus "intermittent noise," albeit no substantive or meaningful definition to segregate the two types was ever found. Nevertheless, in Chapter 4 intermittent noise is mentioned over 80 times, generally in the context of its being unique and having a wholly different presumed impact than other unspecified, presumably more constant noise doses. Here are a few examples:

- However, research conducted to date has not made a definitive connection between **intermittent** military aircraft noise and nonauditory health effects. Page 4-50
- This workplace exposure standard, which is being applied to outdoor noise levels, is not intended to accurately describe the impact of **intermittent** noise events such as periodic aircraft overflights but is presented as a "worst-case" analytical tool. Page 4-75
- However, research conducted to date has not made a definitive connection between **intermittent** military aircraft noise and nonauditory health effects. Page 4-79

[13] From: http://www.operationalmedicine.org/ed2/Enhanced/Pregnancy/EnvironmentalHazardsDuringPregnancy.htm

In spite of the insinuated "*no-problem intermittent noise*," in its own measures of protection for enlistees and civilians the Navy apparently does not recognize the distinction between the undefined "workplace constant" versus "intermittent-type" noise. That is, the military's definition for designating a hazardous noise zone makes no distinction whatsoever based on intermittency of loud noise during an average day, but it is based on the noise dose in a time-weighted 8-hour average and the number of such exposure days in a month (i.e., more than two days crosses the threshold). As Schomer aptly and expertly shows from the JGL data, the threshold for designating a "hazardous noise zone" is exceeded iteratively and excessively in many of the populous areas under the OLFC flight path, and those calculations were based on 6120 operations, not 35,000. Furthermore, intermittency is not a consideration in the above-discussed protections instituted by the Navy to protect pregnant women from noise ≥85 dBA.

Conclusion: The DEIS needs to examine how many civilians would receive exposure doses that put civilians, children, and the unborn at risk levels at or above the Navy's allowable dose risks for its own personnel. The Navy must also explain in the DEIS, why their personnel exposed to hazardous noise are considered to be "*at risk"* and are removed from noise areas, but residents, farm laborers, gardeners, contractors, pregnant women and their unborn children, etc., experiencing equal or far greater noise exposure levels somehow are **not** "at risk." The DEIS should also fully define and explain the import of intermittency and how it overrides the established metrics used to evaluate noise impact on health: i.e., nose dose per unit of time.

NOTE: the Paul Schomer report to COER as referenced in the above discussion has been submitted separately.

Table 3.1. --Analysis of JGL 2013 data converted to 8-hour time weighted averages (TWA), showing time of exposure to noise levels 85 dBA to >115dBA at the four JGL outdoor by recording positions (stations) and how each exposure amount (or dose) relates to the Navy-defined hazardous noise zone (i.e., designation of a hearing conservation zone). The lower table shows the related results when the same outdoor JGL data are reduced by 15 dBA to presumably represent indoor noise levels. <Prepared by Paul Schomer; see Appendix A>

Total time over (s)	Cumulative time in seconds by position (1-4)				Navy full dose time exceeded		Actual percent of full Navy dose exposure by position			
	1	2	3	4	Seconds	Minutes	1	2	3	4
85 dBA	448	855	365	600	28,800	480	0.2	1.1	0.4	0.4
88 dBA	381	538	257	482	14,400	240	0.5	1.7	0.6	0.7
91 dBA	315	299	169	375	7200	120	0.8	2.0	1.0	1.5
94 dBA	254	152	97	267	3600	60	1.9	1.6	0.9	2.0
97 dBA	184	93	63	195	1800	30	3.1	2.4	1.3	3.3
100 dBA	128	50	39	135	900	15	5.6	2.4	2.0	6.6
103 dBA	78	28	21	76	450	7.5	9.1	3.6	3.3	8.9
106 dBA	37	12	6	36	225	3.75	7.1	3.1	1.3	10.2
109 dBA	21	5	3	13	112.5	1.875	11.6	4.4	1.8	10.7
112 dBA	8	0	1	1	56.25	.9375	10.7	0.0	1.8	1.8
115 dBA	2	0	0	0	28.125	0.46875	7.1	0.0	0.0	0.0
Percent of Navy permitted daily noise exposure for one flying session							58	22	14	46
Percent of Navy permitted daily noise exposure for two sessions (×2)							115	45	29	92
Number of flyovers at each position as recorded for that session and position							35	43	26	28
Percent of Navy permitted daily noise exposure dose per flyover							1.66	0.52	0.54	1.64
Percent of Navy permitted daily noise exposure dose for average of 255 overflights/month (i.e., 6120 operations/year = 3060 overflights/year/12 months = 255)							423	133	138	418

Table 3.2. -- Analysis of JGL 2013 data converted to 8-hour time weighted averages (TWA), showing time of exposure to noise levels 85 dBA to >115dBA at the four JGL outdoor by recording positions (stations) and how each exposure amount (or dose) relates to the Navy-defined hazardous noise zone (i.e., designation of a hearing conservation zone). The lower table shows the related results when the same outdoor JGL data are reduced by 15 dBA to presumably represent indoor noise levels. <Prepared by Paul Schomer; see Appendix A >

Total time over (s)	Cummulative time in seconds by position (1-4)				Navy full dose time exceeded		Actual percent of full Navy dose exposure by position			
	1	2	3	4	Seconds	Minutes	1	2	3	4
85 dBA	128	50	39	135	28,800	480	0.2	0.1	0.1	0.2
88 dBA	78	28	21	76	14,400	240	0.3	0.1	0.1	0.3
91 dBA	37	12	6	36	7200	120	0.2	0.1	0.0	0.3
94 dBA	21	5	3	13	3600	60	0.4	0.1	0.1	0.3
97 dBA	8	0	1	1	1800	30	0.3	0.0	0.1	0.1
100 dBA	2	0	0	0	900	15	0.2	0.0	0.0	0.0
103 dBA	0	0	0	0	450	7.5	0.0	0.0	0.0	0.0
106 dBA	0	0	0	0	225	3.75	0.0	0.0	0.0	0.0
109 dBA	0	0	0	0	112.5	1.875	0.0	0.0	0.0	0.0
112 dBA	0	0	0	0	56.25	.9375	0.0	0.0	0.0	0.0
115 dBA	0	0	0	0	28.125	0.46875	0.0	0.0	0.0	0.0
Percent of Navy permitted daily noise exposure for one flying session							2	0	0	1
Percent of Navypermitted daily noise exposure for two sessions (×2)							3	1	1	2
Number of flyovers at each position as recorded for that session and position							35	43	26	28
Percent of Navy permitted daily noise exposure dose per flyover							.057	.012	.019	.036
Percent of Navy permitted daily noise exposure dose for average of 255 overflights/month (i.e., 6120 operations/year)							14.5	3.06	4.85	9.18

Comment 4:

- JGL STUDY UNDULY FAULTED -

The Problem: (a) The DEIS claim that the JGL noise study was "flawed" is disingenuous and unsupportable, whereas in actuality the Wyle modeled noise levels have not been validated with on-site noise data. **(b)** Single noise events data comparing JGL on-site noise findings do not support DEIS modeled data.

(a) JGL noise study not "flawed."

The Explanation: Section 1.9.5 of the DEIS (Other Noise Reports) attempts to discredit COER's noise study conducted and prepared by JGL Acoustics, Inc.:

> *"• JGL Acoustics, Inc. Report on Whidbey Island Military Jet Noise Measurements (2013). In 2013, JGL drafted a report in support of litigation that purported to compare limited short term aircraft noise measurements with noise impacts reported in the 2005 Growler EA… The JGL report, however, contained methodological flaws that make it unreliable for purposes of relating those short-term measurements to the annual conditions assessed in the 2005 EA. It also did not result in any findings that question the validity of Navy modeling."*

The paragraph seems contradictory—paraphrased it says JGL study had "methodological flaws" making its findings "unreliable"; but then goes on to say the JGL results support validity of Navy modeling. Perhaps that either means the Navy modeling was likewise methodologically flawed or that the JGL "flaws" must have been of no real impact on the results because they reflect Wyle modeling. Jerry Lilly of JGL Acoustics[14] challenged that DEIS statement:

> The wording in the second sentence exposes a clear bias in the comment by using the word "purported" when in fact my report did compare short term measurements with noise impacts. Nowhere did I claim that the short term measurements were to represent an actual annual exposure. I did, however, predict hypothetical annual exposures based on assumed annual flight activity for the exact same flight patterns observed during the tests. The comment also used the words "methodological flaws"

[14]JGL Acoustics, Inc. has been owned and operated by Jerry Lilly since 1983, who is a graduate of Whitman College and holds a Master's Degree in Engineering Acoustics from Penn State University (1975). He is a Fellow of the Acoustical Society of America (ASA); a board-certified member of the Institute of Noise Control Engineering (INCE); a licensed professional acoustical engineer in the state of Oregon, which is the only state with such a registration; and an active member of ASHRAE and the National Council of Acoustical Consultants (NCAC), ASTM.

> without identifying the specific flaws. This would lead the reader to think that errors were made in the analysis, when I suspect that the methodological flaw is nothing more than assuming a certain number of annual over-flights and that all flight patterns would remain the same as during the test day. –JGL Acoustics

That would seem to be consistent with Navy criticism during the Zilly proceedings, where the Navy argued that the 2013 JGL noise study lacked statistical robustness because it was a stochastic one-time sample that might lack repeatability due to weather, etc. That possibility lacks pragmatic significance because all sites were well within one mile of the jet track, as explained by JGL:

> Temperature profiles, humidity, and wind all can affect the resulting sound level, but these environmental effects are insignificant unless the listener is at least a mile or more away from the source. The greater the distance, the greater the effect. Sometimes the environmental conditions will cause the noise level to increase by 10 dB (or more) and other times it might decrease the level by 10 dB (or more). Atmospheric conditions will have no impact on the areas directly below (or within a mile of) the flight patterns. –JGL Acoustics

Furthermore, the Navy stated in the Zilly proceedings that the JGL data supported the Wyle predictions, as iterated in Judge Zilly's decision (page17.8): "*The Court finds significant the fact that when Mr. Lilly's measurements are converted into DNL, it is apparent that they are not significantly different or more severe from what was predicted in the 2005 EA.*"

Nevertheless, to resolve the possibility that the May 2013 JGL noise sampling was atypical of routine FCLPs at OLFC, COER again commissioned a second set of samples in February 2016 with repeat sampling at two of the same sites and at two additional sites not sampled in 2013[15]. Samples at the 2016 repeated sites closely supported the 2013 measurements, while the two new sites showed that noise was extremely consistent across the full approach path over Admirals Cove. The consistency between the two independent sampling periods is expressed by the very low standard deviation and show that the JGL measurements were reliable and valid. As explained by JGL:

> The primary purpose for this study [2016 study] was to determine if there is any significant difference in the measured noise levels when compared with the data collected in 2013…The fact that the measured change from 2013 to 2016 is less than half of the standard deviation of the maximum noise level within a single session suggests that the difference is insignificant.

[15] The 2013 and 2016 JGL Studies are available at http://citizensofebeysreserve.com/LinksAndFiles.html.

It is also noteworthy that the SELs recorded by JGL (2013 and 2016) at position 1 and 6, which are directly under the path 32 approach over Admirals Cove, are very similar to the approach SELs for Growlers stated in the 2005 AICUZ. Likewise, Table 3.1-2 of the DEIS presents representative sound levels for Growlers in level flight, which shows that Growler SELs under the flight path are 116 dBA at 200 ft AGL and 109 dBA at 500 feet AGL (for jet speed at 400 kn and power at 44.5 %NC). These too reflect Lilly's recorded levels at positions 1 and 6.

Of further relevance, the National Park Service during 30 days in July and August 2016 conducted on-site noise recordings at a site (EBLA001) directly between JGL sites 2 and 3 under the FCLP path. The NPS reported[16] noise levels within just 5 to 7 dBA of those recorded by JGL at sites 2 and 3. The DEIS validated that NPS noise study with this statement:

> • National Park Service Report for Ebey's Landing National Historic Reserve (2016). In 2016, the National Park Service performed acoustical monitoring for the Ebey's Landing National Historic Reserve. The conditions measured by this study were actual aircraft noise over a 28-day period in June and July 2016. Although this differs from the affected environment modeled for calendar year 2021 in this EIS, the results of the study appear consistent with the Navy's previous noise analyses.

At COER's request JGL reviewed the NPS study and provided this comment:

> The NPS report is excellent, with a lot of detailed acoustic analysis. Their finding of Lmax = 113 dBA is very close to my findings, even though their system was located far from my Position 1. It is important to note that the NPS used the words "extremely loud" in the second sentence of the conclusions. The NPS report is a very carefully worded document. Clearly, a lot of people spent a lot of time preparing this document. I doubt that they could find a better word than "extremely" to characterize the noise from the Growlers.

Of further import, modeled data does need to be verified with on-site data. Although the Navy asserted it was not necessary, studies reveal that modeled contours have failed to reflect actual on-site measurements. A study of 36 sites around Raleigh–Durham airport[17] found the modeled data consistently underestimated the actual on-site noise by 5-15 decibels; that is, the actual noise levels were roughly 50% to 150% louder than the NOISEMAP (1991–1998) and INM (1999–2002) models had indicated.

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[16] Ashley Pipkin, 2016. Ebey's Landing National Historical Reserve Acoustical Monitoring Report, Natural Resource Report NPS/ELBA/NRR—2016/1299. U.S. Department of the Interior, National Park Service, Natural Resource Stewardship and Science, Natural Sounds and Night Skies Division, Fort Collins, Colorado.

[17] Technical Report on Preparation of Day-Night Sound Level (DNL) Contours of Aircraft Noise During 2003 Raleigh-Durham International Airport North Carolina. March 2005. HMMH Report 295097.001 . Harris Harris Miller & Hanson, Inc., 15 New England Executive Park, Burlington, MA 01803 http://198.1.119.239/~flyrduco/rduaircraftnoise/noiseinfo/downloads/RDU_2003_DNL.pdf

The need for on-site noise data in order to achieve accurate noise contour mapping is specified by the World Health Organization in an extensive analysis of the effects of noise on human health[18]:

> While estimates of noise emissions are needed to develop exposure maps, measurements should be undertaken to confirm the veracity of the assumptions used in the estimates…As indicated in Chapter 2 modeling is a powerful tool for the interpolation, prediction and optimization of control strategies. However, models need to be validated by monitoring data…the accuracy of the various models available depends on many factors, including the accuracy of the source emissions data...

In that regard, the on-site NPS and JGL studies mutually corroborate the Wyle modeled data.

Conclusion: The Navy has provided no reason to dispute the veracity of the JGL noise findings or the NPS study. In fact, those studies provide on-site backup support for the Wyle modeled findings. The DEIS, instead of disparaging the JGL findings, should settle on full acceptance of the JGL and NPS studies and utilize all available data to enhance understanding the noise-exposure impacts and to "confirm the veracity of the assumptions" (WHO quote above) used by Wyle. In accepting the JGL findings, the DEIS must then accept their valid applicability to relating single noise event metrics where such metrics are customarily used and pertinent to evaluating impacts of excessive noise on health, park visitor experience, education, etc.

NOTE: the three JGL studies prepared for COER by Jerry Lilly have been submitted separately.

(b) JGL on-site noise findings do not support DEIS modeled data.

The Explanation: The DEIS presented copious amounts of modeled estimates of how noise at various points of interest (POIs) under the up to 18 different action possibilities will change under the action versus no-action alternatives. The only DEIS POI that is close to the positions used for on-site recordings in the JGL study is POI station R-06, which was located nearly equidistant between JGL positions 1 and 6, all on a direct line under the jet path. Each of those three sites is about 350-400 yards apart from each other.

DEIS Table 3.2-4 indicates that for the no-action base (3050 flyovers or 6100 operations) at POI R-06 the Lmax will reach ≥114 dB for 267 flyovers (i.e., events) per year. This disagrees with

[18] Berglund, B., Lindvall, T. and Schwela, D.H (Eds.). 1999. HWO. Guidelines for community noise. World Health Organization, Geneva. < http://www.bvsde.paho.org/bvsci/i/fulltext/noise/noise.pdf >

JGL on-site recordings at site #1 just a few blocks away from R-06 (see Table 4.1 below). At JGL site 1 the Lmax exceeded 114 dBA on 5 out of 35 flyovers, or 14% of the flyovers. Applying that 14% to the no-action base provides that Lmax will reach 114 dB in 427 flyovers or events per year, a discrepancy of 160 flyovers or 60% (160/267). DEIS Table 4.2-3 indicates that at 35,000 operations there would be 2650 exceedances per year at R-06, whereas Lilly's data indicates it would be 0.14 × 35,000(.7) = 3430 exceedances, about a 30% discrepancy between on-site and modeled.

Table 4.1. – Summary noise data from 2013 and 2016 JGL Study positions 1 & 6.

Statistic based on 2016 measurements	**Position 1 Empty Lot**		**Position 6 Deck of Residence**
	Year: 2013	**Year: 2016**	**Year: 2016**
Maximum A-weighted Level (dBA)	119.2	118.0	117.9
Maximum Un-Weighted Peak Level (dB)	134.2	132.7	133.1
Session SEL (dBA)	128.5	127.3	127.6
Session Duration (minutes)	39	40	17
Total Jet Flyovers	35	42	17
Average SEL per Jet Flyover (dBA)	113.1	111.1	115.3

The point is that the data Wyle presented via modeling do not comport with on-site data. In that regard, it cannot be reasonably argued that the discrepancy between JGL site 1 and R-06 is because they are in different locations. While that may be, JGL positions 1 and 6 have virtually identical Lmax values and R-06 is equidistant between those two JGL positions, which rules out location differences as an explanation.

Conclusion: The information above points to a possible problem with the DEIS modeled single noise event data. In the absence of any on-site Navy/Wyle noise data, the DEIS needs to accept and incorporate the existing and mutually supportive JGL and NPS on-site data and fully revise and update its POI analyses.

Comment 5:

- EBEY'S RESERVE -

The Problem: The DEIS **(a)** misconstrued an important finding of the National Park Service's 2015 noise study at Ebey's Landing Historic National Reserve, and **(b)** obfuscated forthright analysis and understanding of the impacts on visitor experience.

The Explanation:

(a) Misconstrued an Important Finding: The NPS conducted a noise study over 30 days in July and August 2015. The penultimate conclusion the DEIS drew from that study was:

> *Furthermore, the National Park Service's monitoring report demonstrates that, while military aircraft are loud, military aircraft operations are highly intermittent, with long periods of no military aircraft activity. For example, the report demonstrates that aircraft noise above 60 dB (normal conversation levels) occurred less than 1 percent of the time during the study period.*

Not exactly. It is important to point out that the low-frequency rumble of the Growler carriers further than other noise, and therefore traverses the full Reserve throughout the entire time Growlers practice at OLFC. COER's acoustic expert, Jerry Lilly (JGL, Acoustics, Inc.)[19] explains it this way:

> Low frequency noise will have no affect at all in the calculated DNL or SEL values in the areas inside the DNL 65 contours. That is not the case for listeners more than 5 or 10 miles away from the Coupeville OLF. Residents far away will only hear the low frequency noise, because the mid-frequency and high-frequency noise will be rapidly dissipated with distance due to air absorption effects. You must keep in mind that the SEL and DNL values are based on A-weighted decibel levels, and the A-weighting filters out most of the low frequency noise. So even though the low frequency noise from the jets can be heard at great distances, the A-weighted sound level of this noise is very low (well below levels of concern to the Navy).

[19] JGL Acoustics, Inc. has been owned and operated by Jerry Lilly since 1983, who is a graduate of Whitman College and holds a Master's Degree in Engineering Acoustics from Penn State University (1975). He is a board-certified member of the Institute of Noise Control Engineering (INCE), and he is a licensed professional acoustical engineer in the state of Oregon, which is the only state with such a registration. He is an active member in ASHRAE, the National Council of Acoustical Consultants (NCAC), ASTM, and the Acoustical Society of America (ASA).

Because the Reserve is entirely within about 5 miles of flight path 32, the low frequency noise is experienced by visitors throughout the entire Growler practice period, not 1% of the time, and it is highly obtrusive to painfully toxic, depending on jet proximity to the visitor. But either obtrusive or toxic, a practice session 40 minutes in duration produces 40 minutes of constant disturbance to any visitor expecting a quiet experience.

That in mind, the number of hours of Growler practice and the time of day and spacing of sessions becomes highly relevant, far more than an artificial average diluted across quiet times, which the DEIS and proposes as somehow indicative of park visitor experience. During the NPS study there were 417 Growler flyovers of the NPS site, which amounted to 10.4 hours of audible jet noise. That site (ELHR 001) is directly under the downwind leg of flight path 32.

So, at 25,000 operations per year (Scenario B, average year) Path 32 would experience 12,500 × 0.7 = 8,750 flyovers per year or an average of 730 flyovers per month, nearly double the number the NPS study recorded. At 35,000 operations (Scenario A) per average year Path 32 would experience 12,250 flyovers a year or 1020 flyovers per month, nearly triple the one-month number the NPS study recorded. Note too, those flyovers are based on Path 14 being used 30% of the time and Path 32 70% of the time, albeit the record clearly shows that Path 32 would most likely be used 90 to 95% of the time, as explained in COER Comment #6 below. At 95%, the flyovers would increase to 11,875 for Scenario B or 16,625 for Scenario A.

Given the 10.4 hours of audible military jet noise noted in the NPS report and that the whole time jets are practicing the noise significantly intrudes on visitor experience, those hours would increase under 70% use of Path 32 by about 1.75 times (i.e., 730/417) to 18.2 hours/month for DEIS Scenario B or by 2.45 times (1020/417) to 25.5 hours/month for Scenario A. Presuming average-day visitor hours of 7:00 AM to 7:00 PM (a generous period), there are 360 visitor-day hours in 30 days. Based on that, visitors would be exposed to audible jet noise from about 5% to 7% of the average visitor day.

