## **Summary of Measured Noise Levels**

in the

## Town of Superior, Colorado

due to

# **Rocky Mountain Metropolitan Airport Operations**

## February 2024



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### **Monthly Summary – February 2024**

The following summarizes the noise levels measured at the Water Bladder measurement location located off S. Torreys Peak Dr. and aircraft operations detected over the Town of Superior for the month of February 2024. Additional information regarding the measurements is attached.

- Over the entire month, a total of 6,371 aircraft operations occurred within 1.25 miles of the measurement location (the distance within which aircraft are audible).
- Of these, 3,426 were touch and go (T&G) operations (51%).
- Over the entire month, aircraft operations were clearly noticeable (aircraft noise measured at approximately 5 dBA above the ambient sound level) for 4,234 minutes (71 hours).
- If T&G operations were not conducted at the airport, an analysis of the measurement data indicates that noticeable aircraft operations would decrease to 1,356 minutes (23 hours), which is a 68% reduction.
- The following summarizes the February 2024 noise survey.

Operations	Quantity	Audible aircraft operations	Aircraft noise above ambient (dBA)	Aircraft 5 dBA Above Ambient (minutes)	Aircraft 10 dBA Above Ambient (minutes)	
All	Total for month	6,371		4,234	2,998	
	Daily average	220	19	146	103	
Touch and Go Removed	Total for month	3,420		1,356	935	
	Daily average	118	14	47	32	

#### Table 1 - Summary of Measured Noise Levels and Aircraft Operations in February 2024

- Figure 1 shows the flight paths on February 11, a day with total operations close to the median for the month. Note the concentration of T&G operations over the Town of Superior and Boulder County.
- Figure 2 shows the measured noise levels and concurrent aircraft activity for this day. Maximum noise levels generated by individual aircraft operations exceeded the ambient sound level by the following levels for the durations noted:
  - 5 dBA (clearly noticeable), 167 minutes.
  - 10 dBA (significant increase), 120 minutes.
  - 20 dBA (much louder), 29 minutes.
- Figure 3 shows an hour on this day, during which time the measured level never reached ambient conditions, meaning that aircraft noise was constantly present.
- Figure 4 shows the flight paths for the entire month of February 2024.



Figure 1 – Flight Paths on Median Day in February 2024



Figure 2 – Noise Levels and Aircraft Operations on Median Day



Figure 3 – Noise Levels and Aircraft Operations during a Representative Hour on Median Day



Figure 4 – All Flight Paths in February 2024 (10,089 Operations; 3,741 T&G)

## **Detailed Results**

### **1.** Measurement Locations and Flight Paths

Noise level monitors were placed at the three locations shown in Figure 1-1 and configured to continually measure noise levels. The meters were in service the entirety of February 2024. The selection of measurement locations considered proximity of Town of Superior residences, aircraft flight paths, and availability of public land. The Water Bladder location was chosen as it is removed from busy roads and in the flight path of touch and go operations. The Community Center location was chosen as it is directly in the flight path of the northeastern runway. The North Pool location was chosen to represent the northern portion of the town.

Aircraft flight paths are limited due to Denver International Airport airspace to the east and mountains to the west. This, along with prevailing wind patterns, pushes a majority of operations over the town, as shown in Figures 1 and 4 (above).



Figure 1-1. Measurement Locations and Airport

### 2. Noise and Aircraft Operations Measurement Procedures

Noise levels were measured in accordance with applicable acoustical standards as well as the author's experience in this specialized field. The following sections describe the acoustical standards followed, measurement equipment specifications and settings, measurement duration, ground wind measurement equipment, and aircraft operations data integration.

