

## **Appendix 49**

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### **Meadowbank and Whale Tail 2022 Noise Monitoring Report**

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MEADOWBANK COMPLEX

## **2022 Noise Monitoring Report**

In Accordance with NIRB Project Certificates No.004 and No. 008

Prepared by:  
Agnico Eagle Mines Limited – Meadowbank Complex

March, 2023

## EXECUTIVE SUMMARY

The 2022 noise monitoring program at the Meadowbank Complex was conducted according to the Noise Monitoring and Abatement Plan (Version 4, December 2018). The objective of this program is to measure noise levels at 11 previously determined monitoring locations (R1 – R11) around the Meadowbank and Whale Tail sites, over at least two 24 h periods annually. One additional far field station at the Local Study Area boundary (R12) was also required to be surveyed in 2022. Since high winds in the area tend to substantially reduce the quantity of available valid data, Agnico Eagle aims to conduct a minimum of two monitoring events of two to four days per station to fulfill monitoring objectives.

In 2022, two surveys were performed at station R1. Only one survey was feasible for all other stations due to mechanical issues with the monitoring equipment. As a result of operational difficulties (e.g. fallen noise meter, corrupted data file, apparent recording errors), four of these thirteen surveys were invalidated, and ultimately one survey was available for each of stations R1, R2, R4, R5, R6, R8, R9, R10, and R12.

After data processing in accordance with standard methods (Alberta Energy Resource Conservation Board Directive 038), monitoring results collected under valid weather conditions were compared to the site's daytime target sound level, nighttime target sound level, and FEIS predictions for the monitoring locations (24-h  $L_{eq}$ ).

In 2022, all monitoring results met both daytime and nighttime design targets, and FEIS predictions at both near-field and far-field locations (Table 1). Historical comparisons indicate no clear trends towards increasing sound levels.

Based on these results, no changes to noise abatement or mitigation measures are proposed at this time. Actions to ensure more complete noise data collection in 2023 are planned, including in-house testing of the equipment prior to field deployment. Spare parts are now available onsite in the event of equipment failure and all monitoring equipment calibrations have been completed.

No human receptors (e.g. cabins) are located in the vicinity of noise monitoring stations, and no noise-related complaints have been received to date. Impacts of sensory disturbance on wildlife are determined separately through the Terrestrial Ecosystem Monitoring Plan (TEMP), and reported annually in the Wildlife Summary Report.

Table 1. Daytime, night-time, and 24-h  $L_{eq}$  values for near-field monitoring locations R1 – R11 and far-field monitoring location R12 in 2022. NA = no survey. Star (\*) indicates invalid event due to operational difficulties (1-fallen noise meter; 2-corrupted data recording; 3-recording error). No values exceeded the relevant design target or FEIS prediction for that location.

Monitoring Station and Survey Start Date	$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)	$L_{eq, 24h}$ (dBA)	
	Measured Value		Measured Value	FEIS Prediction	Measured Value
	Design Target = 55 dBA		Design Target = 45 dBA		
R1 1: 8/25 2: 9/04* <sup>1</sup>	47.0 -		37.2 -	58 - 63	45.6 -
R2 1: 7/07 2: NA	35.7 -		30.8 -	58 - 63	34.6 -
R3 1: 7/04* <sup>2</sup> 2: NA	- -		- -	49 - 53	- -
R4 1: 8/28 2: NA	33.3 -		34.3 -	58 - 63	34.0 -
R5 1: 8/30 2: NA	49.4 -		40.5 -	1 h $L_{eqs} < 57$	48.0 -
R6 1: 9/02 2: NA	30.6 -		36.1 -	40.5 - 42.5	33.4 -
R7 1: 6/30* <sup>3</sup> 2: NA	- -		- -	36.2 - 40.4	- -
R8a 1: 8/30 2: NA	29.6 -		29.4 -	36.2 – 40.4	29.5 -
R9a 1: 9/16 2: NA	34.9 -		31.0 -	40.4 - 45.1	34.0 -
R10a 1: 8/25 2: NA	31.1 -		25.6 -	36.2 – 40.4	29.9 -
R11a 1: 9/02* <sup>1</sup> 2: NA	- -		- -	45.1 – 50.0	- -
Monitoring Station and Survey Start Date	$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)	$L_{eq, 24h}$ (dBA)	
	Measured Value		Measured Value	FEIS Prediction	Measured Value
	Design Target = 50 dBA		Design Target = 40 dBA		
R12 1: 9/16 2: NA	31.5 -		29.7 -	<35	31.0 -

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## **SECTION 1 • INTRODUCTION**

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Since 2008, Agnico Eagle Mines Ltd. (Agnico Eagle) has conducted outdoor noise monitoring at the Meadowbank site, near Baker Lake, Nunavut, in accordance with NIRB Project Certificate No. 004. The Noise Monitoring and Abatement Plan (Version 4; December, 2018) was updated to include monitoring for the Whale Tail Pit Expansion Project, according to NIRB Project Certificate No. 008. The objective of this monitoring program is to measure representative ambient outdoor sound levels at the Meadowbank and Whale Tail sites, and to inform the implementation of noise mitigation measures.