But Growlers have not operated between 7:00 AM and about noon. If that was continued, noise would be compacted into the visitor hours of noon to 7:00 PM or 7 hours × 30 days = 210 hours/month. For that heavy visitor-use period the Growler noise exposure percentages would therefore go up to 9% to 12% of the heavily used afternoon to early evening period.

Conclusion: While the DEIS metric of <1% of the time is not inaccurate per se, it is disingenuous and deceptive because it artificially reduces actual impact on visitors to an artificial, misleading average. Revision of the DEIS to better and more realistically portray impacts on user experience is necessary.

(b) Obfuscated Analysis of Impacts on Visitor Experience: Section 4.5.2.2 speaks to noise impacts on visitor experience entirely in terms of annoyance rather than in terms of how jet noise affects visitor overall experience: *"[A]nnoyance is a primary human response to recurring high noise levels, and the level of annoyance experienced…tends to vary…"* While jet noise annoyance surely impacts the overall experience, as a single metric, it does not inform as to the visitor's overall take-home. That is, where on the spectrum do they rate their experience on a 0 to 10 scale (*miserable/never re-visit again*?, *so-so?*, *had a great visit?*). And that is the really relevant question here—not how many folks were "annoyed" or had trouble with conversation, but rather how many had an experience slightly to totally ruined by iterative Growler flyovers. While the DEIS developed impressive tables enumerating conversation interruptions, it provided no studies that correlated conversation interruption with visitor overall take-home experience at the Reserve.

However, the DEIS in Section 4.5.2.2 did acknowledge that *[n]*oise may detract from the experience and enjoyment of visitors…if the type of noise is not perceived to "fit" with the setting (i.e., a technological noise in a natural setting)… aircraft noise has been found to be a primary environmental factor causing visitors to parks to become annoyed and may detract from their overall experience of a park or recreational activity (Krog, Engdahl, and Tambs, 2010a)." The problem with the DEIS is that the speech interruption rate or the noise frequencies or SELs, etc., have no identified correlation with actual experience.

Nevertheless, because of the DEIS obsession with "annoyance," it is important to note that the old 65-DNL annoyance threshold is no longer valid; that is, the old 65-DNL standard to predict annoyance has been invalidated by the global scientific community, and the correct level is 55 dB (discussed in detail elsewhere in COER comment #2b).

DEIS section 4.5.2.2.1 attempts to redirect Growler noise impacts on visitor experience by insinuating that it is compromised by non-FCLP noise siting an NPS study, stating, "outside activities and development, including increased residential development in and near the reserve, vehicle traffic, and aircraft operations at OLF Coupeville that, the document notes, 'are short-term, highly variable in their frequency, and range from minor to moderate in their intensity' (NPS, 2005)."

That 2005 study, preceded any on-site noise level testing by 10 years. That aside, that argument tries ineffectively to conflate highway noise and residential development with Growler noise. In actuality, the orders of magnitude of difference between distant highway and overhead Growler noise are huge: a +40 dBA difference between 75 dBA SEL verses 115 dbA in SELs amounts to an 16-fold increase in loudness.

A subsequent DEIS excerpt from the NPS study, however, is more realistic, "…it is likely that aircraft noise impacts the perceived experience of visitors who come with expectations of seeing, hearing, and experiencing phenomena associated with a specific natural or cultural environment" (NPS, 2014),"

The DEIS, however, does go on to conclude, "The Proposed Action would not directly impact implementation of management plans for Ebey's Landing National Historical Reserve. However, aircraft operations at OLF Coupeville and, to a lesser degree, at Ault Field may indirectly impact management of the national historical reserve by degrading overall visitor experience." While that is true, it seems to try to convey that maybe it is not particularly significant.

Furthermore, the DEIS did not address the fact that the "elevated" sound levels during Growler flyovers violate NPS-governing laws, regulations, and orders, as delineated in the NPS sound study report:

> The National Park Service Organic Act of 1916 states that the purpose of national parks is "… to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The enabling legislation for the Reserve provides the additional mission of "preserving and protecting a rural community" and mandates that all NPS administered land within the Reserve shall be managed in accordance with the NPS' Organic Act (McKinley, 1993). In addition the Redwoods Act of 1978 affirmed that, "the protection, management, and administration of these areas shall be conducted in light of the high value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress.

The wisdom of our forefathers who so diligently codified and enshrined that NPS mission for perpetuity would certainly agree that Growlers are incompatible with "*the high value and integrity of the National Park System*" and that Growler noise inflicts a significant "*derogation of the values and purposes for which these various areas have been established*." The NPS Report further validates the great importance of quiet for visitors of our national parks:

> A 1998 survey of the American public revealed that 72% of respondents thought providing opportunities to experience natural quiet and the sounds of nature were a very important reason for having national parks, while another 23% thought that it was somewhat important (Haas, G.E., & Wakefield, T.J. 1998. National parks and the American public: A national public opinion survey on the national park system. Washington D.C. and Fort Collins, CO.: National Parks and Conservation Association

> and Colorado State University). In another survey specific to park visitors, 91% of respondents considered enjoyment of natural quiet and the sounds of nature as compelling reasons for visiting national parks (McDonald, C. D., Baumgarten, R. M., and Iachan, R. 1995. Aircraft management studies: National Park Service Visitors Survey. HMMH Report No. 290940.12; NPOA Report No. 94-2, National Park Service, U.S. Department of the Interior.).

Going on, the NPS Report looks to direction for management of natural soundscapes and notes NPS 2006 Management Policy 4.9:

> The Service will take action to prevent or minimize all noise that through frequency, magnitude, or duration adversely affects the natural soundscape [acoustic resource] or other park resources or values, or that exceeds levels that have been identified through monitoring as being acceptable to or appropriate for visitor uses at the sites being monitored (NPS, 2006a)…The Service will restore to the natural condition wherever possible those park soundscapes that have become degraded by unnatural sounds (noise), and will protect natural soundscapes from unacceptable impacts.

The report concludes by noting that Federal laws and regulations governing National Parks should be addressed within an EIS:

> The presence of military aircraft flying over or near [the Reserve] increases anthropogenic noise at the Reserve. The information in this report should be considered when evaluating impacts to the Reserve and its resources as defined by Federal laws, regulations, and executive orders, and according to policies established by the Director of the National Park Service.

The DEIS does not adequately analyze or show how the undisputed increased noise impacts will affect the management and conservation of the park. Furthermore, the DEIS does not analyze or disclose how the proposed alternatives will comply with the federal laws, regulations, executive orders, and National Park Service policies relevant to the preservation of Ebey's Landing Historic National Reserve.

Conclusion: The DEIS has used a fallacious 65-DNL annoyance standard to index Growler noise impacts on Park visitors, and has ignored the conflict between Growler FCLPs at OLFC and NPS-governing laws, regulations, and orders. These are significant impact problems that must be addressed and corrected.

And political sidebar question: Will the NPS sound study information and the impacts it reveals actually be seriously respected and adjudicated within the context of the DEIS, or will the above-mentioned "federal laws, regulations, and executive orders" be dismissed as secondary to

military convenience. An affirmative answer raises a second question: Do we as a country with all the rights bestowed by the Constitution really have to accept *the sound of war* into the very few rapidly diminishing places where we as a people can retreat to our historical heritage and our biological roots in the hope of finding and regaining a sense of peace and sanity?

In addition, COER provided comments to the Section 106 Process (see COER Comments Addendum 5) that, among other things, speaks to the special impacts that low frequency noise (LFN) has on structures and health. The impacts of LFN are extremely pertinent because Growlers are noted for the LFN they produce. The DEIS did not consider LFN effects, and must do so if it is to provide credible analysis of LFN on the Reserve's historical structures. The JGL review and analysis of the National Park Service noise study prepared by Jerry Lilly for COER has been submitted separately; in addition, the JGL noise studies (2013 and 2016) contain data from which LFN components can be extracted.

Finally, we note that some affected recreational areas and parks were totally omitted from the DEIS. . Marrowstone Island was not mentioned anywhere in the DEIS, nor were its two State Parks--Fort Flagler and Kinney State Parks. They need to be included because they are impacted.

Comment 6:

- PATH 14 versus 32 -

The Problem: The DEIS noise levels are based on about 30% of the proposed 8800 to 35,000 average-year operations at OLFC being conducted on Path 14. Based on the usage record, that assumption is unsupported and highly imaginative.

The Explanation: Since 2013, when the transition to Growlers was relatively complete, the highest use of OLFC Path 14 has been roughly 2% to 10%, which is consistent with base commander Captain Nortier's declaration to Judge Zilly (Citizens of Ebey's Reserve v. U. S. Navy Citizens of Ebey's Reserve, 2015) stating Path 14 is usable only on rare occasions:

> *OLF Coupeville has one runway oriented generally North/South, and is called runway 32 or runway 14, depending on direction of approach. The weather and winds determine the direction in which to conduct FCLPs. The local prevailing winds support runway 32 usage most of the year. FCLP flight patterns for OLF Coupeville were historically used by the EA-6B and A-6 aircraft, which shared similar flight characteristics. In the past, the flight pattern for runway 14 was adjusted for noise abatement purposes for homes on the eastern coastal boundary. Additionally, noise abatement procedures were designed to avoid flying over Long Point and a bird farm that is no longer in existence, and those procedures are still followed. Even with these modifications to the pattern, the EA-6B and A-6 could operate within acceptable parameters and use runway 14 when the meteorological conditions favored this runway. The EA-18G has a slightly different required flight profile in the FCLP pattern due to differences in weight and flight characteristics. As a result, the EA-18G cannot safely operate within the confines of the daytime runway 14 parameters currently in place. The Navy is examining runway usage and historical noise abatement procedures as part of its ongoing EA -18G Environmental Impact Study. Until that study is complete, runway 14 is rarely used for FCLPs.*

The noise abatement procedures referred to are quite curious but may relate to a settlement regarding a three-property-owner avigation easement over Long Point under Path 14, even though the noise impacts on the rest of the population under Path 32 are far greater, yet without such an easement. But that may be relevant, but a separate issue. Captain Nortier's declaration clearly speaks to the substantial unsuitability of Path 14 for Growler FCLPs.

Rather incredibly, the 2004 Wyle Report (i.e., source of the 2005 EA contours) was based on 50% use of Path 14, as was the 2012 Wyle report (for the 2012 EA) published October 2012 (Wyle Table A-1, page A-6). Growlers had been conducting FCLPs at OLFC increasingly from 2009 to 2012. So, the Growler use problem associated with Path 14 addressed by Captain Nortier in his declaration were surely known to the Navy and to Wyle well before the October 2012 EA publication date.

In fact, FOIA records reveal that in 2012 only about 22% of the FCLPs (bounces) were conducted on Path 14 (see Table 6.1, below), and of those, it is not clear how many were Prowler bounces, which unlike Growlers were able to safely use that path. So, in reality, that 22% was less because Prowlers represented some portion of that 22%. However, before 2012 when Prowlers were primarily using OLFC, even then, Prowler usage (2009–2011) of Path 14 averaged only 28% (see Table 6.2 below).

Why then was the 50% assumption used by Wyle in October 2012 when it was certainly known that Growlers could not use Path 14 at anything close to that 50% level? The answer seems to be that use of 50% would diminish the estimated magnitude of the noise impacts (contours) around Path 32, which of course, helped to facilitate the finding of no significant impact.

That significant 2012 EA (Wyle) Path 14 distortion, creates a credibility problem for the 30% Path 14 assumption in the DEIS, as further amplified by the actual Growler operations in 2013 to 2015. In those all-Growler years, the Path 14 use was <5% and reached only maybe 10% in 2016. Note too, the assumed 30% use of Path 14 increases absolute numbers for high-tempo years. What has changed so that it is now possible to conduct 10,500 (average year) to 11,500 (high tempo) FCLP operations/year on path 14, when the 800 operations were possible?

Simply put, the DEIS assumptions have no basis in reality, which is why the DEIS had to resort to vague, obfuscatory reasoning to create a reasoned illusion:

> Page 4-9: *Historically, the runway utilization goal at OLF Coupeville has been to split FCLPs equally between Runways 14 and 32. In recent years, however, due to a non-standard pattern on Runway 14, the utilization of Runway 14 has been significantly lower. This narrower pattern requires an unacceptably steep angle of bank for the Growler due to performance differences from the Prowler flying the pattern. The proposed OLF Coupeville FCLP patterns (day and night) are depicted in Figure 4.1-1; under Alternative 1 (and all action alternatives),* ***these patterns will be used in order to improve the standardization of training and enable more use of Runway 14.*** *The standard FCLP patterns will result in runway use percentages* ***based on the prevailing winds rather than aircraft performance and quality of training. Based on meteorological conditions at the OLF, the projected runway utilization for Runway 14 is approximately 30 percent, and the remaining percentage is to be utilized on Runway***

> ***32****…The high-tempo data represent years when the number of events may increase due to operational needs. During a high-tempo FCLP year,* ***total airfield operations could increase approximately 10 to 11 percent at OLF Coupeville*** *based on the operational scenarios selected as compared to the corresponding alternative… Growler operations would be conducted in a manner similar to the current Navy aircraft training missions conducted at the NAS Whidbey Island complex with the exception of* ***standardizing the FCLP pattern*** *for Runway 14 at OLF Coupeville utilizing the same pattern for day and night operations.*

The three patterns or sub-paths or patterns for Path 14 depicted in DEIS Figure 4.1-1 are no different than then they have ever been. Most importantly, note that the three lines depicting the patterns or sub-paths join into **one single line (sub-path) on approach touch-down, and takeoff**, which is exactly where the putative problem occurs for path 14 use. Obviously, those portions of the pattern are the tightest and most exacting aspects of the FCLP and not subject to waffling. And, with no information to the contrary, it is reasonable to assume that nothing has happened or is expected to happen geologically **to move the runway left or right or its touch-down spot, or reshape the terrain around the runway, or alter the "prevailing winds" or average annual "meterological conditions."** So, it is not at all clear how Growlers can now safely use runway 14 when nothing has changed to make what was only rarely possible suddenly become feasible due to "*standardizing"* (whatever that is?). The DEIS explanation above lacks substance and believability, especially in consideration of the 2012 EA's bogus 50% use assumption for Path 14.

Conclusion: Given the unsubstantiated and dubious feasibility of achieving a 30% FCLP use of Path 14, the final EIS must adopt a realistic range of use-percentages for Paths 14, and 32 and develop new noise contours and impact analyses based on the high and low values of that range. That range should span from the actual use record to the optimistic assumption proposed in the DEIS: that is, a 95:5 split (path 32:14), reflecting historical use, to a 70:30 (path 32:14), reflecting the current DEIS assumption. The impacts throughout the DEIS must clearly address both ends of that range.

Finally, this important caveat to the dubious 70:30 spit: There must be a guarantee that neither percentage can be exceeded—i.e., if they fall short of projection on one path, they don't make it up on the other path.

Table 6.1. -- Number of jet FCLPs (i.e., bounces, where 1 bounce = 2 operations) at OLF from 2007 to 2012. Numbers in brackets are the percentages of day, night, and combined bounces on path 32 (the west downwind/south approach; path 14 is east/north approach). <Percent of Path 14 bounces in column on right.>

	Day Bounces		Night Bounces		Combined			% Night <P32%>
Year	Path 14	Path 32	Path 14	Path 32	Path 14	Path 32	Total Bounces	
2007	709	575 [48%]	197	507 [72%]	906	1082 [64%]	1988	35 <45%>
2008[a]	162	96 [37%]	0	168 [100%]	162	264 [62%]	1274[a]	na[a]
2009	565	1437 [72%]	14	630 [98%]	579	2067 [78%]	2646	24 <22%>
2010	1021	1368 [57%]	256	593 [70%]	1277	1961 [61%]	3238	26 <39%>
2011	686	2356 [77%]	315	1332 [69%]	1001	3688 [79%]	4689	28 <21%>
2012	454	1288 [74%]	596	2496 [81%]	1050	3784 [78%]	4834	63 <22%>
Avg								35 <28%>

[a] The 2008 data provided are incomplete; hence strata data do not total across to 1274, the Navy's reported totals for those years.

Table 6.2. -- OLFC use for FCLP practices in 2012 from FOIA data provided to COER by the Navy

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Month 2012	Arrivals (estimate)[a]	Day Touches		Night Touches		Total T&G + Arv.
		Successful	Wave-offs	Successful	Wave-offs	
Jan (7 days)	**42**	**194**	**17**	**271**	**25**	**507 + 42**
Path 14	3	26	2	0	0	28 + 3
Path 32	39	168	15	271	25	479 + 39
Feb (5 days)	**24**	**37**	**5**	**223**	**17**	**282 + 24**
Path 14	5	0	0	46	4	50 + 5
Path 32	19	37	5	177	13	232 + 19
Mar (3 days)	**16**	**102**	**4**	**76**	**4**	**186 +16**
Path 14	0	0	0	0	0	0
Path 32	16	102	4	76	4	186 + 16
Apr (10 days)	**28**	**271**	**20**	**39**	**1**	**331 + 28**
Path 14	21	213	14	23	0	250 + 21
Path 32	7	58	6	16	1	81 + 7
May (1 day)	**1**	**2**	**1**	**0**	**0**	**3 + 1**
Path 14	0	0	0	0	0	0
Path 32	1	2	1	0	0	3 + 1
Jun (11 days)	**76**	**241**	**24**	**584**	**65**	**914 + 76**
Path 14	33	186	13	175	20	394 + 33
Path 32	43	55	11	409	45	520 + 43
Jul (14 days)	**94**	**164**	**17**	**858**	**83**	**1122 + 94**
Path 14	17	0	0	178	21	199 + 17
Path 32	77	164	17	680	62	923 + 77
Aug (1 day)	**4**	**0**	**0**	**43**	**3**	**46 + 4**
Path 14	0	0	0	0	0	0
Path 32	4	0	0	43	3	46 + 4
Sep (9 days)	**81**	**332**	**40**	**540**	**61**	**973 + 81**
Path 14	7	0	0	68	10	78 + 7
Path 32	74	332	40	472	51	895 + 74
Oct (3 days)	**12**	**29**	**25**	**79**	**15**	**148 + 12**
Path 14	0	0	0	0	0	0
Path 32	12	29	25	79	0	148 + 12
Nov (5 days)	**27**	**195**	**22**	**94**	**11**	**322 + 27**
Path 14	4	0	0	45	6	51 + 4
Path 32	23	195	22	49	5	271 + 23
Dec (0 days)	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL (79 days)	**405**	**1567**	**175**	**2807**	**285**	**4834 + 405**
Path 14	90	425	29	535	61	1050 + 90
Path 32	315	1142	146	2272	224	3784 + 315

[a]Assumes each plane makes 12 bounces (i.e, total T&G/12)

Comment 7

-SAFETY-

The Problem: The DEIS has basically skirted or only superficially analyzed the actual risks associated with FCLP operations at NASWI and OLFC. Neither has it presented an effective solution that would dispel the risks and incompatibility between Growler FCLPs and unchecked encroachment around OLFC.

The Explanation: While OLFC does not meet the operations threshold for designating accident potential zones (APZs), in 2011 and 2012 flight carrier landing practice (FCLP) operations came very close to crossing that threshold, which is 5000 operations at either end of the runway. It is important to understand that the 5000 operations threshold is a completely arbitrary figure; it is not a number at which risk becomes suddenly manifest. Each operation involves risks, and hence, the greater the number of operations the greater the risk. The DEIS says as much on page 4-15: *"Analysis of flight risks correlates Class A mishap rates and BASH with projected airfield utilization. The Proposed Action would add 35 or 36 Growler aircraft and increase overall airfield flight operations at the NAS Whidbey Island complex, thereby increasing the risk of a mishap."*

Operations at OLFC are particularly risky due to very fundamental considerations that are not found at contemporary airfields where FCLPs are conducted. Those include substandard runway length (–3000 feet off standard) and the very limited buffer acreage (–29,000 acres off standard) encroached on all sides by all incompatible land uses. Put another way OLFC acreage is about 1.5 square miles, whereas a contemporary 30,000 acre outlying field could be represented by a circle 3.8 miles (7.6 mile diameter) in all directions from OLFC's center or a square area of about 7 × 7 miles, an area encompassing all of the town of Coupeville, as well as numerous residences, parks, and facilities east and west of OLFC.

And there other risk factors: (1) the potential for pilot error, many being student pilots (see https://aviation-safety.net/wikibase/wiki.php?id=57241: fatal OLFC student crash 28 Dec. 1982, three killed), (2) the F-18's deplorable safety record, (3) takeoffs and landings are the two most dangerous segments of sorties, (4) things fall off these high-power jets, and (5) bird aircraft strike hazards (BASH), which are especially common during low-level operations. These are further discussed in COER Comments Appendix D to F. Regardless of whether APZs are designated or undesignated, OLFC presents a major safety risk with potentially dire consequences.

DEIS page 4-261states, *"While it is generally difficult to project future safety/mishap rates for any aircraft, the Growler has a well-documented and established safety record as a reliable aircraft."* That is misleading and sadly not the case. Actually, the Growler's F-18 airframe is one of the most accident-prone military jet airframes in history. Military jets as a whole are 67 times more likely to crash than are passenger jets, so that 67 would be multiples higher for the Growler because it is more accident-prone than other military jet airframe. Between 1980 and 2014 the F-18 sustained 39 incidents, while its predecessor, the EA-6B (Prowler), sustained just 7 incidents, even though the Growler flew far fewer sorties (see COER Comments Appendix 7.A). That equates to 1.15 incidents per year for F-18 versus 0.21 incidents per year for the Prowler. On a per-year basis uncorrected for the number of sorties each airframe has flown, the F-18 airframe is 5.5 times more likely to sustain an incident that the Prowler[20]. Given that a sortie is constituted by (1) a takeoff, (2) flying to/from a destination, and (3) a return approach to landing, then every individual FCLP constitutes a sortie (downwind leg equating to a short version of #2). Therefore, crash or incident rate per sortie is the most relevant and telling statistic to risk because it can be directly cross-compared with the number of FCLPs.