#### 2.1 Applicable Noise Measurement and Analysis Standards

The measurements were executed in accordance with the relevant aspects of the following standards:

- 1. Noise measurement equipment meets the Type 1 specifications of American National Standards Institute (ANSI) standard S1.4-1983 (R2006) American National Standard Specification for Sound Level Meters.
- 2. ANSI S1.11-2004 (R2009), Electroacoustics Octave-band and Fractional-octave-band Filters - Part 1: Specifications.
- 3. ANSI S1.40-2006 (R2016), American National Standard Specifications and Verification Procedures for Sound Calibrators.
- 4. The measurement and analysis procedures followed the applicable portions of ANSI S12.9 Part 3 (2013) Quantities and Procedures for Description and Measurement of Environmental Sound - Part 3: Short-Term Measurements with an Observer Present.
- 5. ANSI S12.18-1994 (R2009) Outdoor Measurement of Sound Pressure Level.
- 6. ANSI S1.13-2005 (R2010) American National Standard Measurement of Sound Pressure Level in Air.

#### 2.2 Noise Measurement Equipment

Noise levels were measured using Larson Davis Model 831 sound level meters with associated preamplifiers and  $\frac{1}{2}$  inch free-field precision microphones. All measurement and field calibration equipment were certified by a traceable laboratory within 18 months prior to the measurements. Field calibrations were conducted prior to survey commencement and monthly during the survey. The drift in the measured noise level was minimal (-0.1 to +0.3) in the month. Calibration certificates and records are available upon request. The microphones were mounted on steel poles and positioned five feet above the ground (per ANSI S12.9). The microphones were covered with hydrophobically treated 7-inch diameter, 80-pores-per-inch density windscreens (ACO Pacific Model WS7-80T). Audio from each sound level meter was recorded using Tascam DR-05X digital recorders. The sound level meters were configured to continuously measure and record 5-second and 1-hour averages of the following metrics: overall L<sub>eq</sub>, L<sub>10</sub>, L<sub>50</sub>, and L<sub>90</sub>, as well as one-third octave band L<sub>eq</sub> levels (6.3 Hz to 20 kHz).

#### 2.3 Aircraft Position Measurement Equipment

Aircraft position data is being collected at the North Pool measurement location with an Automatic Dependent Surveillance-Broadcast (ADS-B) monitoring system that receives real-time

data from each aircraft in the area, including location, speed, and a unique identifier (hex code). Aircraft position data is being logged on 5-second intervals and is combined with the Federal Aviation Administration (FAA) aircraft registration database to get additional information of each aircraft, including make/model, engine type, and owner. Aircraft from flight schools were identified based on the owner and listed registration numbers from the flight school websites. Altitude data from the aircraft is based on barometric pressure on the aircraft and is not corrected for barometric pressure on the ground. During data processing, the altitude data is corrected based on barometric pressure from the airport.

#### 2.4 Meteorological Data

Wind speeds and direction are being measured continuously at each long-term monitoring site using Vaisala WXT530 series sonic anemometers, mounted on steel poles approximately 6.5 feet above the ground (per ANSI S12.18) and placed within approximately 10 feet of the microphones. Barometric pressure data was obtained from the airport's weather station.

#### 2.5 Resulting Measurement Database

This report presents the results of measurements conducted throughout the month of February 2024. A total of 696 hours of continuous noise, aircraft, and ground wind data were collected. All data was organized into a single database, and data was time synchronized through the cellular network.

Figure 2-1 shows noise levels versus time (top graph) and distance to the nearest aircraft (bottom graph) for a representative one-hour period at the Water Bladder. This example shows a single aircraft doing touch and go exercises during the first half, which involves landing the airplane and immediately taking off again, and results in the airplane circling over the microphone every 5 to 10 minutes. Note the ambient sound level (with no aircraft present) is around 35 dBA, while the level with aircraft present can exceed 70 dBA (35 dBA increase over ambient).

Figure 2-2 shows the measured noise levels and aircraft operations for a representative hour with frequent aircraft operations. During this hour the natural ambient sound level of 38 dBA is never reached, because there was never a time when aircraft noise was not audible.