### **1.1 MONITORING STATIONS**

To fulfill the monitoring objectives, the Noise Monitoring and Abatement Plan (the Plan) indicates that at least two 24 h surveys of ambient outdoor noise will be conducted annually at 11 representative locations. However, due to a tendency towards sub-optimal weather conditions for noise monitoring (see Section 2.2), Agnico Eagle aims to conduct a minimum of two surveys for each location, with each survey lasting 48 hours or more. In addition to the regular stations, noise monitoring was conducted at a far-field station (R12) in 2022 to confirm impact assessment predictions for noise levels at the local study area boundary.

Survey dates in 2022 and UTM coordinates for the monitoring stations are provided in Table 2. Stations are shown in relation to mine site features in Figures 1 and 2. Photos of the monitoring locations are provided in Appendix A.

Noise monitoring stations R1 – R5 for the Meadowbank site have been in place with minor adjustments since 2008. Stations R6 – R11 were added in 2018 in response to development of the Whale Tail Pit and Haul Road, and sited according to the Noise Monitoring and Abatement Plan (Version 3 - June, 2018). Prior to any field assessments at these new stations, R8 – R11 were scheduled to be moved according to the Noise Monitoring and Abatement Plan (Version 4 – December, 2018) to accommodate the Whale Tail Pit Expansion Project. This plan came into effect for the 2020 field season. However, due to an error in communication, monitoring in 2020 was conducted at the original R8 – R11 stations as described in Version 3 of the plan (locations were incorrectly reported in the 2020 Noise Monitoring Report). In 2021, station R11 was moved according to Version 4, but stations R8 – R10 were again sited according to Version 3. In 2022, all monitoring stations were sited according to Version 4. Both Version 3 and Version 4 locations are shown in Figure 2. For clarity, Version 4 locations have now been re-named R8a, R9a, R10a, and R11a. Version 3 locations are all closer to site activity than Version 4 locations, so results in 2020 and 2021 are expected to provide a more conservative comparison to design targets (Section 2.5). Results are additionally compared to FEIS predictions for the true monitoring locations, as described in Section 2.5, and historical comparisons for 2020 (Section 4.2) have been adjusted accordingly with the corrected FEIS predictions.

**Table 2. UTM coordinates and monitoring dates for the Meadowbank and Whale Tail noise monitoring locations in 2022. \*Invalid event due to operational difficulties (1-fallen noise meter; 2-corrupted data recording; 3-recording error).**

Monitoring Location	UTM Coordinates	Event #	Start Time	Stop Time
R1	14N 636151 7217333	1	8/25/22 16:01	8/27/22 15:57
		2*1	9/04/22 14:02	9/06/22 16:08
R2	14N 636795 7214435	1	7/07/22 15:23	7/10/22 7:55
		2	-	-
R3	14N 641121 7214417	1*2	7/04/22 16:00	7/07/22 07:30
		2	-	-
R4	14N 639441 7218750	1	8/28/22 8:29	8/30/22 9:33
		2	-	-
R5	14N 633779 7214494	1	8/30/22 16:32	9/01/22 17:20
		2	-	-
R6	14N 640708 7221964	1	9/02/22 8:39	9/04/22 9:41
		2	-	-
R7	14N 620194 7239038	1*3	6/30/22 16:55	7/04/22 11:26
		2	-	-
R8a	14N 612414 7256890	1	8/30/22 8:27	9/01/22 10:16
		2	-	-
R9a	14N 603301 7256750	1	9/16/22 15:48	9/20/22 15:48
		2	-	-
R10a	14N 608154 7250529	1	8/25/22 15:35	8/28/22 13:52
		2	-	-
R11a	14N 606756 7258558	1*1	9/02/22 17:04	9/05/22 14:39
		2	-	-
R12	14N 599641 7256320	1	9/16/22 15:23	9/19/22 1:27
		2	-	-

