Lilly
comments on
NPS Acoustic Study

JGL ACOUSTICS INC.

January 17, 2017

Citizens of the Ebey's Reserve (COER)
P.O. Box 202
Coupeville, WA 98239-0202

Subject: Whidbey Island Military Jet Noise, Review of NPS Report

Ladies and Gentlemen:

This report presents review comments on the November 2016 report[1] documenting ambient noise measurements conducted on Whidbey Island by the National Parks Service. The noise measurements were collected on National Park Service property at two locations over a period of 31 days (in July and August 2015), over 730 hours at each location. The exact start and end dates of the measurements are not provided in the report. The location of both noise monitoring systems (EBLA001 and EBLA002) were directly west of the OLF Coupeville, at a distance of approximately 1.5 and 3 miles, respectively. Neither of these two locations were very close (within 1/2 mile) to any of the 4 outdoor locations that I measured for COER in 2013. The acoustic instrumentation used in the NPS study was comparable to the instrumentation that I used, but the NPS study also included meteorological data (wind speed and direction, air temperature, and humidity). The meteorological data is not particularly important for aircraft noise when jets are close to the receiver (less than 500 feet directly above), but it can be a significant factor when the source is distant from the receiver (the more distant the source, the more influential the weather). The most important difference between my measurements and the NPS measurements is the duration of the study, which permitted the direct measurement of the day-night noise level (DNL) at these two locations.

The data in Table 9 on page 14 of Reference 1 shows that EBLA002 is much quieter than EBLA001. The 31-day average DNL is almost 20 dB higher at EBLA001, and the 24-hour average L_{Aeq} is almost 21 dB higher. Note that EBLA002 is about 4 miles west of OLF Coupeville and EBLA001 is only 2 miles west. It is clear from Figure 2 of Reference 1 that there are no field carrier landing flight tracks over EBLA002, but several pass over EBLA001. There can be no doubt that the difference in noise level is totally due to the close proximity of the military jets using OLF Coupeville.

[1] Ebey's Landing National Historical Reserve – Acoustical Monitoring Report, Natural Resource Report NPS/ELBA/NRR – 2016/1299, November 2016.

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The last paragraph on page 14 of Reference 1 documents that the highest recorded sound level at EBLA001 was 113 dBA (117.2 SEL). This compares quite favorably with the 113.2 dBA maximum sound pressure level that I recorded at Position 2 (near the beach), which is also almost directly under flight track 32TN2 or 32TN3. The maximum sound pressure level that I measured at all five locations was at Position 1, where I measured 119.2 dBA. The sound level at Position 1 is greater than the other locations because the jets are closer to the ground (and perhaps accelerating at a higher level). It is highly likely that the aircraft elevation at Position 2 is very close to the elevation at EBLA001.

This same paragraph documents that there were 281 military aircraft events at EBLA001 during the 31 days. This averages to 9.06 events per day, and the measured day-night average noise level (DNL) was 73.6 dB. In the next to last paragraph on page 18 of Reference 1 it was documented that 38% of the military flights at EBLA001 occurred during the nighttime hours of 10 PM to 7 AM. If we compare this data with the predictions that I made for Position 2 in Table 4 of my report, you will see that I predicted a DNL (L_{dn}) of 76.4 dB with 40% nighttime flights. My prediction is 2.8 dB higher than the measured DNL at EBLA001 for three reasons. The first reason is that my prediction was based on a total of 3,784 flights per year, which averages to 10.36 flights per day (slightly more than the 9.06 at ELBA001). This would account for 0.6 dB of the DNL difference. The second reason is that I assumed 40% night flights, compared to 38% measured at ELBA001. A higher percentage of night flights will cause the DNL to increase. This would account for an additional 0.2 dB increase in the DNL. The third reason for the slight DNL difference is that my prediction was based on the measured average SEL for the 43 flights that I recorded at Position 2 on May 7, 2013. The maximum sound pressure level (L_{Amax}) for each of these 43 flights ranged from 90 dBA to 113 dBA. The data presented in Figure 10 of Reference 1 shows most of the values of L_{Amax}) ranging from 78 dBA to 113 dBA, with several shown below 78 dBA. Lower L_{Amax} levels will yield lower SEL values, which would easily explain the remaining 2.0 dB difference. Unfortunately, Reference 1 does not disclose the average SEL for the 281 military flights that were recorded at ELBA001. Only the maximum SEL (117.2 dB) was disclosed. For reference, the maximum SEL for the 43 military flights that I measured at Position 2 was 116.9 dB.

In conclusion, it appears that the findings of the NPS measurements closely support my original measurements and data analysis. I cannot comment on how these two reports compare to the predictions presented in the DEIS because I have not yet seen the DEIS. Also comparison with predictions in the DEIS would likely be difficult because the flight patterns modeled in the DEIS are likely to be different than those measured in either of the two reports discussed in this comment letter.

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We can also conclude that the military aircraft noise associated with activity at OLF Coupeville is likely distributed over the entire geographic area covered by the flight patterns shown in Figure 2 of Reference 1, with the greatest impact near Position 1 because all of the flight patterns converge at this location

If you have any questions regarding these review comments, do not hesitate to contact me at my office.

Very truly yours,
JGL Acoustics, Inc,

Jerry G. Lilly, P.E., President, FASA
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Figure 1. Aerial photograph showing the 5 noise measurement locations.