Figure 2-1. Example Time Plot of Measured Noise Levels - Touch and Go Operations



Figure 2-2. Example Time Plot on a Day with Frequent Aircraft Operations

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### 3. Data Analysis Procedures

The measured noise level and aircraft operations data was analyzed as follows.

#### 3.1 Duration of Analysis Intervals

The measured data was recorded and analyzed in 5-second intervals. This interval was chosen because it provides sufficient resolution to capture changes in noise levels against aircraft proximity over time. Results are summarized and presented herein in terms of daily averages of noise levels when aircraft are present versus ambient noise levels in the area (noise generated by non-aircraft sources, such as roadway traffic).

#### 3.2 Aircraft Types and Operations

Each 5-second ADS-B sample was classified into one of five operational types: (1) on-the-ground, (2) flyover, (3) touch and go (T&G), (4) takeoff, and (5) landing. The number of operations per day for each operational type is shown in Table 3-1. Samples classified as on-the-ground are excluded from further analysis as planes would not be audible during these times, and samples classified as flyovers are excluded from further analysis as these operations are not generated by this airport.

Samples were classified based on when the aircraft was on the ground at the airport. For each ADS-B sample, the previous 20 minutes and the next 20 minutes are analyzed. If the aircraft is on the ground, the sample is classified as on the ground. Otherwise, the sample is further analyzed. If the aircraft is airborne and was on the ground within both the past 20 minutes and the next 20 minutes, this sample is classified as a touch and go. If the aircraft is airborne and was on the ground within the next 20 minutes, the sample is classified as a takeoff. If the aircraft is airborne and was not on the ground within the past 20 minutes and is on the ground within the next 20 minutes, the sample is classified as a landing. If the aircraft is airborne and was never on the ground within the past 20 minutes or within the next 20 minutes, the sample is classified as a flyover.

Additionally, T&G operations were further classified as initial (the initial take off) or subsequent (subsequent touch and go landings and takeoffs) depending on whether or not the last operation of the aircraft was classified as a T&G operation. As described in more detail below, this was done to allow for the estimation of noise levels for a scenario where T&G operations occurred at another distant airfield.

Each ADS-B sample was also classified by aircraft engine type, as shown in Table 3-2. Aircraft engine type is identified from the aircraft registration "N Number" broadcast by the aircraft, and the FAA aircraft registration database, which provides details about each registered aircraft. Flight schools are identified based on aircraft registered owner, list of planes and N Numbers on each flight school's website, and observations of aircraft at the airport. Most aircraft are identified as piston engine (reciprocating or 4-cycle) and the majority of them are registered to flight schools.

To determine the number of each type of operation that occurred per day, 5-second samples were grouped to form an individual operation, such as a landing. To do this, the entire time that the

operating status of an aircraft remained the same constituted one operation. When the operational status of an aircraft changes, a new operation was started.

#### 3.3 Ambient Sound Levels

For the purposes of this analysis, the ambient daytime noise levels for each day are defined as the  $L_{90}$  dBA noise level measured during daytime hours, which is the noise level exceeded 90 percent of the time. Noise level contributions from aircraft operations are effectively removed with the  $L_{90}$  metric.

#### 3.4 Aircraft Noise Levels

Aircraft noise levels represent the 5-second measurement samples when any aircraft operations were audible. Noise levels are plotted against the concurrently measured distance from each aircraft to quantify the relationship between these two variables. The data indicates that at distances of 1 to 1.25 miles, aircraft begin to have an effect on noise levels and, at distances of 1 mile or less from the measurement location aircraft have a significant influence on the measured noise levels. For the purposes of this analysis operations were considered audible if the aircraft came within 1.25 miles of a measurement site at any time during the operation.

#### 3.5 Aircraft Noise Levels without T&G Operations

Aircraft noise levels without T&G operations represent the average of all 5-second samples taken when aircraft operations were audible, but with noise level during all times when the aircraft operation was classified as a subsequent T&G set to the ambient sound level for that day. This simulates what the average noise level would be if T&G operations took place elsewhere, i.e., at a distant airfield. Initial T&G operations were not removed from the analysis because an aircraft would need to takeoff from the airport even if T&G operations were located elsewhere. This initial T&G operation represents the takeoff.