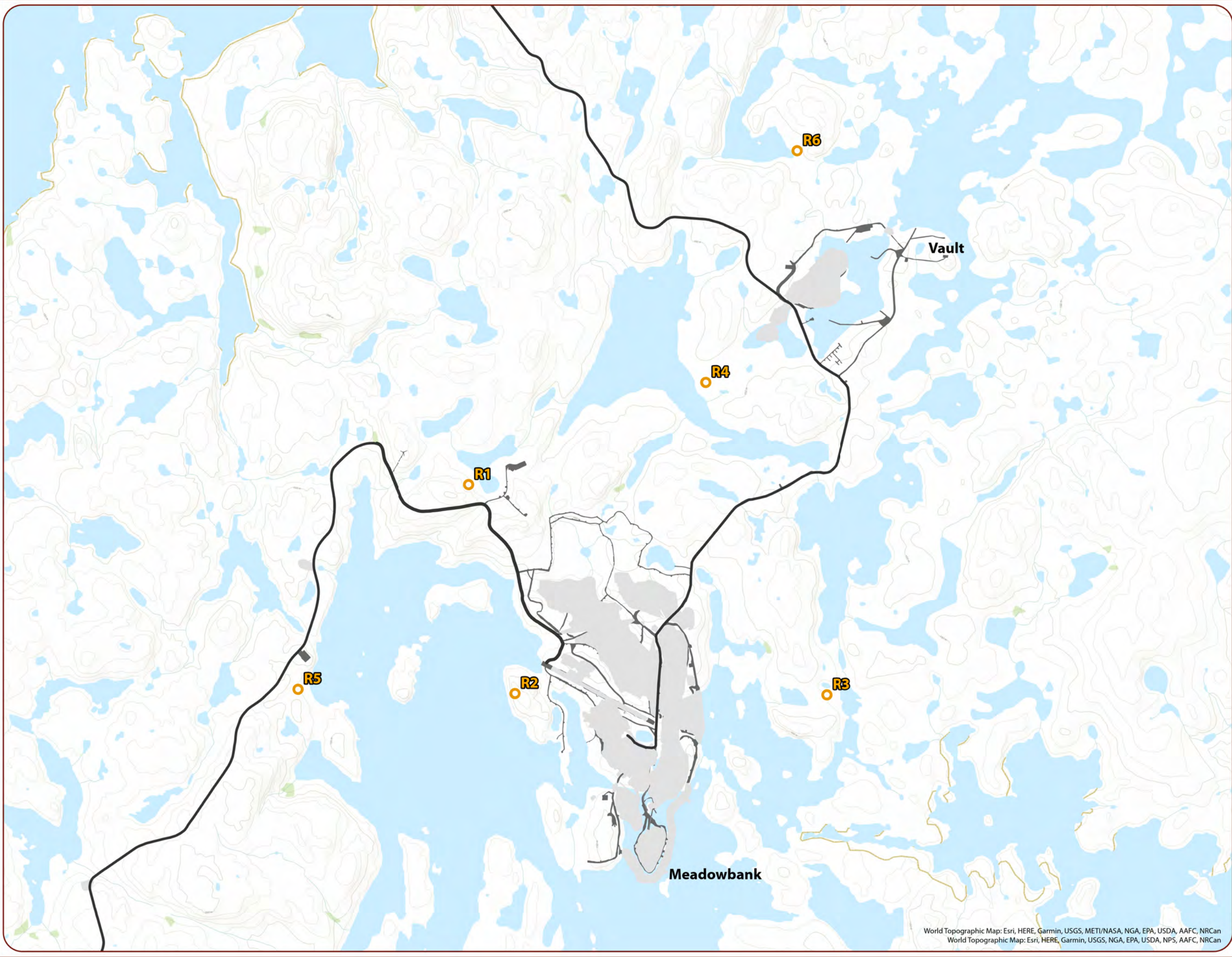
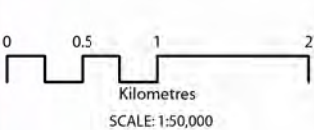


Figure 1:  
Noise Monitoring  
Locations R1 - R6

- Noise Monitoring Location
- Road
- Mine Site



World Topographic Map: Esri, HERE, Garmin, USGS, METI/NASA, NGA, EPA, USDA, AAFC, NRCan  
World Topographic Map: Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS, AAFC, NRCan

Disclaimer:  
The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations, features, or roads, nor as a guide to navigation.