Furthermore, while there are claims that the Growler becomes safer the longer it is flown, the record since 2014 (not included in COER Comments Appendix D) does not support that presumption. Instead it reflects a continuation or exaggeration of significant incidents. Crash incidents from in 2014 through 2016 with F/A-18 numbered 5 for type C, 1 for D, 2 for E, 1 for F, and 2 for FA-18 Hornet for a total of 11 crashes ranging from landing, takeoff, and from air (https://en.wikipedia.org/wiki/List_of_accidents_and_incidents_involving_military_aircraft_(2010%E2%80%93present) .

Another credible, independent analysis states, "Growler jets are much more difficult to fly and not made as well as the older Prowler jets," which is why their research found the Growler to be 10–36 times more likely to crash than the Prowler, as depicted in the tables and figure below <https://washingtonenvironmentalprotectioncoalition.org/3-how-growler-jets-harm-people/3-2-growler-jets-36-times-more-likely-to-crash-than-prowler-jets>.

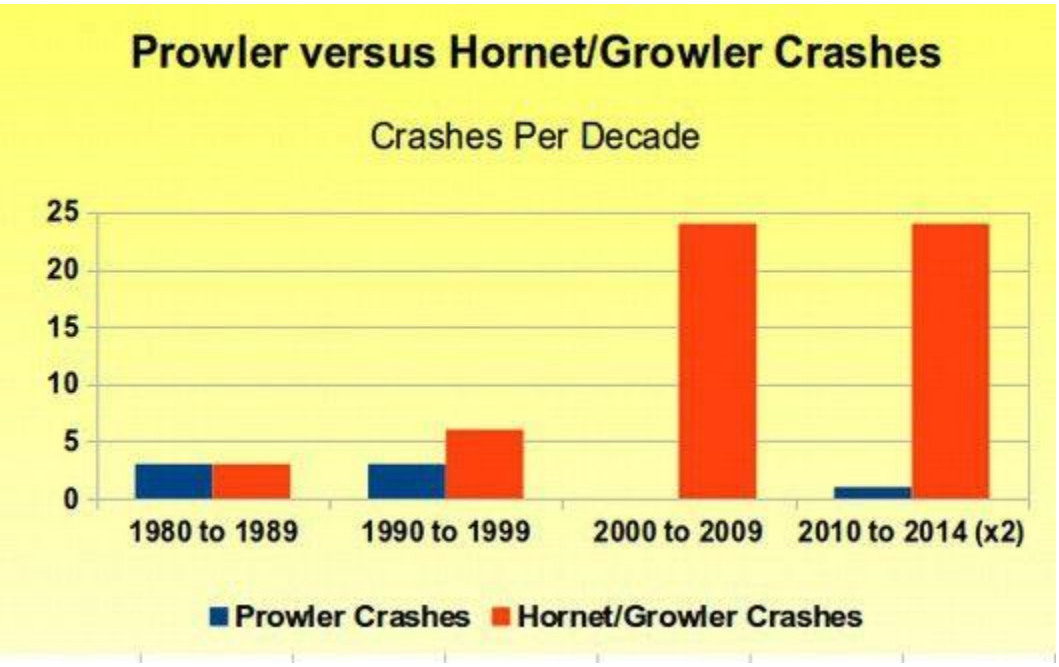
[20] The incident totals here are not inclusive of all of 2014 and include none of 2015 and 2016, during which time there have been a large number of fatal and near fatal F-18 incidents, one in December 2016 at Ault Field that could have but luckily did not impact on Oak Harbor.

Grumman EA6B Prowler versus McDonald Douglas F18 Hornet and Growler Accidents (note: Growlers are an electromagnetic warfare version of the F 18 Hornet)

Decade	Prowler Crashes	Hornet/Growler Crashes
1980 to 1989	3	3
1990 to 1999	3	6
2000 to 2009	0	24
2010 to 2014 (x2)	1	12x2 = 24

Last 35 years: 7 Prowler Jet Crashes and 45 F18 Hornet/Growlers Jet Crashes
Last 25 years: 3 Prowler Crashes and 42 F18 Hornet/Growler Crashes: Ratio 13 to 1.
Last 15 years: 1 Prowler Crash and 36 F18 Hornet/Growler Crashes: Ratio 36 to 1.

Here is the Graph based on the above table:



While pilot error is part of the incident data, it factors in as part of the reason for the higher F-18 incident rate simply because of greater human performance demands. For example:

> United States Navy Blue Angels McDonnell-Douglas F/A-18 Hornet, BuNo *162437*, crashes into a residential neighborhood…killing the pilot. Military investigators blame pilot for his fatal crash. A report obtained by The Associated Press said that Lieutenant Commander Kevin Davis got disoriented and crashed after not properly

> tensing his abdominal muscles to counter the gravitational forces of a high-speed turn. (April 27, 2007)
> United States Navy Blue Angels McDonnell-Douglas F/A-18 Hornet, On June 2, 2016 Blue Angels no. 5 crashed on takeoff while preparing for an airshow. The plane crashed approximately two miles from the end of the runway. Marine Capt. Jeff Kuss, the pilot, did not eject and died in the crash. Observers speculated that he did not eject because he was directing the aircraft away from a large apartment complex. The similarities to FCLP operations two miles from schools and a hospital are obvious. That was the third FA 18 crash that week.

In addition, as reported by The Hill (see COER Comment Appendix D), it is likely that hypoxia may be contributing to the pilot-caused accident rate of the F-18 airframe (Growler). It is perhaps a background contributor to the 22 Growler and F/A-18E/F crashes since 2002 and certainly a factor in hundreds of "incidents" since 2006 attributed to misjudgment, disorientation, fatigue, and distraction. According to the *Navy Times 5/8/16: "Nothing scares Hornet pilots more than losing oxygen — and it happens all the time."* This article details the hypoxia (low oxygen) problem in the Growlers, which pilots have identified as their top concern. "Naval Air Systems Command is scrambling to implement fixes, but the brass has underplayed the severity and frequency of the danger since it emerged in a February 2016 congressional hearing, according to interviews with pilots and official reports."

Another exacerbating risk potential is "wave-offs" from FCLP touch-down, which increase pilot workload at a critical moment in the FCLP approach and add to the risk, as does the fact that FCLPs are often being conducted by student pilots managing the most incident-prone jets in history. This makes OLFC a tragedy in waiting.

A retired Northwest Airlines Captain[21] and military flight instructor explains the risks as follows.

> It is my opinion that [FCLPs] at OLF utilizing runway 32, with the potential for engine failure, mechanical disability, or control loss during low level approaches, would dictate immediately maintaining runway heading and climbing for altitude to assess the situation if possible. Directly ahead within approximately a quarter mile is the location of Whidbey Island's Transit Fuel Depot, and an additional mile further, the township of populated Coupeville. Operating on runway 14 would put the community of Admiral's Cove, within approximately 1 to 1.25 miles, directly in line for potential disaster considering similar circumstances. The AE-18G Growler has a high approach speed of 160 to 180 knots dependent upon aircraft weight and density altitude, a speed greater than the AE-6 Prowler, and therefore travels a greater distance

[21] Mark Harmon, Captain, Retired, Northwest Airlines, 38 years of experience, totaling 28,000 hours in a variety of jet and propeller powered aircraft; holds licenses in ground instruction for FAA basic, advanced, instructor, and flight engineer certification.

> whether in a banked turn or straight ahead, thus creating greater potential for reaching the locations previously mentioned. Impacting the ground at high speeds utilizing aircraft carrier approach, landing, and go around techniques could easily carry the aircraft's momentum to these distant locations with disastrous results.
>
> Of the many reasons for dismissing naval carrier practice at OLF, to include noise and others, this safety issue must be the most predominate…My first impression of this 5400 foot runway is that it is not able to accommodate the high speeds that the AE-18G needs to maintain in a safe training environment and especially if an emergency arises with only one course of action that may or may not put the surrounding population in jeopardy!

The Admirals Cove subdivision has a typical suburban density. On approach on Path 32, Growlers cross the full center of that neighborhood at elevations of about 200 to 400 feet above the residences at a rate of about one overflight every 70 to 85 seconds. Nearly all of that development is within an undesignated APZ-1, which if designated, should have no residential development (2005 AICUZ). Yet Admirals Cove and adjacent Pelicar Shores includes over 600 residential properties. And on Path 14 there are similar issues.

Furthermore, within that approach over Admirals Cove, large numbers of migratory waterfowl, resident gulls, eagles, and a wide variety of harriers, exacerbate bird strike (BASH) risks and the potential for serious accidents. And Section 3.3.1.2 recommends, *"To reduce the potential for BASH, the FAA and the military recommend that land uses that attract birds (e.g., agricultural fields, landfills) be located at least 10,000 feet from an airfield."* Yet, agricultural fields are located squarely under and throughout the downwind leg of Path 32. The DEIS does seem to recognize the problem somewhat on page 4-116: "*With an increase in operations, the potential for BASH* ***increases slightly****; however, the risk is* ***managed through continued application of BASH measures****, and the risk of BASH would be expected to remain similar to existing levels."*

Several problems with that dismissal. First, to examine, "*With an increase in operations, the potential for BASH increases…"* Assuming, reasonably enough, a direct relationship, if risk is X for 6000 operations, then presumably for 36,000 operations, the risk is approximately 6X. Basically, 36,000 operations is what the Navy has proposed under Scenario A
Ther. So it seems quite disingenuous to refer to a six-fold increase, or even a two-fold doubling, as a "slight increase" in risk or that risk will "*remain similar to existing levels*," especially when for BASH avoidance, "*there is no proposed change planned to existing flight procedures for Ault Field or OLF Coupeville* (page 4-116)."

Second, the DEIS did not identify how it *manages or continually applies BASH measures*. For example, Navy data on Prowler/Growler BASHs of NASWI show that from June 26, 2001, to

September 6, 2013, a total of 133 strikes occurred. And, as phoned into the Navy's comment line, on August 17, 2016, afternoon FCLPs provoked 100s up to ≤1000 gulls to rise up off the Admirals Cove lake and the adjacent nearshore sound waters. They rose up in huge swirls and settled back down after each jet past, over and over until after over an hour they finally departed and headed south across the Puget Sound. While many did not rise high enough to be struck, a significant number did. There was no indication that that ground control or the pilots were aware of the situation, but they may have monitored the rest of the practice week.

Yet the DEIS admits in Section 3.3.1.2 that BASH events are a safety concern because of the potential for major risks to aircraft, to pilots, and/or to civilians in a populated areas:

> The presence of resident and migratory birds at NAS Whidbey Island is attributable to both the installation's location within the Pacific Flyway and the occurrence of water-filled ditches, freshwater wetlands, marine shoreline, perch sites, tall brush, and short grass in the vicinity of the runways. All of these conditions attract numerous bird species, and their presence creates a potential BASH risk…most reported bird strikes occur at an elevation of **less than 1,000 feet AGL**…To reduce the potential for BASH, the FAA and the military recommend that land uses that attract birds (e.g., agricultural fields, landfills) be located **at least 10,000 feet** from an airfield.

The above-mentioned Admirals Cove lake is immediately in line with the approach for OLFC Path 32 and it is heavily used by waterfowl, gulls and eagles throughout the year. Jets cross at about 500 feet above the lake (see Figure 8.1 in Comment #8 below) and about 5000 feet from the runway. And immediately surrounding the lake is a suburban population. All of those FAA BASH-related criteria referenced above cannot be met on Path 32.

Adding to the above risks is pilot acuity. The Navy is on record as stating that late night FCLPs are needed because *pilots need to get used to flying when they are tired* since that is what they will experience in actual conditions. That may be, but tiredness also increases accident risks. One obvious way to mitigate civilian risk is to conduct FCLPs where there are no civilians, and another is use of flight simulators, where tiredness-based error involves no loss of aircraft or life (see Section 5 for more on flight simulators).

Mishaps related specifically to the jets at NASWI are tallied in COER Comments Appendix E, and things falling off NASWI Growlers and Prowlers are presented in COER Comments Appendix F. Certainly the Coupeville area is at risk of experiencing the impacts of such incidents.

Nevertheless, somewhat inexplicably, the DEIS concludes on page 4-128 (Public Health and Safety Conclusion) that safety risks are negligible or not a problem:

> The Proposed Action would increase the volume of air operations; however, it would not change the installation's ability to comply with military airfield safety procedures for aircraft arrival and departure flight tracks and for operations surrounding the airfield. **Therefore, no significant impact to safety related to flight safety or BASH is expected under any of the alternatives as part of the Proposed Action.**

Without crash risk analysis in the DEIS, that conclusion is without reasoned and analytical support. The following examination prepared by COER supporters finds the risks are not insignificant.

Risk Examination:

The accident risk evaluation must include probability predictions related to the statistics of crashes. In the last 25 years the ratio of F-18 crashes to Prowler crashes is about 13:1 (COER Comment Appendix D). The F-18 is a faster and more powerful airframe and more can go wrong in flight. But not all F-18s are alike; there was a considerable re-design for the F-18E/Fs that the Growlers are a copy of but with electronic equipment. Some may argue that redesign made them more crash safe. Accidents for just these crash records are spotty, but a good estimate is 22 crashes of these F-18s since 2002 of which 10 were midair collisions in training and 12 were a random mix of pilot error and mechanical failures that occurred in the air as well as during takeoffs and landings, often with ejections[22]. Midair collisions are less likely in FCLP training than in battle simulations, but the other 12 crashes had circumstances that could happen at or around OLFC during FCLPs.

Computing even the primitive statistic of 0.84 crashes/year worldwide of this aircraft type tells us there is not a near-zero probability of a crash at OLFC, given the crash-accentuating factors there. Of course, careful examination of the circumstances of each crash would help refine the probability estimates for OLFC. Yes, the OLFC has only suffered one catastrophic crash, but many circumstances present in the other accidents are even more pronounced in OLFC's conditions and will be vastly amplified following the 6-fold increase in the number of flight ops predicted in the DEIS.

The All-Navy Class-A Mishap Rate over the past 10 years is 1.27 mishaps per 100,000 hours flown. At the flight-op rates projected in the DEIS, this translates to 3-4 "mishaps" over the next 10 years, at least one of which could be a crash disaster.

Regardless of the data input and analytical process, the crash risk probabilities are elevated with increased operations. A sixfold increase in operations could easily create a higher-than-six-fold increase in crash potential by exacerbating interaction of factors like tight scheduling, support

[22] https://en.wikipedia.org/wiki/List_of_accidents_and_incidents_involving_military_aircraft_(2000–09)

staff fatigue, more crowded airspace, cutting the safety window too closely for weather events, etc.

Conclusions:

(1) The two most dangerous aspects of flying are the approach, landing and takeoff; those three elements encompass nearly all of the OLFC flight path. The risks are significant (a) because of major encroachment problems, (b) because OLFC is up to 29,000 acres short of and the runway about 3000 feet less than standard for Growler FCLPs, (c) because the pilots are mostly students flying the F-18 airframe, which is 5.5 times more likely to crash than its EA-6B (Prowler) predecessor, and (d) FCLP operations occur at low elevations that increase likelihood of bird strikes exacerbated by the significant shoreline bird population.

(2) Within the undesignated or to-be-designated APZs are 1000s of residential properties, a heavily used County recycle center, an Olympic-sized outdoor swimming pool at Admirals Cove, a new federally funded transit facility with above ground fuel storage tanks, Island County's Rhododendron Park for youth soccer and softball events, the main north/south highway on Whidbey Island, a newly constructed animal shelter and heavily used dog park, and a residence for about 100 homeless teens. Almost all of the surrounding land uses are incompatible with the established 2005 AICUZ guidelines--e.g., no residences (not 1, let alone 1000s) should be situated in an APZ-1.

(3) The associated risks cannot be justified or solved, even at the DEIS no-action level. That is why the Navy must use the DEIS process to identify a viable off-Whidbey FCLP training alternative that meets 21st century needs and standards for Growlers.

Comment 8:

- FAA ELEVATION RULES IGNORED -

The Problem: Explicit FAA rules address low-level flying over residential areas, which the DEIS touts as being properly followed at OLFC and Ault Field. Actually, some of the FAA rules, as related to FCLPs, have not been properly addressed in the DEIS.

The Explanation: Page 3-41 of the DEIS states that "*Aircraft safety is based on the physical risks associated with aircraft flight.* ***Military aircraft fly in accordance with Federal Aviation Regulations Part 91****, General Operating and Flight Rules, which govern such things as operating near other aircraft, right-of-way rules, aircraft speed, and minimum safe altitudes."* However, the following FAA rule is not addressed in the DEIS:

> FAA Rule 91.119 (Minimum safe altitudes: General) states, that "Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes: (b) *Over congested areas.* Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft. (c) *Over other than congested areas.* An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

Growlers are not allowed to actually land at OLFC because they cannot take off due to the runway being too short. Furthermore, with touch and go FCLP practice there is no intent to actually land, which involves bringing the plane to a stop, or conversely taking off from a resting position. Because FCLPs are touch-downs with no actual landing, it follows that a true take-off cannot occur since the jet never landed.

As shown in Figure 8.1 below, the approach to touchdown begins and descends from 400 feet, which puts it at about 400 to 200 feet over many residences within the "2000 foot radius of the aircraft." Furthermore, the downwind leg of an FCLP at 600 feet above ground level (AGL) is not a takeoff or a landing approach but is an interim flight between touchdown and approach for another touchdown; nor is the arrival flight at 800 feet AGL a landing approach but is a circle of OLFC prior to beginning the first FCLP. So, no part of an FCLP at OLFC complies with the 1000 or 500 foot AGLs stipulated in the above FAA rule. Even if the approach and takeoff were to be accepted as "necessary for takeoff and landing," and hence excluded, the downwind leg and arrivals are still noncompliant.

DEIS Section 6.1 summarizes how the proposed actions comply with applicable laws and regulations:

> In accordance with 40 Code of Federal Regulations section 1502.16(c), analysis of environmental consequences shall include discussion of possible conflicts between the Proposed Action and the objectives of federal, regional, state, and local land use plans, policies, and controls. Table 6-1 identifies the principal federal and state laws and regulations that are applicable to the Proposed Action and describes briefly how compliance with these laws and regulations would be accomplished."

However, compliance with Federal Aviation Regulation Part 91was somehow overlooked in the DEIS and in Table 6-1. The DEIS must discuss and show how its FCLP activity is compliant with Part 91.

In addition, FCLP activity at OLFC appears to violate navigable airspace laws. As discussed in https://en.wikipedia.org/wiki/Air_rights, *"The 'navigable airspace' in which the public has a right of transit without effecting a landowners property rights has been set at the height of 500 ft in urban or suburban areas, and 300 feet above the surface or tallest structure in rural areas. The exact altitude(s) at which the airspace over private land becomes "public" airspace, or where the upward bounds of national sovereignty extends is often debated, but the Supreme Court rulings and space treaties are clear. A Landowner's domain extends at least up to 385 feet in rural areas. see Causby v US (1946)."*

As noted above, both flight paths (14 and 32) require low-level approaches over rural areas and suburban neighborhoods at altitudes less than 500 feet, in some areas as low as 200-300 feet. The FAA, however, requires no flights below 500 feet over homes or people, as codified by the Supreme Court. The court has ruled that a property owner controls use of the airspace 500 feet above their property and may make any legitimate use of their property that they want, even if it interferes with aircraft overflying the land. This is an FAA a rule the Navy claims to honors as explained by this Oak Ridge National Laboratory Report[23]:

> The military services are committed to safety and to minimizing the collateral noise associated with low-level flight training. The U. S. Air Force, for example, has set

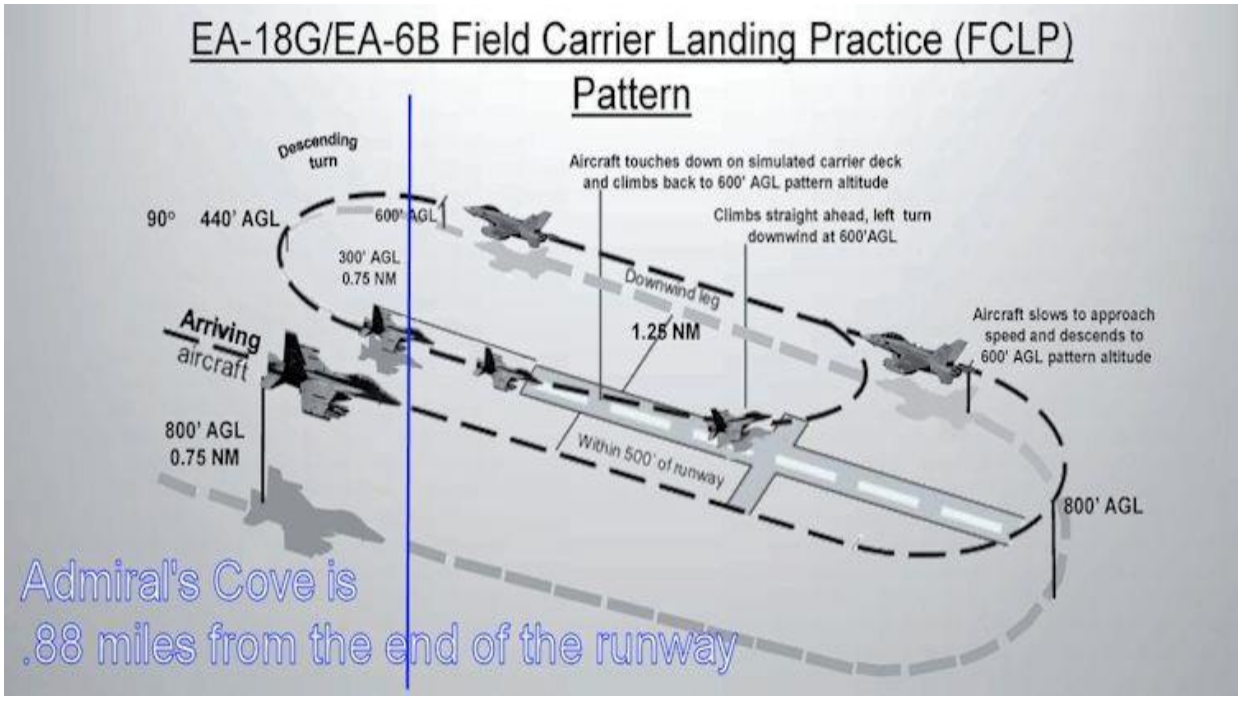
[23] *Ecological Risk Assessment Framework for Low-Altitude Overflights by Fixed-Wing and Rotary-Wing Military Aircraft.* January 2000. Rebecca A. Efroymson (Oak Ridge National Laboratory), Winifred Hodge Rose and Sarah Nemeth (U. S. Army Construction Engineering Research Laboratory), and Glenn W. Suter II (U. S. Environmental Protection Agency). Research sponsored by the Strategic Environmental Research and Development Program of the U. S. Department of Defense under Interagency Agreement 2107-N218-S1 under contract DE-AC05-00OR22725 with UT-Battelle, LLC. Publication No. 5010, Environmental Sciences Division, ORNL. https://www.researchgate.net/publication/252522677

> numerous restrictions and tailored its training to reduce noise as much as possible. The DoD in general, in addition to following its own flying rules of low-level altitudes and airspeed, also follows those in Federal Aviation Regulation 91.79 which states that no plane may fly closer than "500 ft [152 m] from any person, vessel, vehicle, or structure." (USAF Fact Sheet 96-17) In addition, because of the greater potential for human annoyance during sleeping hours, low-level flying by military fixed-wing aircraft generally occurs during daylight hours; low-level flying near densely populated areas is prohibited.