Operation Type							Total		
Day	Flyover	T&G	Takeoff	Landing	Total Operations	Operations from Airport	Percentage T&G	Number of Unique Aircraft	
1-Feb-24	53	189	201	159	602	549	34%	161	
2-Feb-24	70	202	167	118	557	487	41%	130	
3-Feb-24	2	0	4	3	9	7	0%	7	
4-Feb-24	23	11	43	14	91	68	16%	61	
5-Feb-24	75	130	153	113	471	396	33%	128	
6-Feb-24	71	244	186	124	625	554	44%	139	
7-Feb-24	92	119	114	86	411	319	37%	170	
8-Feb-24	119	43	90	76	328	209	21%	193	
9-Feb-24	90	169	84	81	424	334	51%	171	
10-Feb-24	69	1	11	15	96	27	4%	94	
11-Feb-24	104	136	133	120	493	389	35%	186	
12-Feb-24	156	197	199	181	733	577	34%	246	
13-Feb-24	167	217	196	180	760	593	37%	271	
14-Feb-24	156	172	159	138	625	469	37%	246	
15-Feb-24	142	232	123	88	585	443	52%	230	
16-Feb-24	74	0	19	11	104	30	0%	91	
17-Feb-24	143	150	135	132	560	417	36%	245	
18-Feb-24	148	218	156	145	667	519	42%	216	
19-Feb-24	149	258	186	168	761	612	42%	262	
20-Feb-24	140	208	154	133	635	495	42%	243	
21-Feb-24	146	150	128	106	530	384	39%	232	
22-Feb-24	137	106	84	71	398	261	41%	215	
23-Feb-24	170	99	163	127	559	389	25%	267	
24-Feb-24	136	27	39	36	238	102	26%	180	
25-Feb-24	119	1	29	25	174	55	2%	147	
26-Feb-24	120	13	31	29	193	73	18%	162	
27-Feb-24	113	55	44	43	255	142	39%	165	
28-Feb-24	189	213	218	204	824	635	34%	308	
29-Feb-24	192	181	205	168	746	554	33%	302	
Month Total	3,365	3,741	3,454	2,894	13,454	10,089	37%	-	

Table 3-1. Aircraft Operations by Type

			Engir	пе Туре	-	
Day	Piston	Turboprop	Turboshaft	Turbojet	Turbofan	Unknown
1-Feb-24	445	26	7	0	27	44
2-Feb-24	433	11	6	2	32	3
3-Feb-24	0	1	0	2	4	0
4-Feb-24	27	12	1	0	28	0
5-Feb-24	347	13	6	0	26	4
6-Feb-24	497	12	9	0	33	3
7-Feb-24	275	9	2	0	31	2
8-Feb-24	121	19	5	0	58	6
9-Feb-24	274	16	6	0	35	3
10-Feb-24	1	6	0	0	20	0
11-Feb-24	342	2	3	2	40	0
12-Feb-24	497	24	7	0	45	4
13-Feb-24	533	16	8	0	32	4
14-Feb-24	389	17	7	0	46	10
15-Feb-24	359	21	4	0	59	0
16-Feb-24	2	4	0	0	23	1
17-Feb-24	382	10	0	0	24	1
18-Feb-24	473	6	8	0	30	2
19-Feb-24	556	7	3	0	44	2
20-Feb-24	439	10	6	0	40	0
21-Feb-24	283	19	4	0	57	21
22-Feb-24	177	12	2	0	68	2
23-Feb-24	310	16	11	0	46	6
24-Feb-24	59	5	2	0	32	4
25-Feb-24	11	3	2	0	39	0
26-Feb-24	19	6	4	0	39	5
27-Feb-24	76	5	6	0	50	5
28-Feb-24	564	18	4	0	45	4
29-Feb-24	445	14	6	0	59	30
Month Total	8,336	340	129	6	1,112	166