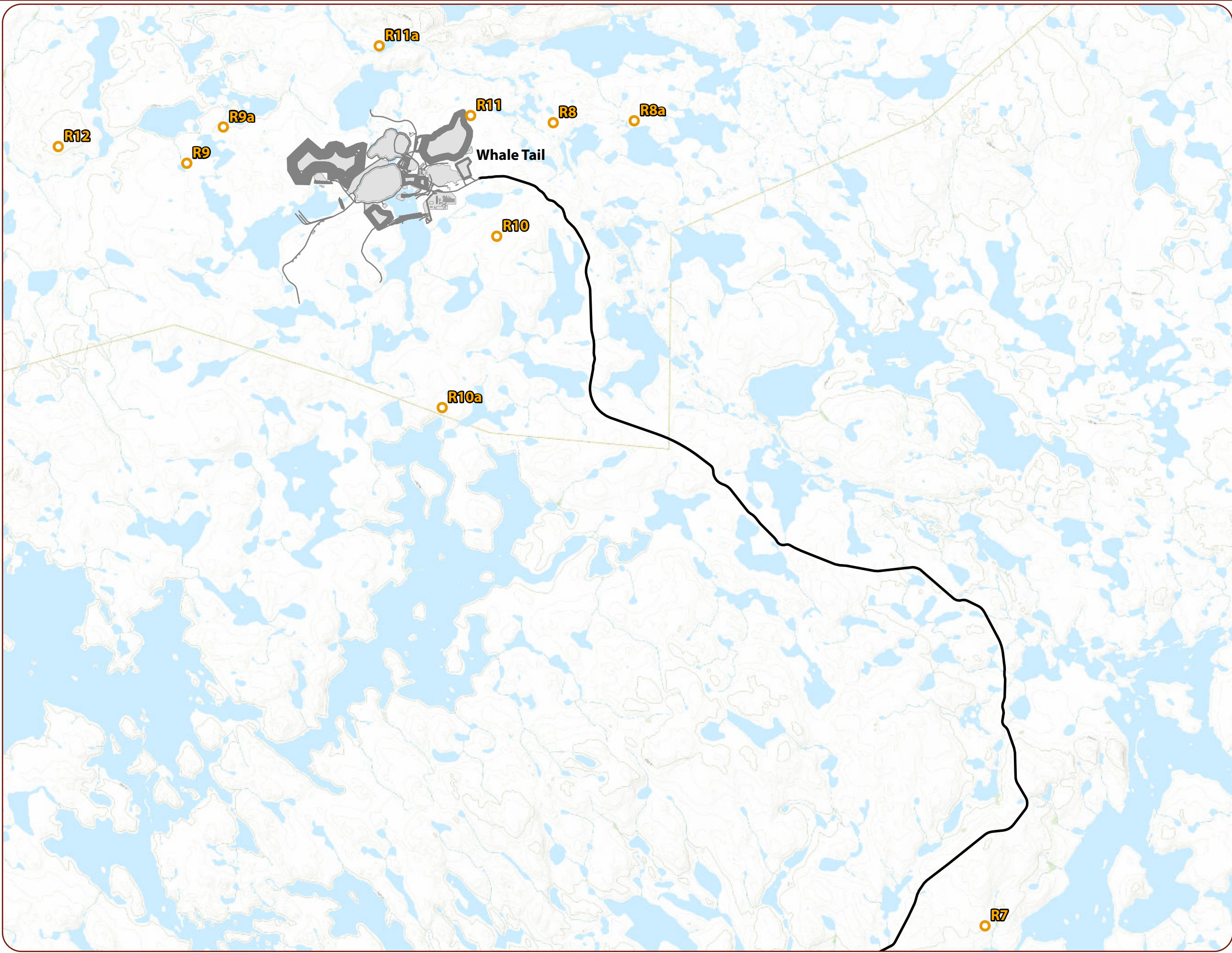


Figure 2  
Noise Monitoring  
Locations R7 - R12

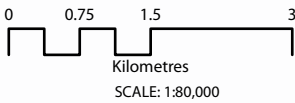
○ Noise Monitoring Location

Mine Plan (2025)

— Whale Tail Haul Road

■ Road

■ Mine Site



**Disclaimer:**  
The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations, features, or roads, nor as a guide to navigation.

#### 1.1.1 R1

Monitoring station R1 was initially approximately 700 m south of the explosive storage area, and 400 m northeast of the all-weather access road. A spur road and a storage area were constructed within 100 m of this location in 2011. As a result, in 2014 Agnico Eagle moved this station approximately 700 m northwest of the explosives storage area to better represent the originally intended orientation.

#### 1.1.2 R2

Monitoring station R2 is approximately 600 m west of the airstrip. Third Portage Lake is to the west and southwest and surrounding terrain is vegetated tundra with rocky outcrops.

#### 1.1.3 R3

Monitoring station R3 is approximately 1,800 m east of the East Dike. Second Portage Lake is to the west and east, and surrounding terrain is vegetated tundra with rocky outcrops.

#### 1.1.4 R4

Monitoring station R4 is approximately 1,500 m southwest of Vault Pit, 1,000 m from Phaser Pit, and less than 1 km from the Vault Haul Road. Turn Lake is to the west, and surrounding terrain is vegetated tundra with rocky outcrops.

#### 1.1.5 R5

Monitoring station R5 is approximately 500 m south of the exploration camp and 300 m east of the all-weather access road. Third Portage Lake is immediately to the east, and surrounding terrain away from the shoreline is vegetated tundra with rocky outcrops. This location is situated on a known caribou migration route.

#### 1.1.6 R6

Monitoring station R6 is located approximately 1,500 m east from the Whale Tail Pit Haul road and approximately 1,500 m north from the centre of Vault Pit. The terrain is relatively flat and covered by vegetation typical of tundra (i.e., low vegetation). In addition, the ground surface near the receptor is covered by scattered rocks. The waste rock storage area of the Vault Pit is located approximately 750 m south from the monitoring site.

#### 1.1.7 R7

Monitoring station R7 is located approximately 1,500 m east from the Whale Tail Haul Road. The ground surface around the monitoring site is generally covered by typical tundra vegetation and scattered rocks.