On approach to and departure from an OLFC touch-down, Growlers cannot comply with FAA rules and must cross over hundreds of residences, a well-used children's athletic field, dog park, county park trail system, a crowded recycle center, above ground fuel storage tanks, and a facility for 100 homeless teens.

Conclusion: The DEIS failed to consider and explain how it intends to operate at OLFC and Ault Field without violating very important components of federal law dealing with proximity rules to persons, vessels, vehicles, and structures, or conversely, explain how the Navy will appropriately compensate those impacted by takings.

Figure 8.1 – Navy's schematic of Path 14 FCLP at OLFC. The AGL elevations are the about same for Path 32 (Source: http://admiralscove.org/naswiolf.htm).



Comment 9:

- DISPROPORTIONATE IMPACTS -

The Problem: The DEIS claims the proposed alternatives will not create disproportionate impacts on children or minorities (i.e., "Enviromental Justice"). That claim is neither cogent nor defensible.

The Explanation: The DEIS on page 4-121 correctly explains:

> As described in Section 3.3.2.4, **unless there is a place where children congregate within an APZ**, such as a school, there is not a disproportionate safety risk to children. As shown on Figures 4.3-1 and 4.3-2, there are no schools located within the APZs at Ault Field and OLF Coupeville under any of the alternatives or scenarios; therefore, there is no disproportionate environmental health and safety risk to children as a result of possible aircraft mishaps.

Table 6-1 takes that a bit further a bit further, as extracted from that table:

> Executive Order 13045, Environmental Health Risks and Safety Risks to Children Navy. The Navy does not anticipate any significant disproportionate health impacts to children caused by aircraft noise, and there no disproportionate environmental health and safety risk to children as a result of possible aircraft mishaps. (Sections 3.3 and 4.3, Public Health and Safety.)

The above conclusion is based on important omissions, which once included, render the conclusion unsupportable. Actually, there are three areas of disproportionate aggregation involving children age 19 and under within the proposed APZ -1:

(1) The Admirals Cove Swimming Pool is open 4 summer months in the year and there is strong interest in covering the pool so it is open year round. The life guards working there are almost always older teens, and the pool is predominately used by teens and younger children, sometimes but not always accompanied by an adult. In addition, the pool has traditionally been used for teaching children swimming lessons, as sponsored by the local Lion's Club.

(2) Rhododendron Park has youth athletic fields for softball and soccer. Both the pool and park usage are greatest in the warmer months of the year, which coincides with the heaviest FCLP use of OLFC because of weather constraints at other times of the year.

(3) Just north of the air strip is a home for up to 100 homeless Whidbey Island teens.

All of these facilities are squarely in the APZ-1. Also ignored, were the low-income itinerant farm laborers, who work immediately under the proposed APZ-2 of Path 32. Similarly, gardeners and construction workers are generally low-income and/or minority laborers working under the APZs proposed for both Paths 14 and 32.

Section 3.3.1.3 of the DEIS states, "*In the 1970s and 1980s, recognizing the need to identify areas of accident potential, the armed services conducted studies of historical aircraft accidents throughout the U.S. The studies showed that most aircraft mishaps occurred on* ***or near the runway, with mishaps diminishing in likelihood with distance****."*

That in mind, within just 2000 to 3000 feet of western boundary of the proposed APZ for Path 32 is an elementary school, a middle/high school, a child day-care facility, the barracks of Fort Casey now used to house large youth groups numbering in the 100s, and another public swimming pool at Fort Casey. All of these facilities are overwhelming places "where children congregate" and are disproportion in number to the overall population age composition. While these facilities are not under but are immediately adjacent to the proposed Path 32 APZ, they are so very close that any of those youth venues could be impacted by a Growler incident (accident). And actually, whether the APZ is designated or not, the fact is that the risk is clear and certain, even at the current no-action level of 6120 operations.

For example, a recent Growler mishap occurred at NASWI in which the cockpit became highly over-pressurized and blew canopy off, critically injuring the three airmen inside. Had something like that happened during an FCLP the schools could easily be impacted by the out-of-control jet.

In addition to disproportionate safety risks, there are also disproportionate risks on auditory and non-auditory health, because the above facilities for children and the work sites for low-income farm laborers and gardeners are also in the 75-dB DNL contour Path 32. In addition, the adjacent youth sites (schools, daycare, Fort Casey barracks) are in the 65 dB DNL. The DEIS manages to pass over any disproportionate impacts on children by concluding the following (page 4-120):

> Based on the limited scientific literature available, there is **no proven positive correlation** between noise-related events and physiological changes in children. Additionally, the aircraft noise associated with the action alternatives is intermittent; therefore, the Navy does not anticipate any significant disproportionate health impacts to children caused by aircraft noise.

That conclusion is an unrealistic and unwarranted conclusion, as explained in COER Comment #11 (a) and in analysis of the impacts of noise on auditory and non-auditory health, as presented

in COER Comment Addendum 2 and in a separate analysis prepared for COER by Dr. James Dahlgren, noted environmental health expert.

Conclusions: Given the disproportionate safety, health, and educational impacts of Growler FCLPs at OLFC on children, low-income laborers and minorities, the DEIS must straightforwardly re-examine its inability to comply with Environmental Justice requirements.

Given the compressed surrounding encroachment, the DEIS must further explain (1) how its desire for convenience rises above the risks of a catastrophic accident involving one or more of these youth facilities, and (2) delineate the actual costs for moving FCLP operations to a safe off-Whidbey location unencumbered by encroachment and juxtapose those costs with the costs and attendant impacts related to retaining FCLP use of OLFC.

COMMENT 10
- NO ACTION DOES NOT EQUAL NO IMPACT -

The Problem: The DEIS **(a)** provides that the no-action alternative represents the average existing condition, but based that on highly dubious reasoning, **(b)** incorrectly focused on the increased impacts of the action alternatives rather than the total impacts – i.e., the no-action plus the action alternatives, and **(c)** has understated the number of Growlers to be stationed at NASWI.

The Explanation:

(a) The DEIS provides that the no-action alternative represents the average existing condition, but based that on highly dubious reasoning.

The no-action alternative in the DEIS was set at 6100 operations for OLFC, of which 16% are modeled as night (after 10 PM) operations, putatively representing the average existing condition. The problem is, the DEIS does not present a true existing condition, nor does it disclose the criteria used for determining significance (see COER Comment 11.b). That is, the DEIS assumes, with dubious reasoning, that 6100 operations at OLFC somehow inflicts no impacts because the 2012 EA developed a finding of no significant impact (FONSI) for the transition from putatively quieter EA-6B Prowler to the EA-18G Growlers. That FONSI (signed on October 30, 2012, action completed in 2015) somehow was equated to a completed project, and hence the 6100 operations were, by a leap of logic, discounted as having no effect, explained in Section 5.3.1.1:

> Three previous federal actions were identified in Table 5-1: the Environmental Assessment for the Transition of Expeditionary EA-6B Prowler Aircraft with EA-18G Growler Aircraft; the P-8A Multi-Mission Aircraft EIS/SEIS; the Northwest Training Range Complex Final EIS/Overseas EIS (OEIS), and the Replacement of the C-9 Aircraft with the C-40 Aircraft. However, these projects are complete and included as part of the existing environment analysis in this EIS. Therefore, they are not retained for further cumulative impacts analysis. (emphasis added)

Obviously 6100 operations do not have a zero impact, and simply stating that those operations are part of the existing environment because there was a FONSI for the transition of the Prowlers to Growlers cannot be justified when the Prowler impacts were never analytically juxtaposed

against a no-FCLP-noise environment. This attempt to dismiss or hide the prior or existing noise and focus on the new noise is not compliant with guidelines in DEIS Section 5.1:

> In addition, CEQ and the U.S. Environmental Protection Agency (USEPA) have published guidance addressing implementation of cumulative impact analyses—Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ, 2005) and Consideration of Cumulative Impacts in USEPA Review of NEPA Documents (USEPA, 1999). CEQ guidance entitled Considering Cumulative Impacts Under NEPA (1997) states that cumulative impact analyses should: "…determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts [and]…focus on truly meaningful impacts." (emphasis added)

The 2012 FONSI did not indicate that the Prowlers had no impacts, rather, just that the transition to Growlers created no substantially new impact. Hence, the DEIS avoided addressing "*the cumulative impacts of other past, present, and future actions"* and the need to focus on *"truly meaningful impacts"* (as opposed to ignoring them, as the DEIS has attempted).

Between 1971 and 2008, the Navy used Prowlers for its Airborne Electronic Attack mission and pilot landing practice at OLFC, but the impacts of Prowlers stationed at NASWI were never environmentally vetted. When the Navy introduced the Prowlers at OLFC, it initiated but never completed an EIS and officially withdrew from this process in the Federal Register in 1999. There is also a signed Navy Memorandum of Agreement from that period agreeing to study the Prowler impact on Ebey's Landing National Historical Reserve and its many historic structures, but it never followed through on its commitments.

Hence, there is no FONSI or other evidence record of any meaningful studies being done by the Navy to prove no significant impact of Prowler FCLPs on the environment, on historic structures, on health, on safety, or on the island's economics. Hence, the argument that the status-quo no-action baseline is part of the *existing environment* is absurd in practical terms and difficult to convincingly overcome in legal terms. That is, if the impact of activity X is an unknown, it is not scientifically justified to conclude that $X_{\text{existing}} = 0$, or hence, that $X_{\text{existing}} + Y_{\text{more}} = Y_{\text{more}}$, which is what the DEIS has essentially done.

Conclusion: Obviously, the Prowler FCLPs had a huge impact, irrespective of whether the Growlers amplify that impact or not. Because the 6100 Prowler operations were never vetted, it follows that the 6100 Growler operations were not properly vetted and are not "completed projects" at all, but are incomplete projects that must be retained as a past action for analysis within the DEIS.

(b) The DEIS incorrectly focused on the increased impacts of the action alternatives rather than the total impacts – i.e., the no-action plus the action alternatives.

As per DEIS Section 2.3.1, the no action alternative is to serve as "a reference point" or baseline against which the action alternatives are to be evaluated for the relative amount of change:

> The Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations 1502.14[d]) require an EIS to evaluate the No Action Alternative. The No Action Alternative provides a benchmark that typically enables decision makers to compare the magnitude of potential environmental effects of the proposed alternatives with conditions in the affected environment… [T]he conditions associated with the No Action Alternative serve as reference points for describing and quantifying the potential impacts associated with the proposed alternatives. (emphasis added)

Increase is the primary parameter used by the DEIS to examine impacts—i.e., how much did this or that increase. As discussed in comment 10 (a) above, the increase should be based on the total impact over the no-FCLP baseline. Here are just a few examples of how the DEIS examined the relative impacts as the increase over the no-action baseline, ignoring the total impact or increase over no-FCLP noise:

> The number of incidents of indoor and outdoor speech interference and classroom interference **would increase** slightly. There would also be **a higher probability** of awakening under all scenarios… (section 4.2.3.2)

> There would be **a slight increase** in the number of incidents of indoor and outdoor speech interference, and classroom interference… (section 4.2.4.2)

> In addition, the population that may be vulnerable to potential hearing loss **would increase** under all alternatives and scenarios and Table 4.2-25 DNL Noise Contour Comparison - **Overall Increase** in the Number of People within the 65 dB DNL Noise Contour.

Conclusion: Because the DEIS incorrectly focused primarily on the relative increase (i.e., the increase of action over no-action alternatives), that focus needs to be changed to one focused on the total impact (i.e., the increase over no/zero FCLP noise). This is further discussed in COER Comment #11.

(c) The DEIS has understated the number of Growlers to be stationed at NASWI. The impacts on air quality have not been presented in a form most people can comprehend.

The Explanation: The DEIS claims to be adding 35 or 36 more Growlers to the 82 already at NASWI, making a total of 118. However, an additional 35 Growlers, putatively to be added by 2018, are not mentioned or considered in the DEIS. Those 70 additional jets bring the total number of Growlers to be stationed on Whidbey Island to 153. But, the Navy has placed an order for 7 more Growlers in 2016, which increases the total to 160. Assuming those figures are correct as the record below shows, the impact calculations in the DEIS would appear to be vastly understated (discussed further in COER Comments Appendix G).

In addition, Growler emission impacts on air quality were presented in a manner was not easy to understand the import and amount. This too is examined further in COER Comments Appendix G.

Conclusion: The DEIS should provide details regarding plans for all the 160 Growlers planned for at NASWI, provide the forthright impact analyses meaningful. Assuming some of those will be spares, the DEIS should also include impact analyses of the maintenance routines of all Growlers, including spares.

Comment 11
- TOTAL IMPACTS: A CHARADE -

The Problem: The DEIS evaluation of impacts (Chapters 4 and 5) **(a)** did not address non-auditory health impacts, which it excused via a scientifically inappropriate dismissal of the noise–health research literature, and **(b)** understated the actual impact significance of the action alternatives.

The Explanation: In DEIS Chapters 4 and 5, the noise comparisons presented are between the no-action vs. action alternatives, the no-action alternative (6100 operations) being touted as the baseline or existing environment. As examined in Comment #10, the actual baseline should be no-FCLP (zero)[24] operations, not 6100. Obviously, comparisons of the alternatives to a no-FCLP alternative will result in far greater increases across all the parameters examined.

Just as one example, Table 4.2-11 indicates that at point of interest R007 (Race Rd), the no action and Alt 2 SELs are 114 and 115 dBA, respectively, and hence a +1 dBA increase over the no-action. But if no-FCLP were used as the baseline the increase would be on the order of +50 to 60 dBA or more. That example carries through virtually all comparisons in Chapters 4 and 5.

(a) Did not address non-auditory health impacts, which it excused via a scientifically inappropriate dismissal of the noise–health research literature. In DEIS Appendix A, Wyle addressed some selective literature on impacts of noise on adults (Section A 3.5, pages A170 to 174) and on children (Section A 3.5, pages A175 to 177), but the cumulative impacts of noise on human health (Chapter 5) were never addressed. Perhaps that was because Wyle decided the impacts of noise on human health were inconclusive: "As a result, it is not possible to state that there is sound scientific evidence that aircraft noise is a significant contributor to health disorders." In separate analyses of the formal peer-reviewed literature COER points out the inadequacies of that conclusion, which basically was based on (1) cherry-picked studies misrepresenting or at odds with the overall body of knowledge, and (2) an unsupportable demand for absolute certainty, which harkens to tactics of the tobacco industry arguments that the absence of conclusive cigarette smoke cause/effect was reason to dismiss action to prevent harms. The following statement from page 4-120 demonstrates this perfectly:

[24] Note: COER Comment #1 contends the DEIS reasoning for not including and examining a no-FCLP option as an alternative are weak and contrived, and as a result from credible.

> Several studies suggest that aircraft noise can affect the academic performance of school children. Physiological effects in children exposed to aircraft noise and the potential for health effects have been the focus of limited investigation. Two studies that have been conducted, both in Germany, examined potential physiological effects on children from noise. One examined the relationship between stress hormone levels and elevated blood pressure in children residing around the Munich airport. The other study was conducted in diverse geographic regions and evaluated potential physiological changes (e.g., change in heart rate and muscle tension) related to noise. The studies showed that there may be some relationship between noise and these health factors; however, **the researchers noted that further study is needed in order to differentiate the specific cause and effect to understand the relationship** (DNWG, 2013). Based on the limited scientific literature available, **there is no proven positive correlation between noise-related events and physiological changes in children. Additionally, the aircraft noise associated with the action alternatives is intermittent; therefore, the Navy does not anticipate any significant disproportionate health impacts to children caused by aircraft noise.**

Unfortunately, this argument is found throughout the DEIS; here, for example, another from page 4-79:

> Per studies noted and evaluated in Section 3.2.3, the data and research are **inconclusive with respect to the linkage between potential nonauditory health effects of aircraft noise exposure**. As outlined within the analysis of DNL contours and supplemental metrics presented within this section, the data show that the Proposed Action would result in both an increase in the number of people exposed to noise as well as those individuals exposed to higher levels of noise. **However, research conducted to date has not made a definitive connection between intermittent military aircraft noise and nonauditory health effects.** The results of most cited studies are inconclusive and cannot identify a causal link between aircraft noise exposure and the various types of nonauditory health effects that were studied.

And yet another from page 4-50 (presumably based on Appendix A review of medical literature by Wyle):

> As outlined within the analysis of DNL contours and supplemental metrics presented within this section, the data show that the Proposed Action would result in both an increase in the number of people exposed to noise as well as those individuals exposed to higher levels of noise. However, research conducted to date has not made a **definitive connection between intermittent military aircraft noise and nonauditory health effects**. The results of most cited studies are inconclusive and cannot identify a causal link between aircraft noise exposure and the various type of nonauditory health effects that were studied.

And this from page 4-120:

> Research suggests that environments with sustained high background noise can have a variety of effects on children, including effects on learning and cognitive abilities and various noise-related physiological changes. The studies showed that there may be some relationship between noise and these health factors; **however, the researchers noted that further study is needed in order to differentiate between the specific cause and effect to understand their relationship** (DNWG, 2013).

The highlighted claims in the example excerpts above, and many other similar conclusions, lack credibility for two reasons. First, none of preparers of the DEIS possess the medical credentials necessary to reach such a baseless claim (see COER Comments Appendix H for a full list). COER's medical expert fully refutes the efficacy of this and similar unsupportable conclusions on the auditory and nonauditory impacts of noise at levels produced by Growlers. Second, this is abundantly clear from the DEIS authors' apparent lack of understanding about protocols for scientific publications. That is, identification of research limitations or highlighting the needs of additional research does not mean that findings are invalid or should be discarded or discredited.

As Robert Wilbur[25] explains, "*An important and ubiquitously applied objective of every scientific research publication is to identify and direct needs for additional research. Research is never complete, but builds on the backs of prior research. Unknowns and caveats always remain, and highlighting those is a critical component of objective scientific reporting. Hence, it is the researcher's responsibility, if not duty, in preparing a research publication to identify caveats and needs for future research.*" Absence of certainty over the nuts-and-bolts of cause and effect is not interpreted in the medical/biological sciences as reason for rejecting or ignoring what is generally accepted as likely or highly likely to be correct. Yet, rejecting such findings due to absence of 100% certainty is exactly what the DEIS has attempted. And in so doing, it has violated its iterative claim to use *the best and most current scientific information available*, which also happens to be a NEPA requirement.

Furthermore, the absence of "proof" does not stop prudent application of the best available information. For example, where solid correlations are found for cures of disease, time does not stop and wait for the cause and effect to be fully sorted out and proven before treatment changes are implemented to save lives. In regard to that requirement, the DEIS seems to be applying it where it is convenient and ignores it or dismiss it when inconvenient. Holding up as valid the

[25] Author of numerous scientific publications and editorial guides, coauthored *Scientific Style and Format*, a 600+ page a cross-disciplinary manual widely used throughout the physical and biological sciences. Presently, part-time freelance science editor for Taylor Francis Group.

now discredited Schultz curve leading to the 65-dBA DNL, as discussed in COER Comment #2(b), is another example of how the Navy has been arbitrary and capricious in applying that NEPA-based requisite.

NOTE: additional analysis by of the impacts of noise on auditory and non-auditory health are presented in COER Addendum 2 and in a separate analysis prepared for COER by Dr. James Dahlgren.