Table 3-2. Aircraft Operations by Aircraft Engine Type

### 4. Noise Measurement and Analysis Results

Tables 4-1 through 4-3 provide a summary of the noise levels and aircraft operations measured during each day of February 2024 at each measurement location. The tables provide the following information:

- The daily measured ambient (background) sound level (L<sub>90</sub>).
- The number of audible aircraft operations each day. For the purposes of this analysis operations were considered audible if aircraft came within 1.25 miles of a measurement site, based on an analysis of the measurement data. This will likely exclude any takeoffs and landings to and from the south of the runway.
- The average measured noise level with aircraft present (within 1.25 miles).
- The number of decibels that aircraft noise is above the ambient sound level.
- The number of minutes each day that aircraft were present, and the noise level they generated that exceeded the ambient sound level by 5, 10, and 20 dBA, respectively.
- This information is then repeated with T&G operations excluded from the analysis.

-		Daytime - All Operations							Daytime - T&G Operation Removed					
Date	Ambient Noise Level (dBA)	Number of Audible	Average Noise Level with Aircraft	Aircraft Noise Level Increase Above Ambient	Duratio Above	Duration of Aircraft Noise Levels Above Ambient (Minutes)			Average Noise Level with Aircraft	Aircraft Noise Level Increase Above Ambient	Duration of Aircraft Noise Levels Above Ambient (Minutes)			
		Operations	(dBA)	(dBA)	> 5 dBA	> 10 dBA	> 20 dBA	Operations	(dBA)	(dBA)	> 5dBA	> 10 dBA	> 20 dBA	
1-Feb-24	38	301	56	18	192	141	26	179	52	14	77	56	11	
2-Feb-24	37	346	58	21	268	223	54	181	53	16	102	84	16	
3-Feb-24	33	4	56	23	0	0	0	4	56	23	0	0	0	
4-Feb-24	36	39	62	26	13	12	5	34	62	26	12	11	5	
5-Feb-24	39	274	57	18	202	154	23	163	52	13	65	48	8	
6-Feb-24	39	388	56	17	286	207	29	189	51	12	82	58	8	
7-Feb-24	40	190	54	14	126	70	5	101	49	8	44	25	1	
8-Feb-24	40	94	56	16	46	30	3	65	54	14	27	20	2	
9-Feb-24	36	234	55	19	209	147	31	95	46	10	45	28	5	
10-Feb-24	34	7	58	23	0	0	0	7	58	23	0	0	0	
11-Feb-24	36	265	55	20	167	120	29	153	51	15	56	39	8	
12-Feb-24	41	343	56	16	231	102	11	190	50	9	93	45	5	
13-Feb-24	36	386	57	20	264	195	49	204	52	16	82	60	15	
14-Feb-24	39	273	57	18	175	127	19	141	51	12	64	44	5	
15-Feb-24	38	316	58	19	239	205	39	120	48	9	33	26	3	
16-Feb-24	32	14	55	23	1	1	1	14	55	23	1	1	1	
17-Feb-24	36	293	50	14	162	73	7	174	48	11	70	34	5	
18-Feb-24	36	355	56	21	243	185	42	176	48	13	59	42	8	
19-Feb-24	35	416	54	19	292	191	40	206	49	14	92	60	12	
20-Feb-24	37	322	56	18	212	153	29	152	50	12	58	41	7	
21-Feb-24	38	237	58	20	155	136	26	128	52	14	44	38	7	
22-Feb-24	37	165	61	24	99	75	15	75	53	16	25	19	4	
23-Feb-24	38	190	57	19	100	75	13	122	53	16	39	30	4	
24-Feb-24	36	50	53	17	21	16	2	30	50	14	7	6	1	
25-Feb-24	40	17	55	15	1	1	0	17	55	15	1	1	0	
26-Feb-24	38	39	52	14	9	7	0	28	48	10	3	2	0	
27-Feb-24	35	85	53	18	69	44	7	39	44	10	18	13	1	
28-Feb-24	37	400	53	17	259	144	21	234	49	12	96	58	9	
29-Feb-24	35	328	55	20	194	163	33	199	49	13	63	50	8	
Monthly Average	37	220	56	19	146	103	19	118	51	14	47	32	5	
Monthly Total	-	6,371	•	-	4,234	2,998	559	3,420	1,487	-	1,356	935	158	