#### 1.1.8 R8 and R8a

From 2018 - 2021, station R8 was located on an elevated plateau approximately 1,500 m northeast from the Whale Tail Pit site. The ground surface in that area is covered by typical tundra vegetation and scattered rocks. This monitoring station was 150 m east of the original baseline monitoring location due to ongoing quarrying activities.

Beginning in 2022, this station was moved to approximately 1,500 m east from the Whale Tail Pit Expansion Project, in accordance with the Noise Monitoring and Abatement Plan, Version 4 (December, 2018). This location is referred to as R8a.

#### 1.1.9 R9 and R9a

From 2018 - 2021, station R9 was located approximately 1,500 m northwest from Whale Tail Pit. The ground surface in that area is covered by typical tundra vegetation and scattered rocks.

Beginning in 2022, this station was re-located to approximately 1,500 m west from the Whale Tail Pit Expansion Project, in accordance with the Noise Monitoring and Abatement Plan, Version 4 (December, 2018). This location is referred to as R9a.

#### 1.1.10 R10 and R10a

From 2018 - 2021, station R10 was located approximately 1,000 m southeast from the Whale Tail Pit site, on the east side of Whale Tail Lake.

Beginning in 2022, this station was re-located to approximately 1,500 m south from the Whale Tail Pit Expansion Project, in accordance with the Noise Monitoring and Abatement Plan, Version 4 (December, 2018). This location is referred to as R10a.

#### 1.1.11 R11 and R11a

From 2018 - 2020, station R11 was located approximately 1,000 m north from the Whale Tail Pit site, on the east side of Nemo Lake.

Beginning in 2021, station R11 was re-located to approximately 1,500 m north from the Whale Tail Pit Expansion Project in accordance with the Noise Monitoring and Abatement Plan, Version 4 (December, 2018). This location is referred to as R11a.

#### 1.1.12 R12

R12 corresponds to the location on the Local Study Area boundary with the maximum predicted Project noise levels (Rmax in Agnico Eagle, 2018 – Section 4.4.3.1.1). This station is located approximately 5 km west from the Whale Tail Pit Expansion Project site, and the surrounding terrain is a gently sloping tundra plateau with scattered small boulders.

## SECTION 2 • METHODS

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In 2022, Agnico Eagle technicians aimed to conduct two noise surveys at each of the locations described in Section 1.1. These surveys provide data on average noise levels during a typical day, as well as variability of noise levels within the day. For stations R2 – R12, only one survey was completed due to mechanical issues with the noise meters. Replacement parts for the noise monitoring units were ordered but did not arrive on site until after the program was completed.

### 2.1 SOUND LEVEL METER

For all stations a Bruel and Kjaer Model 2250 integrating sound level meter was used to conduct the noise survey. As in the past, the sound level logging rate was set at one-minute intervals.

The parameters logged each minute included:

- Integrated equivalent A-weighted sound level -  $L_{Aeq}$
- Absolute maximum sound level, in dBA –  $L_{max}$
- Absolute minimum sound level, in dBA –  $L_{min}$
- Statistical data -  $L_{10}$ ,  $L_{90}$

Sound recordings were also obtained for the complete duration of all monitoring events to facilitate data interpretation.

Calibration of the instrument was performed before and after each monitoring event using a Bruel and Kjaer Type 4231 Calibrator, to ensure variance was within 0.5 dB (see field notes, Appendix B). Estimated uncertainty of the calibrator is  $\pm 0.12$  dB at a 99% confidence level.

### 2.2 WEATHER DATA

Weather data for the noise monitoring periods was collected using the mine site's permanent weather stations. The Meadowbank site weather station data was used for analysis of noise monitoring stations R1 – R6, and the Whale Tail site weather station data was used for analysis of noise monitoring stations R7 – R12. Hourly data for wind, temperature and relative humidity was available from these stations. Precipitation events were recorded for each site using a rain gauge, read approximately daily.

The Alberta Energy Regulator Directive 038 (AER, 2007) identifies preferred weather conditions for data collection in noise complaint investigations because wind and precipitation can affect noise levels. Based on these guidelines, noise monitoring data was filtered to remove measurements collected outside of conditions where wind speed exceeded 15 km/h (4.17 m/s). Average hourly wind speed values were used since filtering based on maximum values has historically resulted in exclusion of nearly the entire noise dataset. Historically, data was also filtered out when relative humidity exceeded 90% (assuming precipitation occurred). However, beginning in 2021, data filtering for precipitation only occurred on an as-needed basis, through review of sound recordings and cross-referencing humidity data with recorded precipitation events. Any data filtered out on this basis is described in the Results section, below. This method has been adopted to assist in data preservation, and since no noise-related complaints have been received for the site.

Weather data (wind speed, wind direction, temperature, and humidity) are provided in Appendix B.