Conclusion: The DEIS must drop the unsupportable conclusion asserting that noise risks and impacts on non-auditory health are so vague that they can only be ignored. Instead, the DEIS needs to judiciously and objectively analyze and synthesize the overwhelming research findings that clearly indicate the documented risks to human health.

(b) Understated actual impact significance of the action alternatives.

By incorrectly representing the no-action alternative as the baseline, rather the no-FCLP option, the DEIS greatly minimized the degree of increased impacts, making them appear far less pronounced. For example, Table 1-1 in DEIS of Appendix A presents a very useful points of interest (POI) summary of various impact parameters for the nine average-year action alternatives compared with the no-action alternative. Reduced down to the essence, that table can be summarized as below:

1) the population living within ≥65 dB DNL increases from the no-action alterative by about 1600 to 2200 individuals or by 15% to 23% more;
2) the overall DNL will at points of interest (POI) 1 dB at up to 9 POI , 2-3 dB at up to 16 POI, 4-5 dB at up to 6 POI, 6-10 dB at 1 POI, and 10-15 dB at up to 2 POI;
3) the number of POI newly exposed to ≥65 dB DNL will increase by 2-3.
4) the risk of individuals experiencing a Noise Induced Permanent Threshold Shift (NIPTS) of at least 5 dB increases by 114% to 408%;
5) indoor speech interferences at various residential POI (windows open) will increase by an additional 1-2 events/hour at 6-12 locations and by 3-4 events/hour at 0-3 locations;
6) classroom learning interference (in events per hour) at will increase by 1-2 events/hour at 3-4 schools;
7) outdoor recreational speech interference (in events per hour) will increase by 1-3 events/hour at 0-6 recreational POIs.

While the above summary shows major increases, the greatest being the closest to the FCLP flight paths, all those increases would have been far greater had the correct no-FCLP option been used as the baseline instead of the no-action alternative. And further consider for the DNL parameters above (#1–3), how much more those values would increase if the scientifically

correct DNL threshold of 55 dBA had been used rather than 65 dBA; so there too is a correction to 55 dbA that is necessary to comply with contemporary scientific knowledge.

In addition to that failing, the DEIS also failed to address the "*significance*" of the DNL increases between the no-action and action scenarios. Significance was neither defined nor addressed as a very important component related to understanding noise impacts. Other Federal agencies have specific numeric thresholds of significance for noise. The Federal Highway Administration's (FHWA's) noise abatement criteria (23 CFR Part 772) considers a traffic noise impact to occur if predicted peak-hour traffic noise levels "approach" or exceed the FHWA criteria or "substantially exceed" existing levels. Washington State Department of Transportation defines "approach" as within 1 dBA of the FHWA criteria, and "substantial" as an increase greater than 10 dBA resulting in at least 50 dBA Leq. The FAA considers significance in decibels of increased DNL, as follows:

> To determine significant noise impact, FAA will use the significance criteria in environmental order 1050.1F. The significance threshold for noise and land use compatibility in FAA Order 1050.1F is that the action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe. <see https://www.federalregister.gov/articles/2016/03/30. Scroll down to Federal Aviation Administration.>

This is not a trivial oversight. Based on the above FAA criteria, the impacts in terms of significance (i.e., in +1.5 dB increments) need to not only be compared against the no-action alternative, but also against the no-FCLP option.

The Navy has no "significance criteria" and instead refers to the President's Council on Environmental Quality (CEQ) for defining significance. According to CEQ regulations (40 CFR §§ 1500-1508), the determination of a significant impact is a function of context and intensity. (40 CFR 1508.27):

> **Context**: This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.
>
> **Intensity**: This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:

1. Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.
2. The degree to which the proposed action affects public health or safety.
3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.
5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.
10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

There can be little doubt that Growler FCLPs inflict significant impacts based on criteria 2–5 and 7 and 8. The criteria are very subjective, but as all of COERs comments and the DEIS impacts stated, the significance threshold is exceeded by the Growler FCLP operations at the no-action level and are far exceeded by the action alternatives.

Conclusion: The DEIS has to be revised to address impacts relative to the true no-FCLP baseline and examine and analyze "*significance*" of the increases at the no-action and action alternatives above that no-FCLP level.

Comment 12
- Weak Analysis of Classroom Interruptions -

The Problem: The DEIS obscures the effects of FCLP jet noise on classroom interruptions.

The Explanation: The DEIS inadequately addresses the effects of FCLP jet noise on classroom interruptions by averaging interruptions with periods when jets are not practicing, which misconstrues impacts by making FCLPs seem less problematic. Based on that average that masks realistic impacts, the DEIS was able to conclude (Section 4.2.4.2), "*There would be **a slight increase** in the number of incidents of …classroom interference*." That conclusion is uninformative.

Averages of all jet noise interruptions across all school-day hours in a school year may be useful to compare how a given action may produce a greater or lesser relative change. However, such averaging is not instructive on understanding how disruptive a Growler practice session can be because it masks the actual temporal pattern of overflights and, hence, time between interruptions. The DEIS does acknowledge this shortcoming on page 4-39: "*It is important to note that Table 4.2-5 presents average values, and there may be periods when aircraft are operating more frequently, thereby generating more interfering events, and other periods when they are not operating at all and therefore have no potential for classroom/learning interference.*"

Here is the real impact. The DEIS explains that a typical FCLP lasts 45 minutes with three to five aircraft participating in the training, albeit sessions can piggyback one after the other, such that FCLPs can continue for as long as about 2-4 hours with only brief (5-10 min.) between the end of one session and the beginning of the next. The 2016 JGL report documents February 2, 2016, FCLP activity on Path 32. It documents that Growler FCLPs began a few minutes before noon and ended shortly after 2:15 PM. Two temporally discrete sessions were recorded, with three jets each performing 14 FCLP flyovers in the first session and three jets each performing 11 FCLP flyovers in the second session. The report further explains:

> Data from Position 1 was recorded from the first session of 42 flyovers, and the second session was recorded at Position 6 (half on the deck and half about 10 feet away but inside the house). The measurements at Position 4 (the baseball field at Rhododendron Park) included both the first and second sessions. In each session the number of jets operating increased quickly from the first jet's arrival circle, to all three and at the end of the session trailing off to the last single jet's circle of the racetrack and final departure. With three jets flying, the overheads were approximately 40 to 50 seconds apart...

So, in one FCLP session of three jets there may be an interruption every 45 seconds, each interruption lasting up to about 10 seconds. That would amount to 67 interruptions in a given 50-minute class or about 670 seconds or 11 minutes of noise impact on teaching, or 22% of 50-minute class. And that was with three jets flying, not four or five.

But even that statistic is a bit misleading, alone, because interruptions of such close frequency complicate teaching and thwart student concentration by breaking focus of teacher and student. Such stop-and-go teaching disrupts educational flow and frustrates a smooth continuum of focus and concentration. Students also may hear the teacher incorrectly, impacting comprehension. In addition, the EPA states "Noise can pose a serious threat to a child's physical and psychological health, including learning and behavior."

To further assess FCLP impacts in the classroom, session frequency is critical. COER-member records (see Table 12.1 below) of FCLP activity at OLFC indicate there were about 17 sessions using Path 32 in 2016 during school days (Monday-Friday, excluding June – August) and school hours (8:00 AM to 4:00 PM). That activity would approximate the no-action alterative of 6100 operations, so for 25,000 operations (4× as many) there would be about 68 sessions, or for 35,000 operations (5.7×) there would be about 98 sessions. Each session basically impacts one class at Coupeville's high/middle school and adjacent the elementary school, which is expanded across all classrooms in those facilities.

Even at 17 classroom hours being degraded by FCLPs, let alone 68 to 98, it is clear that FCLP operations waste our educational resources and diminish the potential benefits to students.

So, once again, the Navy has adopted an index that obfuscates real impacts and disguises how Growler FCLP operations actually malign education of our school children and squander our limited educational tax dollars. This amounts to one of those silent, unspoken costs of FCLPs. The impacts of Growler noise on children is further examined in COER Addendum 2.

Conclusion: The DEIS needs to examine the impacts of FCLP operations on classroom teaching and learning as a result of the time between interruptions when FCLP operations are ongoing, not dilute the impacts with periods when operations are not ongoing. In addition, it needs to examine the length of time and how frequent FCLP operations would be during school days in the year. Additionally, the Navy should have taken in-class noise recordings to document the magnitude of noise interruptions on education.

Table 12.1 -- Tracking of OLFC operations, 2016

Date	C or P# [1]	Appx. Times[2]	Estimated[3]		Notes
			# of Jets	# Bounces	
Jan 05 tu	-	Not sure when	?	~30	Not sure of
Jan 06wd	x		-	-	unsure
Jan 08 fr	x		-	-	unsure
Total bounces for Jan: ~ 30			**Run total for 2016: ~ 30**		
Feb 02 tu	-	1200-1245 = ¾ h 1335-1410 = ¾ h	3 3	75	Sunny, no wind
Feb 03wd	x	Eve	-	-	15 knot SE wind
Feb 05 fr	x	Aft	-	-	20-30 knot SE Wind
Feb 08 mo	32	~1530 to 2000 w/ short breaks = 4.5 h	1-4	150	Calm, mild
Feb 09 tu	32	~1700 to 1900	1-3	40	Calm
Feb 10 wd	x	Eve—Late N	-	-	Rain, varied wind/cloud
Feb 11 th	x	Aft	-	-	"Tailwind" said Navy but was none. So?
Feb 12 fr	x	Morn-Early Aft	-	-	Who knows?
Feb 16 tu	32	1600-1800	1-3	100	Fair/mild
Feb 17 wd	32	1300-1500	1-3	100	No wind/mild
Total bounces for Feb: 465			**Run total for 2016: ~ 495**		
Mar 14 mn	x	Eve–Late N		?	weather
Mar 15 tu	14	1615 - 1830	1-3	100	
Mar 16 wd	?	Eve –Late N			
Mar 17 th	32	1345-1630 /2000-2145	1-3	225	
Mar 18 fr	14	1330-1630	1-3	100	
Mar 21 mn	x	L Eve-N			wind
Mar 22 tu	x	Noon-Aft & L Eve-N			Not sure ??
Mar 23 wd	x	L Morn- L Aft & Eve-N			Big wind

Mar 24 th	32	1345-1545	1-3		
Mar 25 fr	x	All aft			??
Mar 30 wd	32	1410-1630	1-3	100	Sun/0-3 kn
Mar 31 th	32	1400-1500	1-3	50	
Total bounces for Mar: 575			**Run total for 2016: ~ 1070**		
Total bounces for Apr: 0			**Run total for 2016: ~ 1070**		
May 4 wd	32	1430-1730	1-3	100	
May 5 th	32	1425-1625	1-3	100	NW wind
May 17 tu	32	2100-2330	1-3	100	Night, mild
May 18 th	32	1400-1700	1-3	150	Cloudy/1-2
Total bounces for May: 450			**Run total for 2016: ~1520**		
Jun 21 tu	32	2200-0030	1-3	100	
Jun 22 wd	32	1630-0030	1-3	200	
Jun 23 th	x	As yesterday's schd.			Rain event
Jun 30 th	32	1615-1930	1-3	150	Sun, mild
Total bounces for June: 450			**Run total for 2016: ~1970**		
Jul 7 th	14	1530-1730	1-3	100	SE at 5-8 kn
Jul 11 mn	32	1600 –1630/1900-1930	1-3	60	SW, ~5-8 kn
Jul 12 tu	32	1830-1900	1-3	30	SW, ~10 kn
Jul 14 th	32	1600 –1630/1900-1930	1-3	60	SW, ~5-8 kn
Jul 15 fr	x	afternoon			
Total bounces for July: 250			**Run total for 2016: ~2220**		
Aug 11 wd	32	1500-1715	1-3	100	SW ~5-8 kn
Aug 12 th	32	1500-1715	1-3	100	SW ~5 kn
Aug 17	32	1630-1845	1-4	200	
Aug 22 mn	32	1615-1830	1-4	150	
Aug 23 tu	32	1615-1830, 2115-2300	1-5	350	Changed from 24th
Aug 25 th	32	1615-1815	1-4	150	

Aug 31 wd	x	Late night			Why????
Total bounces for August: 1050			**Run total for 2016: ~3270**		
Nov 4 fr	14	Late morn/early PM	1-3	?	

[1]C = cancelled (not flown) and notes address why the cancellation occurred, or Path number (note did not start to record this until March as did not think they could use Path 14), but flew twice (more?) in March.
[2]Morn = morning; Aft = afternoon; Eve = evening; N = night
[3]A jet takes 2 min 15 sec (or 2.25 min or 135 sec) to complete the racetrack loop. A session lasts about 35 min on average with 3 jets flying, a bit less with 2 jets (say 30 min), a bit more with 4 jets (say 40 min). So in 30 min 1 jet should do about 13 overheads or bounces. So per hour with 1 up to 3 back down to 1 jet flying I will put at an avg of 2.5 jets per 30-min avg. session or 2.5 jets (12 bounces/jet) ~ 30 bounces per ½ hour or about 60 bounces per hour. But to be conservative made it about 50/hour.

Comment 13
- PFCs and EMR Not Considered –

The Problem: Perfluorinated compounds (PFCs) are environmentally persistent chemicals associated with fire retardant aqueous film forming foam (AFFF) that have been detected at unsafe levels in drinking water around Ault Field and OLFC. The source is reasonably attributed to foam use and/or leaks at those two sites. As contaminants linked to a wide variety of life-threatening illnesses and health issues, this issue is a huge environmental issue for those areas, but the DEIS has opted not to address this, nor has it addressed electromagnetic radiation (EMR) emitted for electric warfare training at OLFC.

The Explanation: The only mention of PFCs in the DEIS is on page 3-190 and 191, which basically argues there is not enough scientific information to determine that it is a real health problem, albeit the USEPA has set 70 ng/L (70 parts/trillion) as the threshold for a health advisory and a number of states and other countries have set thresholds at about half that level. The DEIS acknowledges that it is investigating AFFF use at Ault Field and OLFC:

> The Navy is identifying for removal and destruction all legacy perfluorooctane sulfonate (and PFOA) containing AFFF…The Navy is conducting a review of potential historic use of legacy AFFF and release of PFCs at Ault Field and OLF Coupeville to identify possible groundwater impacts. Although there are no specific records that indicate OLF Coupeville used legacy AFFF, it is likely that emergency response equipment was tested at the site; therefore, to address the potential for public exposure to PFCs in groundwater, the Navy is including OLF Coupeville in its investigation.

First, the Navy information presented in recent public meetings on the PFC problems, has not convincingly indicated that it is actually going to remove and destroy all AFFFs containing PFCs. Nevertheless, the DEIS goes on to oddly conclude that *"This investigation is not part of the Proposed Action for this EIS."* That conclusion, while very convenient, is noncompliant with the need to address the "*the cumulative impacts of other past, present, and future actions"* and the need to focus on *"truly meaningful impacts"* (see DEIS section 5.1), as opposed to ignoring them. The problems related to PFCs are fully examined in COER Comments Addendum 3.

Electromagnetic radiation (EMR) emitted for electric warfare training at OLFC and on the Olympic Peninsula is another potentially serious health and wildlife impact not even mentioned in the DEIS. The problems related to EMR are fully examined in COER Comments Addendum 4.

Conclusion: The DEIS has to be revised to address impacts related to both PFCs

Comment 14
- AICUZ Ignored –

The Problem: The DEIS does not address how the current OLFC encroachment problems can be rectified to comply with the 2005 AICUZ land-use guidelines, given that Island County has ignored the AICUZ land-use directives for OLFC.

The Explanation: As explained on DEiS page 4-113 the Navy's AICUZ program is intended to guide land-use planning:

> The Navy has an active AICUZ program that informs the public about its aircraft noise environment and recommends specific actions for the local jurisdictions with planning and zoning authority that can enhance the health, safety, and welfare of those living near Ault Field and OLF Coupeville (see Section 3.5.2.2). The current version of the AICUZ plan for NAS Whidbey Island was published in 2005. NAS Whidbey Island **has historically worked with elected officials from surrounding communities to best minimize impacts** where practicable, including not flying at the OLF on weekends and minimizing flight activity during major school testing dates and major community events. The Navy will continue to minimize impacts as much as practicable. NAS Whidbey Island's Commanding Officer takes public concerns seriously and has processes in place that allow members of the public to comment about and seek answers to questions about operations at the base, and ensure those comments are reviewed by appropriate members in his command.

First, in regard to the, *"Commanding Officer takes public concerns seriously and has processes in place that allow members of the public to comment about and seek answers to questions about operations at the base, and ensure those comments are reviewed by appropriate members in his command,"* that statement that is highly disingenuous. COER asked formally and iteratively to meet with past and present base commanders, but has never been granted such. The last written request to Commander Moore was not even answered other than mockingly in a Whidbey News Times article. It is truly sad to see that grand words, as nobly expressed by the AICUZ, are treated with such cavalier dismissal. It is an insult to our democracy, and the Navy and all the military must be held accountable for such meaningless, empty rhetoric.

Second, the Navy may have made some attempts to influence county officials and planners to comply with the AICUZ stipulation that *no residences* should be constructed in a Noise Zone 2 (65–75 dBA DNL) or Noise Zone 3 (>75 dBA DNL), but pragmatically 2005 was too late. That is, Coupeville , the second oldest town in Washington State and product of the Donation Land Claim Act of 1850, long preceded the 1940s when the runway was constructed as a WWII emergency landing strip. Several decades of surrounding development ensued before the relic runway was adopted for Navy FCLP use in the late 1960s. Even Admirals Cove, a community of

over 600 properties lying directly under the FCLP approach, was planned and initiated in the mid-1960s, at which time public records show the Navy was intending to release OLFC to Island County. It was even offered to the developers of Admirals Cove, but they declined, not realizing that inaction by the County would fail to obtain OLFC for public use. So, when Admirals Cove was developed, the Navy's plans for the outlying field were conversion to nonmilitary use, and even after OLFC was reactivated in 1967, the Navy's use was supposed to be part-time, along with civilian use. Thereafter, the Navy's use of OLFC evolved and morphed in episodic stages along with continued development of Admirals Cove and other property interests surrounding OLFC.

So, by the time the 2005 AICUZ was enacted, serious encroachment had already happened. Nevertheless, instead of instead of adopting land-use restrictions, Island County opted to ignore the AICUZ, and the Navy did little to alter the County's absence of leadership, making it complicit in that reprehensible failure.

The DEIS action alternatives will increase noise impacts and could sponsor Accident Potential Zone (APZ) designations. Nevertheless and undeterred, the County has continued to ignore the AICUZ. Building permits in High Impact Areas (i.e., Noise Zone 2 and 3 areas and in the proposed APZ-1) continue to be issued even today with no attempt or interest to suppress or curtail housing or other non-compatible development. Since 2013 the County has permitted in those High Impact Areas around OLFC (see Table 6-2 in the 2005 AICUZ), the development of a transit facility with above ground fuel storage tanks, a facility for 100 homeless teens (Ryan's House), and numerous (any/all) new homes in Admirals Cove development. And the noise impacts under the action alternatives are going up "significantly" from those described in the AICUZ, as the DEIS explains in Section 5.4.2.3:

> The Proposed Action and alternatives would have a significant impact on the noise environment as it relates to aircraft operations at Ault Field and OLF Coupeville. There would be an increase in population within the 65 decibel (dB) DNL noise contour under all alternatives and scenarios. More specifically and depending on the scenario, Alternative 1 would result in an increase of up to 22.8 percent, Alternative 2 would result in an increase of up to 20.8 percent, and Alternative 3 would result in an increase of up to 20.8 percent of the total population surrounding the two airfields.

Conclusion: Whether due to Island County's willful intent to ignore the Navy's AICUZ program or due to lack of genuine assertiveness by the Navy, the laze faire attitude towards the AICUZ aptly demonstrates its meaningless and total ineffectiveness and the related land-use provisions in the DEIS. This clear and certain exacerbation of the wide-ranging and un-mitigatable land-use impacts tied to current and expanded FCLP operations, demands the Navy find an alternative environmentally suited off-Whidbey training location for FCLP operations or void and shelve its meaningless, ignored 2005 AICUZ.

Wrap-Up
- DEIS Full Revision Is Necessary -

The Problems in Review: In regard to Growler FCLP impacts **(a)** the DEIS is so poorly prepared and non-compliant with NEPA and CEQ that a revised draft is absolutely necessary, and **(b)** the Navy's position that FCLPs can only be conducted at Ault Field and OLFC without jeopardizing National Security is not believably supported by the DEIS.

The Explanation:

(a) DEIS is so poorly prepared and non-compliant with NEPA and CEQ that a revised draft is absolutely necessary.

The DEIS is noncompliant in these critically important areas, among others:

- fails to meet NEPA standards by not seriously evaluating off-Whidbey training sites for FCLPs,
- provides no cost-benefit analysis for on- versus off-Whidbey FCLP sites,
- with up to 18 action alternatives it is much too long and tediously complex,
- relies on a scientifically invalidated DNL criterion for noise impact evaluations,
- dismisses COER on-site noise studies with no explanation or validated reason,
- ignores or inappropriately dismisses very relevant medical research on noise impacts,
- misrepresents or does not adequately analyze recreational and classroom impacts and uses metrics for Ebey's Landing National Historic Reserve that camouflage actual visitor impacts and omits the impacts of low frequency noise on historic structures (see COER Addendum 5).
- fails to mention criteria the Navy uses to protect its personnel from noise damages to health,
- obfuscates noise impacts on OLFC Path 32 by using an extreme exaggeration for usage that the record indicates cannot be achieved,
- deceptively presents the no-action alternative as the baseline for the existing condition,
- does not address how the historical record on noncompliance with the 2005 AICUZ land-use stipulations will be corrected under the various action alternatives, and
- inappropriately dismisses its drinking water contamination of wells around NASWI and OLFC as not relevant to the EIS and ignores the impact of electromagnetic radiation.