Table 4-1. Summary of Measured Noise Levels and Aircraft Operations – Water Bladder

		Daytime - All Operations							Daytime - T&G Operation Removed					
A Date	Ambient	Number of	Average	Aircraft Noise	Duration of Aircraft Noise			Number of	Average	Aircraft Noise	Duration of Aircraft Noise			
	Noise	Audible	Noise Level	Level Increase	Levels				Noise Level	Level Increase	Levels			
	Level (dBA)	Audible	with Aircraft	Above Ambient	Above	Ambient (	Minutes)	Audible	with Aircraft	Above Ambient	Above Ambient (Minutes)			
		Operations	(dBA)	(dBA)	> 5 dBA	> 10 dBA	> 20 dBA	Operations	(dBA)	(dBA)	> 5dBA	> 10 dBA	> 20 dBA	
1-Feb-24	44	351	59	15	161	90	15	225	58	15	118	72	14	
2-Feb-24	44	379	60	16	212	129	19	214	60	15	138	92	17	
3-Feb-24	39	5	65	26	1	1	1	5	65	26	1	1	1	
4-Feb-24	40	53	62	22	24	21	7	47	62	22	21	19	7	
5-Feb-24	43	292	58	14	180	104	10	182	56	13	117	70	9	
6-Feb-24	46	422	58	12	197	91	6	223	56	10	116	56	5	
7-Feb-24	43	208	57	14	123	57	6	119	56	14	78	41	6	
8-Feb-24	42	122	58	16	43	25	4	94	58	15	35	22	4	
9-Feb-24	42	244	57	15	136	70	14	105	55	13	55	30	8	
10-Feb-24	42	11	63	21	4	4	2	11	63	21	4	4	2	
11-Feb-24	40	279	57	16	141	82	16	168	56	15	94	59	14	
12-Feb-24	42	364	58	16	202	97	15	211	55	13	127	69	13	
13-Feb-24	43	418	58	15	200	110	15	236	57	14	121	72	13	
14-Feb-24	44	304	58	14	129	67	7	174	57	13	80	46	6	
15-Feb-24	44	338	61	17	190	126	19	146	59	15	75	54	13	
16-Feb-24	42	19	67	25	6	6	2	19	67	25	6	6	2	
17-Feb-24	40	295	55	15	174	70	11	176	55	14	121	58	11	
18-Feb-24	41	371	58	17	205	127	23	194	56	15	107	69	15	
19-Feb-24	42	428	56	14	226	97	12	218	55	13	125	60	10	
20-Feb-24	44	346	59	15	151	86	13	176	58	14	85	54	12	
21-Feb-24	44	256	61	17	150	100	18	148	60	16	88	61	13	
22-Feb-24	44	181	61	17	67	36	9	96	61	16	39	27	8	
23-Feb-24	42	241	59	17	104	60	10	173	58	16	74	44	9	
24-Feb-24	41	56	57	16	15	7	1	36	57	16	11	6	1	
25-Feb-24	42	27	59	17	8	6	1	27	59	17	8	6	1	
26-Feb-24	42	47	60	18	15	11	4	36	60	18	13	10	4	
27-Feb-24	42	93	57	15	46	18	4	47	56	14	19	10	3	
28-Feb-24	43	419	56	13	164	60	10	253	55	12	114	49	9	
29-Feb-24	42	362	57	15	171	108	15	235	56	14	107	67	12	
Monthly Average	42	239	59	17	119	64	10	138	58	16	72	42	8	
Monthly Total	-	6,931		-	3,442	1,863	287	3,994	1,686	-	2,094	1,230	239	