## 2.3 FIELD NOTES

A pocket weather meter (Kestrel 3000) was used by field staff to record wind speed, direction and temperature at the beginning and end of each monitoring period. Other observations included precipitation, cloud cover and observed noise sources during instrument set-up and take-down. All field observations are provided in Appendix C.

## 2.4 DATA ANALYSIS

Since noise levels constantly vary over time, the monitoring instruments used at the Meadowbank Complex measure continuously and records a single-number value for each minute, representing the equivalent sound level ( $L_{eq}$ ).

All datapoints associated with the first and last hour of measurement were filtered out to remove noise from technicians, and to ensure more than 30 min of data contributed to hourly averages.

Recorded one-minute  $L_{eq}$  values were then used to calculate hourly equivalent noise levels ( $L_{eq, 1h}$ ). After filtering based on weather considerations in accordance with Directive 038 (Section 2.2), valid hourly  $L_{eq}$  values were energy-averaged across calendar days within a monitoring event (2 – 4 sequential days) and average values for each hour were used to calculate daytime (7am-11pm), night-time (11pm-7am) and 24 h  $L_{eq}$  values for each event. This approach was taken beginning in 2016 due to the frequency of high-wind conditions, in order to maximize the utility of the available data, and obtain day- and night-time  $L_{eq}$  values with at least 3 h of coverage.

When calculated  $L_{eq}$  values exceeded FEIS predictions or noise targets, sound recordings were reviewed to identify and if appropriate, remove noise data dominated by background noise sources unrelated to mine activity, and causing recorded 1-min  $L_{eq}$  values in excess of FEIS predictions or noise targets (e.g. wind gusts, ongoing animal disturbance in close proximity to the microphone, human interference, steady precipitation). After this second data filtering, hourly  $L_{eq}$  values with less than 30 min of valid data were excluded from calculations, in accordance with Directive 038. Similarly, day- and night-time, and 24-h  $L_{eq}$  values were only calculated when more than 180 valid minutes were available from each of the daytime and nighttime periods.

These final  $L_{eq}$  values were compared to FEIS predictions and the site's noise monitoring criteria (see Table 3).

## 2.5 SITE NOISE TARGETS AND FEIS PREDICTIONS

Although no residential receptors are located nearby, Agnico Eagle aims to meet target sound levels identified in Environment Canada's "Environmental Code of Practice for Metal Mines" (2009) for all monitoring locations. These values are 55 dBA (daytime) and 45 dBA (night-time).

For all monitoring stations, results are also compared to predictions of sound levels made in the Project FEIS documents for the Meadowbank and Whale Tail sites (Cumberland, 2005; Agnico Eagle, 2016; 2018) (Table 3). Table 3 identifies FEIS (Agnico Eagle, 2016) predictions for Phase 1 of the Whale Tail Project, which are applied to results obtained in 2018 and 2019, and FEIS Addendum (Agnico Eagle, 2018 – Whale Tail Pit Expansion Project) predictions for both *Noise Abatement and Monitoring Plan* Version 3 locations (R8 – R11) and Version 4 locations (R8a – R11a), which are applied to results obtained in 2020+, as indicated in the table.

Predictions for Whale Tail sites R6 – R12 have been adjusted to include contributions from background sound levels (39 dBA for R6, 30 dBA for R7-R12), as measured in the impact assessment for that project (Agnico Eagle, 2018). For the initial Meadowbank EIS (sites R1 – R5; Cumberland, 2005), contributions from background noise were not measured and assumed to be negligible in comparison to project-related noise, and were not quantified, so no adjustment was made.

While noise modeling for EIS purposes determines a single sound pressure level produced by the Project activities at a given location, in reality, noise levels vary over time, depending on contributions from background sources, wind direction, ongoing activities, etc. FEIS predictions are therefore compared to the 24-h  $L_{eq}$  calculated from monitoring results, which represents the average sound pressure level produced by all sources over the course of a day.

It is noted that in the FEIS Addendum for the Whale Tail Pit (Agnico Eagle, 2018), noise impacts were assessed by comparing modeled Project sound levels at the noise local study area (LSA) boundary (5 km from the Project footprint) with Permissible Sound Levels from AER Directive 038 (40 dBA night-time, 50 dBA daytime). Since all the regular monitoring locations for the Whale Tail site are located well within the noise LSA (closer to project infrastructure), monitoring results are not compared to the PSL at this time. In accordance with noise mitigation measures listed in the FEIS Addendum (Volume 3, Appendix 3-C, Table 3-C-1), periodic far-field monitoring is conducted at the LSA boundary to validate modeling and confirm adherence with the PSL. This far-field monitoring (station R12) occurred for the first time in 2022, to coincide with the anticipated year of maximum production and maximum sound emissions, as indicated in the FEIS Addendum.