As further summarized in the Overview Table (page 3 of this commentary) on the deficiencies and failings of the DEIS, it is fully apparent that the DEIS is inadequate in so many ways that it must be totally redone in order to comply with The Council on Environmental Quality (CEQ) Regulation 1502.9 (a), which states, "The draft statement must fulfill and satisfy to the fullest

extent possible the requirements established for final statements in section 102(2)(C) of the Act. 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."
<https://www.law.cornell.edu/cfr/text/40/part-1502>

(b) The Navy's position that FCLPs can only be conducted at Ault Field and OLFC without jeopardizing National Security is not believably supported by the DEIS.

The Navy's reasons for not relocating Growler FCLP operations, as explained Chapter 2 of the DEIS, are largely contrived and disingenuous, so much so that they appear to be manufactured with an intent to produce a pre-decided result rather than an unbiased, objectively arrived at result. That desired result appears to be based on a preference rooted in intransigence and a determined intent to avoid upsetting the Navy applecart with off-Whidbey Island complexities. This mocks and degrades the NEPA process.

In the introductory Overview for the comments above, COER highlighted the Ninth Circuit's statement that, "when a district court balances the hardships of the public interest against a private interest, the public interest should receive greater weight" <*F.T.C. v. World Wide Factors, Ltd.*, 882 F.2d 344, 347 (9th Cir. 1989)>. The experience from the Navy's failed attempt to place an outlying field in eastern North Carolina opposes the supposition that national defense gives the military carte blanche rights, as described by Keneth Zagacki (N.C. State):

> This paper investigates a controversy between the U.S. Navy and rural North Carolinians in which Navy officials tried to procure local property for a Navy training facility or outlying landing field ("OLF"). Analysis suggests that locals, who defined themselves as patriotic, common sense agents, and the scene as heritage, **built a more credible connection to a patriotic American ethos than did the rhetoric of the Navy, which defined the OLF debate primarily as part of the war on terrorism.** The locals' ultimate success reveals the rhetorical possibilities and limitations of war on terrorism and local heritage arguments, which both constrain local advocates and widen their access to oppositional voices.
> http://www.tandfonline.com/doi/abs/10.1080/10417940802418775?queryID=%24%7BresultBean.queryID%7D

Furthermore, COER submits that the Navy's weakly presented DEIS arguments to dismiss off-Whidbey FCLP venues are largely based on cost and convenience, neither of which create, even closely, a national defense threat, let alone one that trumps the tremendous impacts COER has spoken to above, and as summarized below:

- **Monetary losses** related to property-value depression (APZs) and suppression (buyer avoidance); local taxes to support Navy use of public facilities, services, and infrastructure; costs of hearing loss; medical costs related to noise-induced illnesses; wasted dollars from classroom noise disturbance; tourism losses; etc., and as documented in the Michael Shuman economic study.[26]
- **Health impacts**, both auditory (as admitted to in the DEIS) and non-auditory health impacts (DEIS unsupportably dismissed).
- **Diminution of visitor experience** to local, state, and national parks and forests, most significantly Deception Pass State Park, Olympic National Park, and Ebey's Landing National Historic Reserve.
- **Physical impacts** to historical structures in Ebey's Landing National Historic Reserve, which the DEIS side-stepped by not examining low-frequency noise impacts, which exerts a far greater force, and is a category of noise the Growler is named after.
- **Crash/incident risks** to civilian populations, to two Coupeville schools, and to other youth facilities under or immediately adjacent to existing and proposed APZs.
- **Fire retardant jet-foam use likelihood** that has already contaminated drinking water for Coupeville and Oak Harbor area residents.
- **Destruction of livability**, as related to all of the above, not only on Whidbey Island but on adjacent San Juan Islands, Port Townsend and the Olympic Peninsula.

Finally, the DEIS presented a wide variety of statistics on things such as speech interruptions, numbers of hearing losses, populations and acreages in toxic noise zones, classroom interruptions, etc. All are important but they do not really translate into readily comprehended *impacts on life*. Here are some of those easily personalized impacts that the DEIS omitted about FCLP operations:

- Nothing about the mother and daughter on bikes, caught by FCLPs who every 30 seconds or so were forced to stop, dismount, to hold their hands over their ears, and then ride forward for 20 seconds just to do it all over again and again.
- Nothing about the young Admirals Cove family, typical of so many, who had to uproot from under the jet path to protect their two young children and unborn child (they tell their story at http://citizensofebeysreserve.com/Index.html scroll down to "When Your House is No Longer Safe").
- Nothing about the kids and parents who unknowingly expose their children at the Rhododendron Ballpark to toxic Growler noise with so many potential hearing ramifications (see: https://www.youtube.com/watch?v=nwxYpCa09-E&sns=em) .
- Nothing about the visitors and their children terrorized late at night by Growlers suddenly crossing their campsite at Fort Casey or Deception Pass, or their premature departure never to return.

[26] Shuman, M. H., 2017. Invisible Costs: The $122 Million Price Tag of Naval Air Station Whidbey Island. Available at http://citizensofebeysreserve.com/LinksAndFiles.html .

- Nothing about the number of times a dinner party or an outdoor family barbeque gathering had to be cut short due to painful noise and inability to converse due to jet noise and nothing about the family that cannot talk with each other over diner.
- Nothing about the inability for those relying on but unable to conduct business by phone because they cannot hear what is being said. And nothing about the owner of an historic home converted to a beautiful B&B who had to close the business due to jet noise disruption, or the owners of vacation rentals who have to refund rentals when the jets are flying.
- Nothing about the young man who had to quit his job at the recycle center adjacent to the FCLP path, and also had to move his nearby family as well. He tells his story at http://citizensofebeysreserve.com/LinksAndFiles.html (scroll down to "Videos of the Jets Flying Low and Loud Over Residential Areas: #1 - #2 - #3 - #4 - #5" and watch all five videos)
- Nothing about the young nurse from South Carolina who unknowingly rented a house under the jet path and after 3 months had to uproot and move again, saying, "I wouldn't live here if rent was free."
- Nothing about 100 homeless teens living at Ryan's House, who have to try to study with hundreds of 120-dBA overflights during school nights, and sadly stuck there as allowed by Navy-embedded Island County officials unconcerned about the noise levels or the home being directly in harm's way of a crash.

These and thousands of similar anecdotes really tell the untold story about the impacts of FCLP operations, the one the political leaders want to keep swept under the carpet, and the story the DEIS statistics do not dare to reveal.

Finally and foremost, back to public versus private interests, these impacts affect such a widespread swath of individuals, communities, and entities that the interests at stake cannot be characterized as *private* or *parochial*. As such, the question is whether the affected public interests are so severely impacted that the greater public good can only be achieved by accepting the reality that the attendant conflicts are insurmountable, by biting the bullet, and by making the decision to relocate FCLPs to a remote and environmentally suited location.

Post Note: The highly respected and Nobel Prize winning organization, Washington Physicians for Social Responsibility (WPSR), has endorsed COER's efforts to relocate FCLPs. WPSR discussed COER's efforts to move the Growlers away from populous Whidbey Island and surroundings at a previous board meeting recently. After carefully considering all of the evidence, their Board expressed grave concerns over the likely adverse health impact and subsequently voted to endorse COER's mission to move the Growler FCLP operations to a far less populous location.

– Appendix A –
(Extension of Comment 3)
Paul Schomer's Methods

For hearing conservation a noise dose is established in general for an 8 hour workday or a 24 hour day. The navy criteria and presentation is for an 8 hour day. It is for the total dose during the 8 hour time period and it is set to 85 dB. This means that the dose is equal to what can be thought of as a constant 85 dB for 8 hours, or 480 minutes, or 28800 seconds. As a sound exposure this quantity is given by:

The square of the pressure corresponding to 85 dB, which is 10^(85/10) multiplied by the time in seconds. So as an energy we have 10^(85/10)*28800. If the sound level was 91 dB instead of 85, it would be 6 dB higher. So as an energy we would have a sound level of 10^(91/10), which can be written as 10^(85/10)*4, where 4 = 2^2=10^((2/10)*2). In terms of the Navy dose, the dose would be full for the day if someone was subjected to 91 dB for two hours, one fourth of their 8-hour day.

The calculations I did for you were for the 8-hour dose but it all occurred during the single flying period of 1 to 2 hours. It is computed by listing the number of seconds that exceed each of the following 3 dB increments but do not reach the level of the next increment. The 3 dB increments are 85, 88, 91, 94, 97, 100, and so on. So what I note for each increment is the number of seconds exceeding the increment by being below the increments + 3dB. For example, in the tables in the attached spreadsheet this Navy dose is calculated for four outdoor source-positions and two flying periods.

Consider position 1 for the first flying period. 85 dBa is exceeded for 448 seconds, and of these 88 dBa is exceeded for 381. So there are (448-381=67) seconds that exceed 85 dB but are less than 88 dB. 67 seconds is 0.2 percent of the daily dose. Similarly, there are 21 seconds that exceed 109 dB and 8 seconds that exceed 112 dB. So there are 13 seconds that exceed 109 dB but are less than 112 dB. 13 seconds is 11 percent of the full daily dose of 112.5 seconds at 109 dB.

Adding all the percentages of daily dose in each increment yields the percent that the daily dose is exceeded during a single flying period. If the day has two flying periods then the total daily dose is 2 times the dose received during a single flying period. This is all shown in the table.

In two flying periods, position 1 will accrue a dose equal to 115% of the Navy's permitted 8-hour dose and position 4 will accrue a dose that is 92% of the Navy's permitted 8-hour dose.

The explanation above is based in the following:

§1926.52 Occupational noise exposure.

(a) Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table A.1 of this section when measured on the A-scale of a standard sound level meter at slow response.
(b) When employees are subjected to sound levels exceeding those listed in Table D-2 of this section, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment as required in subpart E, shall be provided and used to reduce sound levels within the levels of the table.
(c) If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.
(d)(1) In all cases where the sound levels exceed the values shown herein, a continuing, effective hearing conservation program shall be administered.

Table A.1—Permissible Noise Exposures

Duration per day	Sound level dBA slow response
8 hr.	90
6 hr.	92
4 hr.	95
3 hr.	97
2 hr.	100
1.5 hr.	102
1 hr.	105
30 min	110
≥15 min	115

(2)(i) When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. Exposure to different levels for various periods of time shall be computed according to the formula set forth in paragraph (d)(2)(ii) of this

section.
(ii) $F_e = (T_1/L_1) + (T_2/L_2) + \cdots + (T_n/L_n)$
Where:
F_e = The equivalent noise exposure factor.

T = The period of noise exposure at any essentially constant level.

L = The duration of the permissible noise exposure at the constant level (from Table D-2).

If the value of F_e exceeds unity (1) the exposure exceeds permissible levels.
(iii) A sample computation showing an application of the formula in paragraph (d)(2)(ii) of this section is as follows. An employee is exposed at these levels for these periods:
110 dbA ¼ hour.

100 dbA ½ hour.

90 dbA 1½ hours.

$F_e = (¼ / ½) + (½ /2) + (1½ /8)$

$F_e = 0.500 + 0.25 + 0.188$

$F_e = 0.938$

Since the value of F_e does not exceed unity, the exposure is within permissible limits.
(e) Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level. <NOTE: Lilly's metrics show it close 130-135 dB, but not over.>

– APPENDIX B –

(Extension of Comment 3)

DOD NOISE LIMITS CRITERIA

The following is from: Department of Defense, Design Criteria Standard, Noise Limits. MIL-STD-1474D 12 February 1997 SUPERSEDING . Available in:
AMSC http://www.soundmetersource.com/uploads/3/0/9/4/3094346/mil-std-1474d.pdf
(See Section 6.4)
4.2 Hearing damage criteria.

4.2.1 Time weighted average sound level. The 8-hour time weighted average equivalent sound level, shall not exceed 85 dB for any flight member based on aircraft usage and mission profiles given in ___(a)___. The total daily exposure selected in Table 6-I shall be based on flight members flying___(b)___ missions in any given day. Hearing protection devices shall be worn as follows ___(c)___ (see Appendix B). This is also equivalent to summing the fractions of the actual time of exposure to the allowable time of exposure. If this value exceeds one, the combined exposure shall then be considered to exceed the standard. This is expressed mathematically as:

$$\frac{C_1}{T_1} + \frac{C_2}{T_2} + \frac{C_3}{T_3} + \bullet\bullet\bullet + \frac{C_n}{T_n} > 1.0$$

where the C values are the times of exposure to a given level and the T values are the times allowed at those levels by Table 6-I. All noise exposures above the threshold of 80 dBA shall be used in the above equation.

Table 6-1. Noise limits for unprotected exposures

Time (min)[1]	Max Sound (dBA)[2]	Time (min)[1]	Max Sound (dBA)[2]	Time (min)[1]	Max Sound (dBA)[2]
No Limit	<80	95	92	4.7	105
1440	80	76	93	3.8	106
1210	81	60	94	3.0	107
960	82	48	95	2.4	108
762	83	38	96	1.9	109
605	84	30	97	1.5	110
480	85	24	98	1.2	111
381	86	19	99	0.9	112
302	87	15	100	0.7	113
240	88	12	101	0.6	114
190	89	9.5	102	0.5	115
151	90	7.5	103	>115 forbidden	
120	91	6.0	104		

– Appendix C –
(Extension of Comment 3)
Impacts on the Developing Fetus

Literature on the impacts of noise on the developing fetus was extensively examined by the Navy:[27]

> Fetal Sound Exposure Environmental or workplace sound is transmitted to the fetus through body tissues and uterine fluids, and probably within the fetus by bone conduction… Low frequency noise poses the greatest risk since it penetrates to the fetal cochlea more effectively than high frequencies. Most studies suggest attenuation at the cochlea of about 10 to 20 dB for frequencies less than 250 Hz, and over 40 dB at 2000 Hz. However, one study reported sound enhancement at 125 Hz.
>
> The fetal cochlea first demonstrates consistent auditory responsiveness in the 20th week of gestation. There have been no indications of behavioral auditory responses before 19 weeks gestation.Fetal effects of sound may vary with gestational age. Mammalian studies indicate increased susceptibility to damage from sound during the final functional and structural stages of development in young animal cochleas. While there are no data for humans, children in utero could theoretically suffer hearing loss at lower sound levels and after a shorter duration of sound exposure than mature adults. The current auditory risk criteria were formulated for non-pregnant adults.
>
> According to the American Academy of Pediatrics, studies suggest exposure to excessive noise during pregnancy may result in high-frequency hearing loss in newborns, and may be associated with prematurity and intrauterine growth retardation. Studies linking maternal sound exposure during pregnancy to increased incidence of hearing loss in neonates and young children are inconclusive due to inability to control all variables. After the development of the fetal ear (mid-pregnancy), the fetus is able to perceive, and even respond to, external sounds. Sound attenuation from external air to within the uterus has been demonstrated. Exact levels of attenuation have differed (and one study even suggested low frequency sound level augmentation within the uterus), but high frequency sound levels (those thought to pose the most significant hazard to adult hearing) are consistently diminished more than low frequency. Concern remains, however, as to whether maternal exposure to high sound levels, even of low frequencies, may be harmful to the hearing of the fetus, because the fetus cannot be protected (for example, by earplugs) from the direct effects of such sounds. *A significantly increased rate of loss of hearing at 4000 Hz has been noted in children whose mothers were exposed to high sound levels with both low and high (rather than only high) frequency components.* (However, other risk factors may have been confounders.) *The same study identified a three-fold increase in childhood high-frequency hearing loss among children whose mothers were exposed to occupational sound levels of 85 to 95 dB compared to those*

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[27] REPRODUCTIVE AND DEVELOPMENTAL HAZARDS: A GUIDE FOR OCCUPATIONAL HEALTH PROFESSIONALS. 2010. NAVY AND MARINE CORPS PUBLIC HEALTH CENTER OCCUPATIONAL AND ENVIRONMENTAL MEDICINE (OEM) DIRECTORATE 620. Navy and Marine Corps Public Health Center Technical Manual NMCPHC-TM-OEM 6260.01C. http://www.med.navy.mil/sites/nmcphc/Documents/policy-and-instruction/oem-reproductive-and-developmental-hazards-a-guide-for-occupational-health-professionals.pdf

whose mothers had lower occupational sound level exposures during pregnancy. The authors recommended setting a temporary 85 dBA 8 hour sound limit for pregnant women until further research verifies the safety of higher sound level exposures. Some authors feel that any sustained exposure of the developing auditory system to high sound levels represents an increase in the risk of noise-induced hearing loss, although this has not been proven in humans. At least one Navy medical officer has advised that pregnant women not be subjected to noise in excess of 90 dB for an 8 hour work day (Moore).This is the guideline recommended for general consideration, and is without respect to maternal hearing protection, as neither ear plugs nor ear muffs offer any fetal hearing protection…

Low birth weight is the most common non-auditory consequence associated with maternal sound exposure; however, this finding is not consistent across studies summarized by Nurminen in 1995. There has been extended discussion of possible non-auditory consequences to maternal sound exposure, related to stress-induced increase of catecholamine levels and placental vasoconstriction. Shift work in a "noisy" environment was associated with pregnancy-induced hypertension in one study. Whether sound-related, stress-induced increases of catecholamine levels and placental vasoconstriction are causally related to preterm births is unproven. In one study of sound exposure during the first trimester of pregnancy, there was no association with selected structural malformations in infants (orofacial cleft or structural defect of the central nervous system, skeleton, or heart and great vessels).

The above is reinforced in http://oem.msu.edu/userfiles/file/News/Hv6n3.pdf , which highlights cause for grave concern:

There has been one study of the hearing of children born to mothers exposed to noise during pregnancy. A study of 131 children ages 4-10 from Quebec showed a 3-fold increased risk of high-frequency hearing loss in children whose mothers had been exposed to 85-95 dB, particularly if these exposures involved a strong component of low-frequency noise.

Animal studies have shown increased sensitivity of the developing cochlea to noise-induced damage. The literature on the adverse effect of noise on pregnant women is more extensive for outcomes of birth defects, shortened gestation and decreased birth weight. These studies were done both on pregnant women exposed to noise at work and in relationship to environmental noise from living near airports. The results of the studies have been mixed, some finding associations and others showing no effect.

What recommendations should be made to pregnant women? The English abstract of a German article from 1997 states that "Health legislation laws in most countries forbid pregnant women to work in surroundings with a high noise level (80 dB continuous noise and/or rapid impulse noise changes of 40 dB)." There are no such regulations in Michigan or the rest of the United States.

The Committee of the Environment of the American Academy of Pediatrics concluded: "Exposure to excessive noise during pregnancy may result in high frequency hearing loss in newborns, and may be associated with prematurity and intrauterine growth retardation." Their only clinical recommendation was: "Pediatricians are encouraged to consider screening, for noise-induced hearing loss, those infants who were exposed to excessive noise in the uterus . . ." There is no definitive conclusion, and individual recommendations in clinical settings will need to be made in the face of uncertainty.

Although the evidence of the many varied impacts of noise on the fetus may not be "definitive," per se, it does strongly indicate a grave likelihood and risk that cannot be ignored, as demonstrated wisely by OSHA, NIOSH, various medical societies, European countries, and even the DoD being concerned enough to recommend or require noise-exposure avoidance for pregnant women. Yet many women of reproductive age live under and adjacent to the OLFC flight path and are exposed to levels of Growler noise that modestly to greatly exceed safe levels for their developing fetus.

The Navy understands that and has adopted reasonable protections for its personnel, but the DEIS has not recognized this as an impact of Growler noise that needs to be revealed by the EIS.

– Appendix D –
(Extension of Comment 7)
F-18 ACCIDENTS/INCIDENTS 1980-2014

Overview: Between 1980 and part of 2014 the EA-18/F-18 sustained 39 incidents, while the EA-6B sustained 7 (Total, 46 incidents in 34 years). That equates to 1.15 incidents per year for EA-18/F-18 versus 0.21 incidents per year for the EA-6B.[28]

1980 None

1981
26 May
Grumman EA-6B Prowler, BuNo *159910*, of VMAQ-2 Detachment Y, crash landed on flight deck of USS *Nimitz*, off the Florida coast,[27] killing 14 crewmen and injuring 45 others (some reports say 42, some 48). The crash was the result of the aircraft missing the last arresting cable, while ignoring a wave-off command. Two Grumman F-14 Tomcats struck and destroyed (BuNos. *161138* and *160385*), 3 F-14s, 9 LTV A-7 Corsair IIs, 3 S-3A Vikings, 1 Grumman A-6 Intruder and 1 SH-3 Sea King damaged.[28] Forensic testing conducted found that several members of the deceased flight deck crew tested positive for marijuana (the officers on board the aircraft were never tested, claimed one report). The responsibility for the accident was placed on the deck crew. The official naval inquiry stated that the accident was the result of drug abuse by the enlisted crewmen of the *Nimitz*, despite the fact that every death occurred during the impact of the crash, none of the enlisted deck crew were involved with the operation of the aircraft, and not one member of the deck crew was killed fighting the fire. As a result of this incident, President Ronald Reagan instituted a "Zero Tolerance" policy across all of the armed services—which started the mandatory drug testing of all US service personnel.[29] In another report, however, the Navy stated that pilot error, possibly caused by an excessive dosage of brompheniramine, a cold medicine, in the blood of pilot Marine 1st Lt. Steve E. White, of Houston, Texas, "may have degraded the mental and physical skills required for night landings." The report described brompheniramine as "a common antihistamine decongestant cold medicine ingredient."[30] "Last October [1981], Rep. Joseph P. Addabbo, (D-N.Y.) said that an autopsy

[28] The incident totals here are not inclusive of all of 2014 and include none of 2015 and 2016, during which time there have been a large number of fatal and near-fatal F-18 incidents, one in December 2016 at Ault Field that could have but luckily did not impact on Oak Harbor.

conducted on the pilot's body disclosed up to 11 times the recommended dosage of a cold remedy in his system."[30] This report seems to bely the above account that no testing was done on the flight crew.

