

Memo

DATE 14 MAR 1980

TO: Marion MacKenzie

FROM: Bob Wells, Planning

587 -
EXT. 5312

Here are the noise level reports for Jan. & Feb. '80

I apologize for the low quality of the station map; our print shop is working on a clearer form. If you have any questions about these numbers, please give me a call.



Virginia

NOISE MEASUREMENT DEFINITIONS

The Decibel Scale: Noise levels are commonly expressed in units of decibels (dB). The decibel scale is logarithmic, not linear, so decibel calculations are sometimes confusing. An increase of 3dB in noise level corresponds closely to a doubling of the noise power. That is, two identical noise sources operating at the same time would have a combined noise level 3dB higher than either one of them alone. A 10dB increase means that the power has been multiplied by ten. Because of the logarithmic scale, averages cannot be computed by simple addition and division. Decibel values must be converted to power values, then averaged, then reconverted to decibels.

0dB is a reference level approximately equivalent to the faintest sound that could be heard by a person with excellent hearing in an extremely quiet room. A change of about 1dB is needed in order for an average person to detect a difference in noise level. Some examples of typical noise levels are: soft whisper, 35dB; vacuum cleaner, 70dB; heavy truck, 85dB; and discotheque, 110dB.

The Noise Monitoring System data are expressed as dBA, for A-weighted decibels. The A-weighting is a factor used to simulate the response of human hearing, which is most sensitive to middle pitch tones and less sensitive to low and high pitches.

Noise Level Averages: In real situations, noise levels constantly change. To describe the noise exposure of a particular location, various procedures are used to calculate measures which summarize the noise levels. These measures cannot be calculated as simple averages of the decibel values but are computed by converting to values of noise power.

Over some time period, such as an hour or day, one can take an arithmetic average of the noise power. When reconverted to the decibel scale, this average is called an Equivalent Noise Level (LEQ). Continuous noise at this level would have the same total power as the actual, varying noise during that time period.

The noise average that we are reporting from the Noise Monitoring System is the Day-Night Sound Level (LDN). This measure is similar to an LEQ calculated for a one-day period but with an additional 10dBA added to the noise levels measured between 10:00PM and 7:00AM. This penalizes noise events ten-fold during those hours when a residential community is more sensitive to noise disturbance. For example, one aircraft flight at midnight is equivalent to ten flights at noon for the purpose of calculating the LDN average.

SEA-TAC INTERNATIONAL AIRPORT

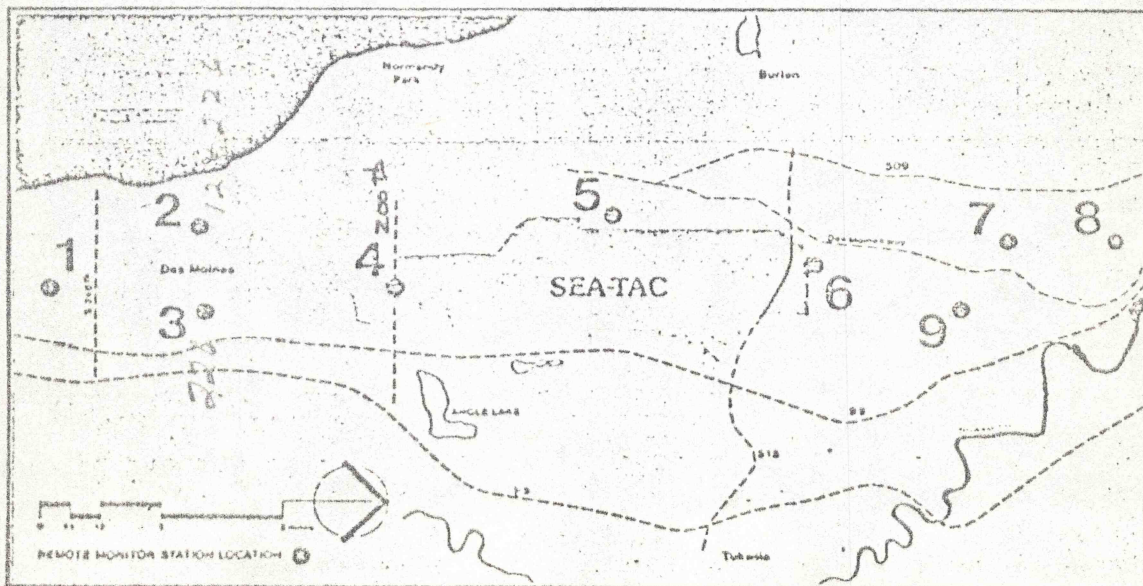
Noise Monitoring System Report for the month of JANUARY, 1980

The following table presents monthly and long-term averages of LDN. LDN is a measure of the noise over a 24-hour period and includes a 10 dBA penalty for nighttime noise between 10:00PM and 7:00AM. All values are given in units of dBA (A-weighted decibels).

Remote Monitor Station	1	2	3	4	5	6	7	8	9
Monthly Average <u>JANUARY</u> , 1980	74	73	75	84	74	83	77	74	73
Previous Year's Monthly Average	----- FOR FUTURE USE -----								
Long-term Average <u>JULY</u> , 1979	73.9	73.2	75.6	84.6	73.5	83.7	76.5	73.4	72.6
<u>JANUARY</u> , 1980									
Previous Year's Long-term Average	----- FOR FUTURE USE -----								

Operation Notes: 58% of the January air traffic flow was from north to south. Heavy snowfall forced closure of the airport during the afternoon and night of the 8th-9th and caused numerous flight delays. The Noise Monitoring System operated well except for two clock failures which were corrected with no loss of noise data.

Map of Remote Monitoring Station Locations



SEA-TAC INTERNATIONAL AIRPORT

Noise Monitoring System Report for the month of FEBRUARY, 1980

The following table presents monthly and long-term averages of LDN. LDN is a measure of the noise over a 24-hour period and includes a 10 dBA penalty for nighttime noise between 10:00PM and 7:00AM. All values are given in units of dBA (A-weighted decibels).

Remote Monitor Station	1	2	3	4	5	6	7	8	9
Monthly Average <u>February, 1980</u>	74	74	76	85	75	84	78	75	73
Previous Year's Monthly Average _____, _____	-----FOR FUTURE USE-----								
Long-term Average <u>July, 1979</u> <u>February, 1980</u>	73.9	73.4	75.6	84.6	73.7	83.8	76.7	73.6	72.6
Previous Year's Long-term Average _____, _____	-----FOR FUTURE USE-----								

Operation Notes: The Noise Monitoring System operated well during the month with no significant errors. There were no major problems in aircraft operations.