**Table 3. FEIS predictions and target sound levels for the Meadowbank and Whale Tail sites (R1 – R5 predictions from Cumberland, 2005; 2018 & 2019 R6 – R11 predictions from Agnico Eagle, 2016; 2020+ R6 - R12 predictions from Agnico Eagle, 2018).**

<b>Location</b>	<b>Monitoring Years</b>	<b>FEIS Prediction L<sub>eq</sub>-24h (dBA)</b>	<b>Daytime Target L<sub>eq</sub>-daytime (dBA)</b>	<b>Night-time Target L<sub>eq</sub>-night-time (dBA)</b>
R1	2008+	58-63	55	45
R2	2008+	58-63	55	45
R3	2008+	49-53	55	45
R4	2008+	58-63	55	45
R5	2008+	(all 1 hr L <sub>eq</sub> < 57)	55	45
R6	2018 & 2019	46.0 - 50.3	55	45
	2020+	40.5 - 42.5	55	45
R7	2018 & 2019	45.1 – 50.0	55	45
	2020+	36.2 - 40.4	55	45
R8	2018 - 2021	40.4 - 45.1	55	45
R8a	2022+	36.2 – 40.4	55	45
R9	2018 & 2019	36.2 - 40.4	55	45
	2020 & 2021	40.4 - 45.1	55	45
R9a	2022+	40.4 - 45.1	55	45
R10	2018 - 2021	45.1 – 50.0	55	45
R10a	2022+	36.2 – 40.4	55	45
R11	2018 - 2020	45.1 – 50.0	55	45
R11a	2021+	45.1 – 50.0	55	45
R12	2022	35	50	40

## SECTION 3 • RESULTS

### 3.1 R1

Recorded 1-min  $L_{eq}$  values, maximum sound levels ( $L_{max}$ ), and minimum sound levels ( $L_{min}$ ) during monitoring event 1 at R1 are shown in Figure 3. Invalid data points filtered out prior to data analysis (as described in Section 2.4) are indicated for reference ( $LA_{eq}$ -unfiltered). Data from the second monitoring event was excluded from analysis because the noise meter tripod was found to have fallen over.

In total, 29 h of valid data were available from the first monitoring event after 19 h were filtered out due to recorded weather conditions or set-up/take-down. No secondary data filtering was required.

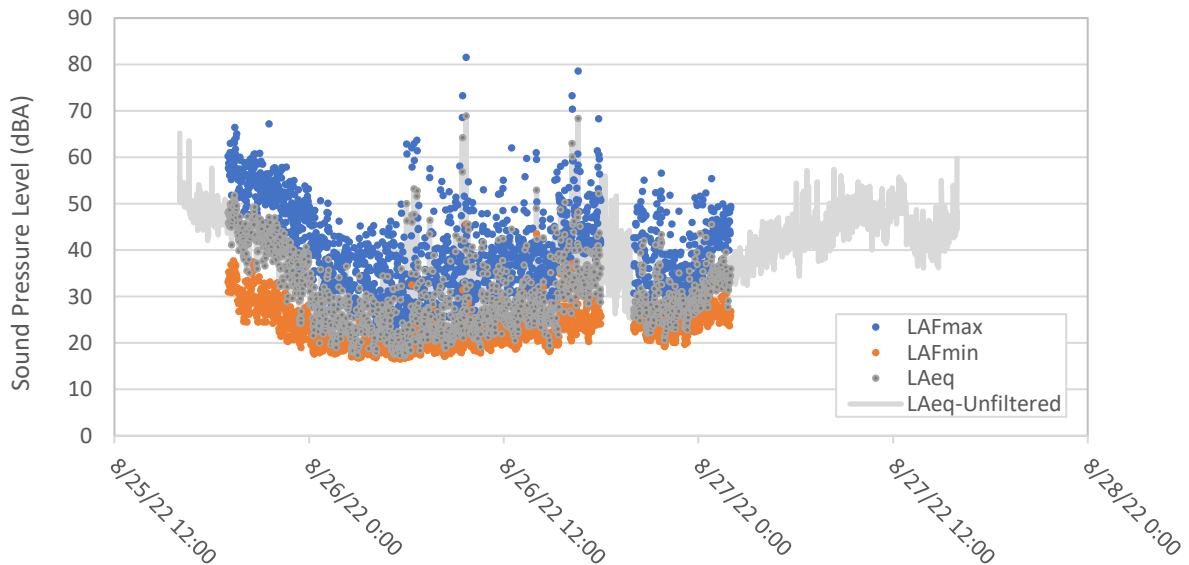
Final calculated daytime, night-time, and 24-h  $L_{eq}$  values are provided in Table 4. No exceedances of site noise targets or FEIS predictions occurred.

Weather data and hourly  $L_{eq}$  values are provided in Appendix B.

Noise sources noted in the field log at this location include helicopters, geese, and wind (Appendix C).