28 September or 30 September (sources differ)

During a NAVAIR weapons release test over the Chesapeake Bay, a McDonnell-Douglas F/A-18A-3-MC Hornet, BuNo *160782*, c/n 8, out of NAS Patuxent River, Maryland, drops a vertical ejector bomb rack with an inert Mk. 82 bomb from the port wing, which shears off the outer starboard wing of Douglas TA-4J Skyhawk camera chase plane, BuNo *156896*, c/n 13989, which catches fire as it begins an uncontrolled spin. Two crew successfully eject before the Skyhawk impacts in the bay, the whole sequence caught on film from a second chase aircraft. Video of this accident is widely available on the web.[35][36]

29 October

A United States Navy Grumman EA-6B Prowler, BuNo *159582*, 'AC-604', of VAQ-138, from NAS Whidbey Island, Washington, crashes at 0850 hrs. in a rural field near Virginia Beach, Virginia, killing three crew. Wreckage sprayed onto nearby houses, a barn and a stable with 35 horses, but no fires were sparked and there were no ground injuries. The Prowler had departed NAS Norfolk with three other aircraft at 0832 hrs., bound for the USS *John F. Kennedy*, off the Virginia coast before crashing three miles from NAS Oceana. Navy officials said they did not know if the pilot was trying for Oceana.[37][38]

1982 None

1983 None

1984 None

1985 None

1986 None

1987 None

1989

24 April

Marine Corps Colonel Jerry Cadick, then commanding officer of MAG-11, was performing stunts at the MCAS El Toro Air Show. California, before a crowd of 300,000 when he crashed his McDonnell-Douglas F/A-18 Hornet at the bottom of a loop that was too close to the ground.[20] The aircraft was in a nose-high attitude, but still carrying too much energy toward the ground

when it impacted at more than 300 mph (480 km/h). Col. Cadick was subjected to extremely high G forces that resulted in his face making contact with the control stick and sustaining serious injury. He broke his arm, elbow and ribs, exploded a vertebra and collapsed a lung. Col. Cadick survived and retired from the Marine Corps. The F/A-18 remained largely intact but was beyond repair.[152][153]

5 December
A U.S. Navy Grumman EA-6B Prowler, BuNo *163044*, 'NG', of VAQ-139, goes missing over the Pacific Ocean during training exercise 900 miles off San Diego. Search fails to find any sign of the four crew.[163]

1989
19 July
A U.S. Navy McDonnell-Douglas F/A-18 Hornet from Cecil Field, NAS Jacksonville, Florida, loses a 950-pound training bomb over Waldo, Florida, in the afternoon. The ordnance narrowly misses home with four inside, bounces off tree, skips over a second home, and impacts in a field where the spotting charge explodes. No one is injured in the incident. Navy spokesman Bert Byers states that the pilot lost track of the bomb after it fell off the jet.[178]

1990
23 January
Mid-air collision between two Blue Angels McDonnell-Douglas F/A-18 aircraft during a practice session at El Centro. One airplane, Angel Number 2, *161524*, piloted by Capt. Chase Moseley (ejected) was destroyed and the other, Angel Number 1, badly damaged but managed to land safely. Both pilots survived unharmed.[3]

6 November
Crew of an US Navy Grumman A-6E Intruder, '506', of VA-176, suffering engine fire, aim bomber away from Virginia Beach, Virginia oceanfront before ejecting just after take-off from NAS Oceana, Virginia's Runway 5. Bomber comes down at 2215 hrs. in the Atlantic Ocean ~.75 miles offshore, after just clearing the Station One Hotel, on-shore breeze carries crew inland about three blocks from the beach, one landing in a tree, the other in a courtyard of a condominium, suffering only cuts and bruises. Aircraft, on routine training mission, was unarmed. Officials did not identify the crew, but said the pilot was a 29-year old lieutenant, and the bombardier-navigator was a 34-year old

lieutenant commander, both assigned to VA-176.[21][22]

1991
5 June
A Royal Australian Air Force McDonnell-Douglas F/A-18A Hornet, *A21-041*, of 75 Squadron, crashes 100 kilometres NE of Weipa, Queensland. The pilot was killed. The wreckage was found in July 1994.

1992
2 November
A United States Navy Grumman EA-6B Prowler crashes in field near NAS El Centro, California. The three crewmen ejected at a very low altitude while inverted, and all were killed. Crew included Lt. Charles Robert Gurley (USN), Lt. Peter Limoge (USMC), and Ltjg. Dave Roberts (USN).

1993 None

1994 None

1995 None

1996
9 March
A Marine Corps McDonnell-Douglas F-18 Hornet went down off Charleston, South Carolina, with two pilots aboard. The search for the Marine pilots was called off 10 March.

1997
23 September
Static test Boeing F/A-18E Super Hornet airframe, *ST56*, being barricade tested at NAES Lakehurst, New Jersey by being powered down a 1.5-mile (2.4 km) track by a Pratt & Whitney J57-powered jet car, flips over and crashes into nearby woods when the steel cable linking the barrier with underground hydraulic engines fails

1998
3 February
Main article: Cavalese cable car disaster (1998)
A U.S. Marine Corps Grumman EA-6B Prowler, BuNo *163045*, coded 'CY-02', callsign *Easy 01*, of VMAQ-2, struck a cable supporting a gondola in Cavalese. The cable was severed and 20 people in the cabin plunged over 80 metres to their deaths. The aircraft had wing and tail damage but was able to return to the base
8 April

A Swiss Air Force McDonnell-Douglas F/A-18 Hornet crashes near Crans-Montana, Switzerland.

1999 None

2000 None

2001
29 May
A US Navy McDonnell-Douglas FA-18C Hornet from VFA-106 crashed near Fort Pierce, Florida, during a ferry flight from NAS Oceana, Virginia, to NAS Key West, Florida. Pilot was killed.

2002
17 February
A USMC McDonnell-Douglas F/A-18D Hornet from VMFA-533 crash lands at Twentynine Palms, California. Both aircrew eject but the WSO, while hospitalized, dies from his injuries.
18 October
Two Boeing F/A-18F Super Hornets collide during air combat manoeuvring off the Southern California coast and crash into Pacific 80 mi SW of Monterey, California. All four crew (two Pilots and two WSOs) are killed while flying (KWF).
3 November
An McDonnell-Douglas FA-18C Hornet from VFA-34 failed to return to USS *George Washington* from a night at sea bombing mission and crashed into Adriatic Sea. Pilot was killed.

2003
17 January
A US Marine Corps McDonnell-Douglas F/A-18D Hornet crashes into the Pacific Ocean off of MCAS Miramar, California, due to a material failure during a functional check flight with one engine shut down. Both crew eject safely and are recovered.
11 September
While landing aboard USS *George Washington*, operating off the Virginia Capes, an McDonnell-Douglas F/A-18D-32-MC Hornet (Lot 13), BuNo *164198*, c/n 961/DO63,[46] 'AD 432', of VFA-106,[47] goes off the angle at ~1600 hrs. when the arresting cable parts, pilot ejects and is recovered. The broken cable, whipping back across the deck, injures eleven deck crew, the most serious of which are airlifted to shore medical facilities.[48] Footage: http://www.youtube.com/watch?v=7OxMox2Kdxs&feature=related

Captain Chris Stricklin ejects from his F-16 at an air show in September 2003.

24 March

US Navy McDonnell-Douglas F/A-18C Hornet, of VFA-82, crashes into the Atlantic Ocean near Tybee Island, Georgia. Pilot ejects safely and is rescued.

21 July

Two US Marine Corps McDonnell-Douglas F/A-18 Hornets of VMFA-134, 3rd Marine Air Wing, based at MCAS Miramar, California, suffer mid-air collision over the Columbia River, 120 miles (190 km) E of Portland, Oregon, shortly after 1430 hrs., killing Marine Reservists Maj. Gary R. Fullerton, 36, of Spartanburg, South Carolina, and Capt. Jeffrey L. Ross, 36, of Old Hickory, Tennessee in F/A-18B, BuNo *162870*, 'MF-00',[56] coming down in the river. Maj. Craig Barden, 38, ejects from F/A-18A, BuNo 163097, 'MF-04',[56] landing nearby on a hillside W of Arlington, Oregon, and is taken to Mid-Columbia Medical Center in The Dalles, suffering minor injuries.[57] All three crew eject but only two parachutes open. The fighters were on their way to the Boardman Air Force Range, where the Oregon Air National Guard trains, when they collided, said one spokesman. Another spokesman told the Associated Press that the aircraft were on a low-altitude training exercise.[

14 September

A US Navy McDonnell-Douglas F/A-18C Hornet of VMFA-212 crashes at Manbulloo Station about 10 M SW of RAAF Tindal, Australia, during a day approach to landing. The pilot ejects and is injured.

9 November

A U.S. Navy McDonnell-Douglas F/A-18C Hornet crashes 15 miles E of Nellis AFB, Nevada, after in flight fire and becoming uncontrollable shortly after takeoff. Pilot ejects safely.

2 December

The pilot of a Blue Angels McDonnell-Douglas F/A-18 Hornet, BuNo *161956*, ejects approximately one mile off Perdido Key, Florida, after reporting mechanical problems and loss of power. Lt. Ted Steelman suffered minor injuries and fully recovered.

2005

29 January

A Boeing F/A-18 Super Hornet crashes into ocean while landing on USS *Kitty Hawk* (CV 63). The No. 3 arresting wire snapped, resulting in the aircraft plunging into the Pacific Ocean 100 miles SE of Yokosuka, Japan, hitting an SH-60F and an EA-6B Prowler en route to the water. Crew LTJG Jon Vanbragt, LCDR Markus Gudmundsson ejected safely.

18 July
A Boeing F/A-18E Super Hornet and a Boeing F/A-18F Super Hornet from NAS Lemoore, California, collide over the China Lake, California, weapons testing ground. The pilot of the E is KWF, while the two crew of F eject with injuries.

2006 None

2007
21 April
Main article: 2007 Blue Angels South Carolina crash
A United States Navy Blue Angels McDonnell-Douglas F/A-18 Hornet, BuNo *162437*, crashes into a residential neighborhood while performing at an airshow in Beaufort, South Carolina, in the United States, killing the pilot. Military investigators blame pilot for his fatal crash. A report obtained by The Associated Press said that Lieutenant Commander Kevin Davis got disoriented and crashed after not properly tensing his abdominal muscles to counter the gravitational forces of a high-speed turn.[9

2008
6 January
A Boeing F/A-18E Super Hornet has a mid air collision with a Boeing F/A-18F Super Hornet over the North Persian Gulf during routine ops from the USS *Harry S Truman*. One pilot ejects and is recovered.
13 June
Two United States Navy jets collided over the NAS Fallon, Nevada high desert training range, killing a pilot of the McDonnell-Douglas F/A-18C Hornet, based at NAS Oceana, Virginia. Two crew aboard the F-5 Tiger ejected safely and were rescued.
8 December
Main article: 2008 San Diego F-18 crash
A USMC McDonnell-Douglas F/A-18D Hornet, BuNo *164017*, crashed into a neighborhood, University City, coming down two miles (3 km) west of MCAS Miramar, California, just after the Marine pilot, Lieutenant Dan Neubauer, from VMFAT-101,[141] ejected. Four fatalities on the ground. The Hornet was being flown from the USS *Abraham Lincoln*.[142] The commander of the fighter squadron involved in the crash, its top maintenance officer and two others have been relieved of duty as a result of the crash investigation. The pilot has been grounded pending a further review, Maj. Gen. Randolph Alles announced in March 2009.[143]

2009
2 April

A Spanish Air Force F/A-18 Hornet crashes in northern Spain. Pilot ejects safely.[167]

16 June

Two Spanish Air Force McDonnell-Douglas F/A-18 Hornets collide in midair near the Canary Islands, Spain. Both pilots eject safely.[191]

17 October

A United States Marine Corps McDonnell Douglas F/A-18D Hornet (*164729*) from the Marine All Weather Fighter Attack Squadron No. 224 VMFA(AW)-224 based at the Marine Corps Air Station Beaufort, Beaufort, South Carolina experiences a heavy landing at Jacksonville International Airport, Duval County, Florida. The aircraft with two other Marine F/A-18 Hornet aircraft were landing at Jacksonville Airport in preparation for a flyover at the nearby NFL Jacksonville Jaguars game when the aircraft experiences an airborne technical fault and the port landing-gear collapses causing the aircraft to land only on the nose-wheel, starboard undercarriage and the exposed port-side external fuel-tank. The F/A-18 Hornet skidded down the runway with most damage occurring to the grounded external fuel-tank and the 2 Marine crew were uninjured.[237]

2010

24 January

A Finnish Air Force (FinAF) McDonnell-Douglas F-18 Hornet crashed in the south of the country. The fighter crashed in Juuapajoki, north of the southern city of Tampere at about 11:50 local time. The two pilots, who were on a routine training flight, ejected safely and were uninjured.[9]

10 March

A United States Marine Corps (USMC) McDonnell-Douglas F/A-18D Hornet, BuNo *164694*, 'WK-01', from VMFA (AW)-224 crashed into the Atlantic Ocean, app. 35 miles (56 km) east of St. Helena Sound, South Carolina, after a double engine failure and a fire. Both pilots ejected and were floating in an inflatable life raft for about one hour before they were rescued by a USCG helicopter.[30]

11 March

23 July

A Royal Canadian Air Force (RCAF) McDonnell-Douglas CF-18 Hornet, *188738*, of 419 Moose Squadron, based at Cold Lake, crashed at Lethbridge County Airport during a low-speed, low-altitude practice run for the Alberta International Airshow. The pilot, Capt. Brian Bews, 36, ejected in a Martin-Baker seat seconds before the fighter fell off on its starboard wing and

impacted on the airfield. He suffered a compression fracture in three vertebrae but is expected to fully recover

2 December

A USN F/A-18C Hornet, BuNo *165184*, 'AD-351', suffered port undercarriage collapse on landing at NAF El Centro, California, at 1615 hrs., and departs runway. The pilot ejects safely

2011

30 March

Ten sailors are injured when an engine of a USMC McDonnell-Douglas F/A-18C Hornet of VMFAT-101 based at MCAS Miramar, California,[80] suffers a catastrophic failure while preparing for launch at 1450 hrs. during routine training exercises from the USS John C. Stennis, ~100 miles off the California coast. USN Cmdr. Pauline Storum said that five of the injured are taken by helicopter to the shore, four to the Naval Medical Center, San Diego, and one to Scripps Research Institute at La Jolla, California. None of the injuries were considered life-threatening but the fighter sustained damages over $1 million. The ensuing fire was quickly extinguished and the carrier itself was not damaged.[81]

2012

24 February

A USN Boeing F/A-18F Super Hornet on a training flight crashed into a dry lake bed 30 miles from Naval Air Station Fallon. The crew was recovered by helicopter.

6 April

A McDonnell Douglas F/A-18 Hornet of the USN crashed on take-off from Naval Air Station Oceana, Virginia Beach, Virginia. Both crew ejected. The aircraft crashed into a block of apartment complexes. No ground injuries were reported.[108] However, another report states that the pilot and one individual on the ground suffered unspecified injuries of unknown severity. CNN U.S. News confirmed that the crew had ejected, but their condition is not specified.[109]

1 September

A USMC McDonnell Douglas F/A-18C Hornet crashed in a remote range area of the Fallon Range Training Complex, The pilot ejected from the aircraft safely.[119]

2013

11 March

A USMC Grumman EA-6B Prowler crashed during a scheduled low-level flight. 3 fatalities.[125]

23 October

A Swiss Air Force (SwAF) McDonnell Douglas F/A-18 Hornet crashed

into a mountain side near Alpnachstad. Both pilots died in the crash.[134]

2014
15 January
A USN Boeing F/A-18E Super Hornet of VFA-143 crashed off Virginia, pilot was rescued.
4 June
An F/A-18E Super Hornet of VFA-81 Sun Liners crashed while trying to land on the USS. Carl Vinson off the coast of Southern California .Pilot ejected safely.

In addition to the above, it is likely that hypoxia may be contributing to the accident rate of the F-18 airframe (Growler), as reported below by The Hill:
http://thehill.com/policy/defense/268221-navy-investigating-rise-of-health-issues-among-f-a-18-pilots#.VrTCx-wvX-U.facebook

Navy investigating rise of health issues among fighter jet pilots

By Rebecca Kheel - 02/04/16 12:15 PM EST

The Navy is investigating a rise in health issues among pilots of its fleet of F/A-18 and EA-18G fighter jets, the chairman of a House Armed Services Committee subpanel said Thursday.

“We’ve been informed that the Navy has organized a Physiological Episode Team, to investigate and determine the causes of these physiological episodes in aviators,” Rep. Michael Turner (R-Ohio), chairman of the Subcommittee on Tactical Air and Land Forces, said at a hearing Thursday. “As symptoms related to depressurization, tissue hypoxia and contaminant intoxication overlap, discerning a root cause is a complex process.”

The Navy started noticing a rise in physiological episodes among pilots in 2009, Turner said.

In 2006, the rate of episodes per 100,000 flight hours on the F/A-18 was 3.66, according to written testimony from Navy and Marines leaders.

By the period from Nov. 1, 2014, to Oct. 31, 2015, the rate was 28.23, according to the testimony.

For the EA-18G, the rate was 5.52 from Nov. 1, 2010, to Oct. 31, 2011. From Nov. 1, 2014, to Oct. 31, 2015, it was 43.57.

“While episodes of decompression sickness typically accompany a noticeable loss of cabin pressure by the aircrew, the cause of most physiological episodes is not readily apparent during

flight," the testimony says. "Reconstruction of the flight event is difficult with potential causal factors not always readily apparent during post-flight debrief and examination."

The testimony was written by Lt. Gen. Jon Davis, deputy commandant of the Marine Corps for aviation; Rear Adm. Michael Manazir, director of the Air Warfare Division of the Navy; and Rear Adm. Michael Moran, program executive officer of tactical aircraft of the Navy.

Of the 273 cases adjudicated so far by the investigation team, 93 involved some form of contamination, 90 involved an environmental control systems (ECS) component failure, 67 involved human factors, 41 involved an on-board oxygen generating system (OBOGS) component failure, 11 involved a breathing gas delivery component failure, and 45 were inconclusive or involved another system failure.

In response to the episodes, the Navy has put in place mandatory cabin pressurization testing, environmental control systems pressure port testing and annual hypoxia awareness training for pilots, among other steps.

"Many other solutions are in the process of being fielded or under development as well," the testimony says. "Future projects include technology to collect better sample data throughout the ECS and OBOGS, increased capacity for the emergency oxygen bottles, and physiological detection of symptoms."

– Appendix E –

(Extension of Comment 7)

NASWI Mishaps for Prowlers and Growlers, 1980–2013

Severity-A Mishaps: All A-level mishaps involving Intruders (A006E) or Prowlers (EA006B) and Growlers (EA018G) between January 1980 and September 2013 based out of NASWI.

Jet Type	Date	Severity	Shore Location	Reference No.
EA006B	8/19/1981	A	WDBYI	30358
Narrative: Combat maneuvering mishap. Vertical 7000' descent/crash. Crew ejected safely.				
EA006B	12/13/1984	A	WDBYI	24611
Narrative: Explosion and fire on climb-out. Pilots ejected. Aircraft then exploded.				
A006E	5/5/1988	A	WDBYI	93760
Narrative: Jet crashed 260' below wooded ridge during low-level training. Crew died.				
A006E	8/8/1989	A	WDBYI	2465
Narrative: Jet crashed into ground during day demo practice. Accelerated stall. Crew (2) died.				
A006E	11/6/1989	A	WDBYI	3354
Narrative: System failures = lost control of jet & crashed in water. Crew ejected safely.				
A006E	1/22/1990	A	WDBYI	3966
Narrative: Uncontrolled nose-up pitch on takeoff & crash. Crew ejected too low = injury.				
A006E	10/10/1991	A	WDBYI	34217
Narrative: Low-level training wing touched river water = crash in river. Crew(2) died.				
EA006B	3/19/1992	A	WDBYI	35429
Narrative: Crash into mountains during maneuvers resulting in post-stall gyration. Crew ejected.				
EA006B	11/15/2001	A	WDBYI	82114
Narrative: Aircraft crashed during routing training situation. A lot said but a lot seemed not said.				
EA006B	5/21/2003	A	NUW	84989
Narrative: Problems from damaged wing on takeoff created big issue; crew landed safely				
F018E (?)	4/30/2006	A	NUW	100452
Narrative: Engine fire/failure (blew up) during takeoff, which was aborted. Pilot escaped.				

Severity-B Mishaps: All eight B-level mishaps involving Intruders (A006E) or Prowlers (EA006B) and Growlers (EA018G) between January 1980 and September 2013. (FOD = foreign object damage.)

Jet Type	Date	Severity	Shore Location	Reference No.
A006E	1/23/1980	B	WDBYI	31074
Narrative: Severe vibration at landing. Both engines FODed.				
A006E	1/23/1980	B	WDBYI	31075
Narrative: Engine malfunction and flight abandoned. Engine removed.				