Table 4-2 Summary	of Measured Noise Levels and	d Aircraft Onerations	- Community Center
Table -2. Outlinally		a Anoran Operations	

		Daytime - All Operations						Daytime - T&G Operation Removed					
Date	Ambient Noise	Number of Audible	Average Noise Level	Aircraft Noise Level Increase	Duratio	Duration of Aircraft Noise Levels			Average Noise Level	Aircraft Noise Level Increase	Duration of Aircraft Noise Levels		
	Level (dBA)	Operations	with Aircraft	Above Ambient	Above	Ambient (	Minutes)	Operations	with Aircraft	Above Ambient	Above	Ambient (	Minutes)
1 Eab 24	4.4	212	(UDA)	(UDA)	> 3 0BA	20 20	> 20 GBA	175	(UDA)	(UDA) 12	> 30BA	> 10 0BA	> 20 GBA
1-1 eb-24	44	215	50	14	02	46	2	175	50	12	76	37	2
2-FeD-24	45	223	59	14	03	40	4	170	59 61	14	10	44	4
J-FeD-24	34 40	4	67	21	0	7	2	4	67	21	7	6	2
4-Feb-24	40	39 227	56	20	50	1	1	157	56	20	52	24	3
5-Feb-24	44	227	57	12	60	20	1	157	50	12	55	24	1
0-Feb-24	40	207	56	12	51	24	1	01	57	11	57	10	1
7-Feb-24	45	124 54	50	14	10	20	1	51	50	14	44	7	1
0-Feb-24	44	100	55	14	12	21	ו ס	97	50	14	12	7 01	ו ס
9-Feb-24	43	190	55	12	00	31 2	2	10	04 61	21	40	21	2
10-1 eb-24	40	10	56	16	73	2 16	6	10	56	16	66	2 /3	5
11-1 eb-24	40	236	57	10	80	40	4	155	55	10	80	40	1
12-1 eb-24	43	230	56	14	80	37	4	137	55	12	72	34	4
13-1 eb-24	45	12/	58	12	30	1/	J 1	01	58	12	30	13	1
14-1 eb-24 15 Ech 24	40	124	50	14	52 71	38	1	111	58	12	50	30	1
15-1 eb-24 16 Eob 24	45	233	59	26	2	3	4	17	50	14	30	3	4
10-1 eb-24 17-Eeb-24	30	220	04 5/	20	123	71	6	17	04 53	20	107	5 64	6
18-Feb-24	35 /1	223	60	14	88	52	1	155	60 60	14	72	11	4
10-1 eb-24 19-Eeb-24	41	269	56	13	96	50	4	133	55	13	82	44	4
20-Eeb-24	42	203	58	13	55	20	7	171	58	13	/02	28	7 3
20-1 CD-24 21-Feb-24	45	200	58	13	56	23	2	123	58	13	47	25	2
27-Feb-24	45	99	62	13	21	14	2	72	62	13	19	14	2
23-Feb-24	43	114	58	15	33	21	2	95	58	15	29	19	2
2010524 24-Feb-24	40	28	55	10	5	4	0	26	55	14	5	4	0
25-Feb-24	43	23	56	13	3	2	0	23	56	13	3	2	0
26-Feb-24	43	28	59	16	6	4	3 1	23	59	16	6	4	3 1
27-Feb-24	42	52	57	15	14	10	1	38	57	15	14	10	1
28-Feb-24	43	295	56	13	94	34	3	201	56	12	88	33	3
29-Feb-24	43	261	56	13	75	39	3	180	56	13	68	36	3
Monthly Average	43	155	58	15	50	25	2	105	58	15	43	23	2
Monthly Total	-	4.483	-	-	1.437	733	67	3.031	1.675	-	1.249	666	64

Table 4-3. Summary of Measured Noise Levels and Aircraft Operations – North Pool