A006E	11/25/1980	B	WDBYI	31906
Narrative: Large flock of birds hit after takeoff. Returned to safe landing. Engine FODed.				
A006E	2/22/1982	B	WDBYI	27347
Narrative: After return from FCLP all three landing gears collapsed on engine turnoff.				
A006E	10/24/1985	B	WDBYI	22228
Narrative: Tire blew on landing and jet spun off runway.				
EA006B	12/1/1996	B	WDBYI	80502
Narrative: Pilot error; landed too fast and went off end of runway. Extensive damage. Crew ok.				
EA006B	2/26/2004	B	NUW	88797
Narrative: Land gear failure on landing; plane veered off runway. No injury. Plane damaged.				
EA006B	4/1/2004	B	NUW	88423
Narrative: Bird strike shut down engine. Pilot returned, landed safely. Engine/other damaged.				

Severity-C Mishaps: Indiscriminate subsample (*n* = 17) of a total of70 Intruder (A006E) or Prowler (EA006B) and 4 Growler (EA018G) Level-C mishaps between January 1980 and September 2013. (FOD = foreign object damage.)

Jet Type	**Date**	**Severity**	**Shore Location**	**Reference No.**
EA006B	2/4/1981	C	WDBYI	29404
Narrative: Bird ingested sometime during flight.				
EA006B	7/14/1981	C	WDBYI	30167
Narrative: Landing gear malfunction. Parts of wing touched runway.				
EA006B	11/17/1981	C	WDBYI	30851
Narrative: Encountered bird flock that FODed both engines. Uneventful return and landing.				
EA006B	11/23/1981	C	WDBYI	30888
Narrative: FOD damage discovered after flight.				
EA006B	1/28/82	C	WDBYI	27243
Narrative: FOD damage discovered after flight				
EA006B	2/20/1982	C	WDBYI	27340
Narrative: Engine FODed after routine maintenance.				
A006E	2/16/1982	C	WDBYI	27323
Narrative: Engine FODed while landing				
A006E	2/18/1982	C	WDBYI	27334
Narrative: Engine FODed due to icing malfunction.				
EA006B	8/16/2008	C	NUW	98982
Narrative: FOD of tire and failure of tire resulted in aborted takeoff.				
EA006B	10/29/2009	C	NUW	n/a
Narrative: Tire blowout on landing caused much damage to plane underside. Crew okay.				
EA006B	1/19/2011	C	NUW	n/a
Narrative: Landing gear failure on 5th landing run resulted in arrested landing.				

EA006B	8/10/2011	C	NUW	n/a
Narrative: Outboard leading edge of slat on wing came off during flight. Discovered post flight.				
EA018G	9/23/2011	C	NUW	n/a
Narrative: Bird strike causes irreparable dent in radome; discovered post flight.				
EA018G	10/13/2011	C	NUW	n/a
Narrative: Plastic rotator tool left in intake and found after jet returned. Tool eaten up by engine				
EA006B	5/2/2012	C	NUW	n/a
Narrative: Canopy hinge access cover came off and struck fin pod radome in flight at 800’ AGL.				
EA018G	1/16/2013	C	NUW	n/a
Narrative: Arresting gear problems caused damage to landing gear door.				
EA018G	9/6/2013	C	NUW	n/a
Narrative: Bird strike damage to right aileron discovered post flight.				

– Appendix F –

(Extension of Comment 7)

Things Falling Off Aircraft

From there were 41 mishaps involving things coming off aircraft including Intruders (A006E), Prowlers (EA006B) and Growlers (EA018G) between July 1981 and July 2013. Most were hazards (H) but a few were class C or A mishaps. No property damages were reported.

Jet Type	Date	Severity	Shore Location	Reference No.
EA006B	7/27/1981	H	WDBYI	30240
Narrative: Part (4 x 4 in) of wing cover came off in flight. Damage to plane/property possible.				
EA006B	2/24/1982	H	WDBYI	27365
Narrative: Bay door opened in flight. Cable broke loose from fuselage; entered port engine.				
EA006B	10/1/1982	H	WDBYI	28626
Narrative: Parts of blown tire on takeoff damaged parts of aircraft on takeoff.				
A006E	8/17/1983	H	WDBYI	26276
Narrative: Lost wing access control panel during flight. Hinge fatigue suspected.				
A006E	7/11/1985	H	WDBYI	21284
Narrative: Tail pipe door on port engine lost in flight. Fatigue suspected.				
EA006B	1/13/1986	H	WDBYI	16820
Narrative: Lost outboard flap during landing.				
A006E	9/17/1987	H	WDBYI	15978
Narrative: Multiple ejector rack accidentally jettisoned during weapon test. Crew error.				
A006E	4/9/1988	H	WDBYI	8367
Narrative: Tire tread blew off in takeoff and damaged wing.				
A006E	4/14/1988	H	WDBYI	8402
Narrative: Another tire tread blow off. Not known until 70 miles away.				
A006E	4/25/1988	H	WDBYI	8499
Narrative: Inboard forward MK-76 departed aircraft after hitting hawk at 1 mile post departure.				
A006E	7/8/1988	H	WDBYI	9113
Narrative: Tire tread blew off in takeoff and damaged inboard flap.				
EA006B	1/18/1990	H	WDBYI	3932
Narrative: Tire tread blew off in takeoff and damaged landing gear hydraulics.				
A006E	3/7/1990	H	WDBYI	4455
Narrative: LOU-10 rocket pod released in flight; equipment failure. No damage; pod not found.				
A006E	3/12/1990	H	WDBYI	4508
Narrative: Tailpipe door departed aircraft during heavy G-forces exercise.				
EA006B	10/19/1990	H	WDBYI	6865
Narrative: Lost outboard slat (screw failure) during break for landing.				

A006E	11/8/1990	H	WDBYI	7125
Narrative: Just after FCLP takeoff, radome bolt came off & entered engine.				
[a] EA006B	1/16/1991	H	WDBYI	32101
Narrative: RAT hub failure & blades came off; one blade went through RAT door.[a]				
EA006B	2/21/1991	H	WDBYI	32358
Narrative: Striker plate screws & safety wire came off during break roll maneuver.				
A006E	6/5/1991	H	WDBYI	33241 6/5/1991
Narrative: Hose coupling & basket trailing aircraft after refueling.				
EA006B	3/3/1992	H	WDBYI	35281
Narrative: Hose and drogue departed aircraft during low-level flight.				
EA006B	10/26/1992	H	WDBYI	36985
Narrative: Outboard slat/bolts departed wing during break turn.				
EA006B	5/20/1993	H	WDBYI	38346
Narrative: 2 x 3 ft wing panel departed aircraft during check flight.				
A006E		H	WDBYI	
Narrative: Starboard access door fell off during flight including 6 FCLPs.				
A006E	9/20/1994	H	WDBYI	41805
Narrative: UHF antenna departed aircraft during flight with a loud thump.				
EA006B	10/17/1994	H	WDBYI	41619
Narrative: Port engine tailpipe door departed aircraft during flight.				
EA006B	2/20/1996	H	WDBYI	43429
Narrative: Starboard outboard slat departed aircraft during flight. Emergency landing.				
EA006B	4/23/1998	H	WDBYI	81151
Narrative: Brake did not release on landing; tire blew; aircraft skidded off runway.				
EA006B	7/8/1999	H	WDBYI	50158
Narrative: Improper maintenance of external stores jettison.				
EA006B	11/1/1999	H	WDBYI	51340
Narrative: Tailpipe door departed aircraft; located door; found wrong door had been installed.				
EA006B	5/22/2002	H	NUW	66848
Narrative: Nose wheel well locking bolt came off in flight; resulted in multiple damage issues.				
EA006B	5/21/2003	A	NUW	84989
Narrative: ALQ pod bolts failed; pod departed aircraft damaging wing; pilot able to land safely.				
EA006B	11/24/2009	H	NUW	95493
Narrative: Flap gear box panel came off in flight.				
EA018G	4/6/2011	H	NUW	
Narrative: Secondary flap seal broke off in flight & later found in rural area. Turkey hit blamed.				
EA006B	7/20/2011	H	NUW	
Narrative: Port wingtip port cover broke off in flight.				
EA006B	8/10/2011	H	NUW	
Narrative: Right wing outboard leading edge slat departed aircraft in flight.				
EA018G	1/26/2012	H	NUW	

Narrative: Pylon post blank-off plate departed aircraft during flight.				
EA006B	5/2/2012	C	NUW	
Narrative: Canopy Hinge Access Cover departed aircraft and struck Fin Pod Radome in flight				
EA018G	1/5/2013	H	NUW	
Narrative: Variable Exhaust Nozzle Secondary Seal departed aircraft in flight.				
EA018G	1/16/2013	C	NUW	
Narrative: Problem w/ arresting gear caused mishap on takeoff.				
EA018G	7/16/2013	H	NUW	
Narrative: Forward antenna access door of ALQ-99 came off during landing.				
EA018G	7/24/2013	H	NUW	
Narrative: Blank-off panel door departed aircraft during flight.				

[a] The narrative on this incident, indicates this was the "THIRD OCCURRENCE OF RAT BLADES FALLING OFF IN LAST 60 DAYS IN SQD," but no other reports of such RAT incidents were in the data provided and summarized here.

– Appendix G –

(Extension of Comment 10)

Composite of Correspondence on the Number of Jets

COER challenges the Navy on the total number of jets first submitted to the public in the Navy's 2005EA. That EA addressed the transition from Prowlers to Growlers, which were to be fewer in number and quieter than the Prowlers. The EA said 52 Growlers would replace 72 Prowlers:

> Replacement of the EA-6B with the EA-18G will begin in 2008 and be completed in 2013. The replacement process will result in an overall decrease in the number of Electronic Attack (VAQ) aircraft and associated personnel stationed at NAS Whidbey Island. A total of 57 EA-18G aircraft will replace the existing 72 EA-6B aircraft, resulting in a decrease of 15 VAQ aircraft stationed at NAS Whidbey Island and a decrease of approximately 1,106 personnel associated with the AEA aircraft squadrons (Tables 1-1 and 1-2).

The first Growler did not arrive on Whidbey Island until 2008 and it was not until 2013 that the impacts of the new jet were felt by the under-flight communities. It was clear that neither of the submitted facts from the Navy were true: the jet was not quieter and there were more of them. The Navy has asserted that the community did not challenge the Navy within the 6 years – but COER has a FOIA document from the Navy that shows the first Growler did not arrived on Whidbey Island in 2008.

COER took the Navy to court in early 2013 to press them for an EIS on the transition from Prowler to Growler addressing cumulative impacts of all operations at NASWI, and particularly of the Growler aircraft. This was well within the 6 years. The Navy conceded and agreed to prepare an EIS in 2013 – still within the 6 years. The Navy never raised a statute of limitations defense to our filing of the complaint and waived that defense. The Navy ignored this threshold and moved onto its 2012EA and gave themselves permission to add yet more Growlers.
It was only then that the Navy limited the scope of COER's demanded EIS to the addition of 36 more Growlers and are for all practical purposes omitting impacts of the first Growlers and the 82 that are now at NASWI. The Navy did this in their scoping of the EIS, AFTER they agreed to prepare an EIS. COER has always challenged that narrowing of the scope as counter to the intentions of a NEPA Environmental Impact Statement. So from 2008 to 20016, the Navy moved approximately 82 Growlers to Whidbey Island and no impacts of that huge transition have been studied. We continue to challenge the Navy's misleading information about the total number of jets and therefor their cumulative total impact.

The Current DEIS now asserts that there will be 118 EA18G Growlers sited at NASWI. According to the Congressional records this number is also not valid. Clearly, the Navy has 160 jets ordered but no honest plans to study their impact. The impacts of the transition from Prowler

to Growler have never been sufficiently studied while the Navy continues to bootstrap all of its electronic warfare jets to Whidbey Island. The real number are not addressed in the DEIS.

This chart is from Congressman Larsen in 2014 is in response to "where are all these Growlers going?" There were 15 more planes purchased and 18 more scheduled for production since his response was written.

The table below shows the current locations and status of all Growlers as of October 15, 2014:

Number of Aircraft			Location	Description
135	94	82	NASWI	Actively operating at NASWI
		12	NASWI	Inactive at NASWI, to be used in case an aircraft becomes inoperable
	5		Naval Air Facility Atsugi	Forward deployed to Japan
	36		Naval Air Systems Command (NAVAIR) headquartered in Maryland; awaiting delivery; not yet built	For research, development, and testing of various technologies, as we discussed at the meeting.

The 22 Growlers in the Navy's unfunded request this year are outside the scope of the POR. If Congress votes to buy any of these aircraft the POR would increase by that number.

Chief of Naval operations Greenert is also quoted in Dec of 2015 in response to: *Where are they going?* He states in that article that the Navy had planned purchases of 153 Growlers.

It appears that the Navy has a history of ordering jets, then as they are being delivered - do the EIS "paperwork" - not really a process, more of a required activity. It also appears that everyone but the public knew/knows that 160 Growlers will be sited at NASWI.

The Selected Acquisition Report for Growlers – 2015:
Attached is the official congressional-approved Program of Record Selected Acquisition Report (SAR). It shows a total of 150 Growlers approved by congress (135 up through 2012, 15 more since)
Program Acquisition Unit cost - total costs divided by units planned: $81.2M per Growler
Total program acquisition cost: $ 14.395 Bn
Expended to date (FY2015): $10.132 Bn
Deliveries:
Planned to date (FY2015): 113
Actual: 116
Total planned: 150
Delivery rate: 2/month

From COER Allies on Lopez Island regarding Total number of Growlers at NASWI

"At the Navy's Open House public meeting on Lopez Island on December 7, 2016, I had a chance to talk to a senior officer in uniform who I learned was from Norfolk, VA (Naval Facilities Engineering Command Atlantic?). He informed me that there were currently over 100 Growlers already stationed at NASWI, and that the number would increase to roughly 160 when all the procured Growlers were manufactured, tested, and flown one by one to Whidbey Island. Based on the draft EIS, there will be a maximum of 118 Growlers in active operations. If the total number of procured Growlers to be stationed at NASWI is 160 as I was informed by the senior officer, this means the remaining 42 Growlers will be "spare"? Given the costs involved, it is difficult to believe that 42 spare Growlers are needed for an active fleet of 118. Is it possible that additional Growlers may be further added to the current proposed addition of 35-36 Growlers to the existing 82 in active operations? If so, why is there no mention in the current EIS process? If not, what kind of maintenance routines would be needed to keep spare Growlers in good working conditions year after year? Do they have to be "run" occasionally to keep engines in working order? At a minimum, the draft EIS should include a description of the maintenance routines of these spare Growlers and an analysis of their potential environmental impacts, including noise and air emissions.

From: ***Chuenchom Sangarasri Greacen*** *<chomsgreacen@gmail.com>*
Executive Summary FROM EA-18G Growler Aircraft (EA-18G)
As of FY 2017 President's Budget
Defense Acquisition Management
Information Retrieval
(DAMIR)

> The procurement profile of the FY 2017 PB adds 7 EA-18G aircraft in FY 2016. The result of this addition will be a FY 2016 FRP contract for Lot 40 EA-18G aircraft, which increases the total Program of Record (PoR) from 150 to 157. As part of theA-12 settlement, the EA-18G Program received three EA-18G airframes, Contractor Furnished Equipment (CFE), and Airborne Electronic Attack (AEA) kits from the Boeing Company. The value to the program was $198M. These aircraft are in the process of delivery and are annotated as Lot 37A aircraft. There was not a Total Obligation Authority (TOA) increase to the program. The three Growler aircraft have been added to FY 2013 and will be included in the PoR. FY 2016 $198 Million A-12 In-kind Settlement does not reflect TOA. No additional resources were provided in FY 2016 to the Department of the Navy. The Assistant Secretary of the Navy, Research, Development, and Acquisition (ASN (RD&A)) acknowledged and concurred with the FY 2015 Program Deviation Report (PDR) on June 2, 2015. ASN(RD&A) approved the APB on October 15, 2015.The additional 7 EA-18G aircraft and related support in FY 2016 caused Procurement and O&S cost breaches. Additionally, an RDT&E breach occurred as a result of increased funding for Complex Emitter, Tactical Targeting Network Technology, and Distributed Targeting Processor-Networked efforts. As a result, a PDR and updated APB will be submitted. A contract modification to the Lot 38 FRP contract for the Lot 39 FRP procurement awarded

on October 26, 2015.

In summary:
Q: How many Growlers is the Navy now planning? A: 160
Q: How many Growlers were planned to replace the Prowlers? A: 57
Q: How many Growlers are discussed in the 2017 EIS? A: 118
Reference:http://www.dod.mil/pubs/foi/Reading_Room/Selected_Acquisition_Reports/16-F-0402_DOC_51_EA-18G_DEC_2015_SAR.pdf
The DEIS should be assessing the impact of 160 EA18GGrowlers, not 118 EA18G Growlers, has no established base-line, and no cumulative impact data or research on the environment, health, safety and economic impacts resulting from this increase. This is so misleading, one wonders if the operation projection totals also have any relationship to actual plans. Additionally, this is not information that the public can be expected to glean from reading the Navy's DEIS, which is long on words and short on actual detailed information and completely silent on the Navy's actual plans for increases up to 160 Growlers at NASWI.

Growler Impact on Air Quality at Whidbey Island Ault field and FCLP Operations at OLF Coupeville

One of the environmental impacts of Growler operations on Whidbey Island is the impact on air quality. Considerable discussion has taken place on noise issues, and more recently water pollution, but I have not seen any discussion on air quality.

Air quality is directly related to the amount of jet fuel burned. The amount of fuel burned and pollutants emitted by a Growler is staggeringly large, as shown below. As a point of reference, one Growler burns about 1192 gallons of fuel per hour during flight carrier landing practice (FCLP) with landing gear down, flaps down, low altitude, and slow speed. This is a high drag configuration that requires high thrust to stay airborne.

Consider that a typical family automobile might use 400 gallons of fuel in a full year (driving 10,000 miles a year at 25 miles per gallon). One Growler burns 400 gallons of fuel in twenty minutes of FCLP flight. If an average FCLP session for a pilot lasts 35 minutes and is about 12 bounces, it follows that during that time the jet burns 35min/20min × 400 gal = 700 gal, or about 58 gallons per bounce. So, at 35,000 operations or 17,500 bounces, the fuel burned is 58 gal × 17,500 bounces = 1.015 million gal, or 2538 times the annual fuel consumption of one automobile.

The draft EIS for Growler operations has detailed information on air emissions in Appendix B. Page 42 of Appendix B has data for Alternative 1A, "High Tempo Year", which appears to the worst-case scenario for Coupeville. The number of FLCP operations at OLF Coupeville is given

as 33,774. Fuel use is listed as 23,844,444 pounds, which translates to 3,511,700 gallons of fuel per year (fuel weighs 6.79 pounds per gallon).

That same page in the Appendix B also gives information on pollutants caused by Navy and associated personnel in daily vehicle commutes to and from Ault Field. This provides a convenient comparison to the equivalent impact of the Growler FCLP operations. For daily commutes they have assumed 4475 vehicles driving 25 miles on 250 days per year. Total miles driven is 27,968,750. Assuming an average of 25 miles per gallon, the commuters burn 1,118,750 gallons of fuel. This data can be used to calculate equivalent vehicle emissions for the Growlers.

First, consider the FCLP operations at OLF Coupeville under Alternative 1A. In terms of fuel burned, the Growlers would burn 3,511,700 gallons of fuel, which is 3.14 times as much as the 1,118,750 gallons of the commuters. So, the OLF Growler operations would be equivalent to 14,050 vehicles in terms of fuel burned (3.14 times 4475). This means that for Alternative 1A, Growler operations would be like having 14,050 vehicles traveling 25 miles around the Coupeville area for 250 days a year.

But that's only considering fuel burn. Jet fuel is different than automobile gasoline, and burned under different conditions. Appendix B gives information on the pollutants emitted by both Growlers and vehicles, so we can do a similar comparison as we did for fuel burn to find out how Growler emissions compare to vehicles.

Four pollutants are particularly important for Coupeville OLF operations: nitrogen oxides, sulfur dioxide, particulate matter, and carbon dioxide. As with fuel burn, we can calculate the equivalent number of vehicles it would take to match the Growler emissions.

Here are the results:

Pollutant	FCLP only at Coupeville OLF Equivalent Vehicles	NAS Complex Equivalent Vehicles
Nitrogen oxides	112,844	394,853
Sulfur dioxide	1,692,189	7,658,642
Particulate matter (PM2.5)	27,895	146,169
Carbon dioxide	15,554	68,134

Carbon monoxide	461	163,288
VOC[a]	3896	2,459,993
Particulate matter(PM10)	3090	16,024

[a] Volatile organic compounds

These numbers are astounding, particularly when you consider that they are concentrated over a relatively small area surrounding the airfield, with operations up to five hours a day on as many as five days a week at Coupeville OLF.

Page 42 of Appendix B also includes data for the total NAS Whidbey Island Complex. Those results are also given above. Operations at Ault Field include other activities that produce large quantities of carbon monoxide and VOCs.

Carbon dioxide is a greenhouse gas and the subject of much concern in terms of climate change. Particulate matter is dangerous because it can get deep into the lungs. Sulfur dioxide and nitrogen oxide can also cause respiratory problems and contribute to acid rain. Nitrogen oxides are related to nutrient pollution in coastal waters.
Some might argue that it's not fair to compare the Growler pollutants to vehicles, since vehicles now emit very few pollutants. But that's the point. With great effort and expense we had reduced vehicle pollutants to a low level, which will be erased may times over on Whidbey Island by Growler operations.
These data are based entirely on the information give in Appendix B, page 42, of the Whidbey draft EIS, and can be easily verified.

– Appendix H –

(Extension of Comment 11)

- List of DEIS Preparers –

From Chapter 8 of the DEIS, it is evident that none of the preparers of the DEIS possess medical credentials.

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