**Table 4. Daytime, night-time, and 24-h  $L_{eq}$  values for monitoring locations R1. Periods with insufficient valid data are excluded (-).**

Monitoring Station and Start Date (M/DD)	$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		$L_{eq, 24h}$ (dBA)	
	Design Target	Measured Value	Design Target	Measured Value	FEIS Prediction	Measured Value
R1	1: 8/25	47.0	45	37.2	58 - 63	45.6
	2: 9/04	-		-		-



**Figure 3. 1-min  $L_{eq}$ ,  $L_{max}$  and  $L_{min}$  values recorded at station R1 during monitoring event 1.**

### 3.2 R2

Recorded 1-min  $L_{eq}$  values, maximum sound levels ( $L_{max}$ ), and minimum sound levels ( $L_{min}$ ) during monitoring event 1 at R2 are shown in Figure 4. Invalid data points filtered out prior to data analyses (as described in Section 2.4) are indicated for reference ( $L_{Aeq}$ -unfiltered).

In total, 54 h of valid data were available from the monitoring event (July 7 - 10) after 11 h were filtered out due to recorded weather conditions or set-up/take-down. No secondary filtering was required.

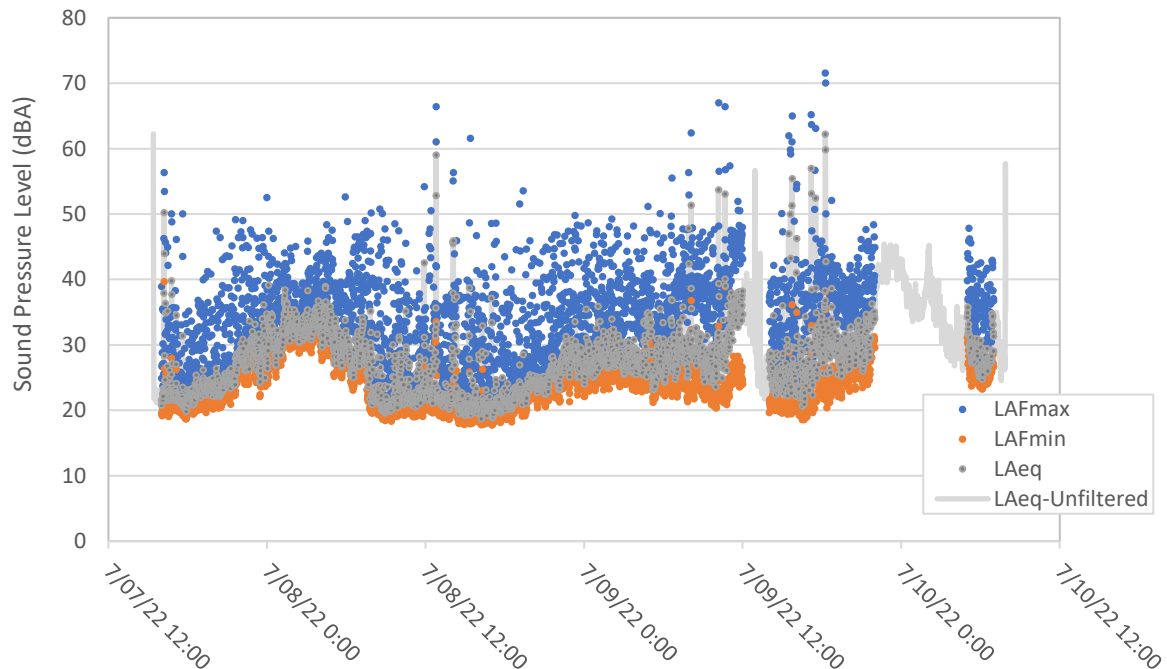
Final calculated daytime, night-time, and 24-h  $L_{eq}$  values are provided in Table 5. No exceedances of design targets or FEIS predictions occurred.

Weather data and hourly  $L_{eq}$  values for all noise monitoring events are provided in Appendix B.

Noise sources noted in the field log at this location include aircraft, animals, and insects (Appendix C).

**Table 5. Daytime, night-time, and 24-h  $L_{eq}$  values for monitoring locations R2. NA = no survey. Periods with insufficient valid data are excluded (-).**

Monitoring Station and Start Date (M/DD)		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		$L_{eq, 24h}$ (dBA)	
		Design Target	Measured Value	Design Target	Measured Value	FEIS Prediction	Measured Value
R2	1: 7/07	55	35.7	45	30.8	58 - 63	34.6
	2: NA		-		-		-



**Figure 4. 1-min  $L_{eq}$ ,  $L_{max}$  and  $L_{min}$  values recorded at station R2 during monitoring event 1.**

### 3.3 R3

Although a noise survey was conducted at R3 from July 4 – 7, the logged data file was corrupted and data could not be extracted for analysis.

### 3.4 R4

Recorded 1-min  $L_{eq}$  values, maximum sound levels ( $L_{max}$ ), and minimum sound levels ( $L_{min}$ ) during monitoring event 1 at R4 are shown in Figure 5. Invalid data points filtered out prior to data analysis (as described in Section 2.4) are indicated for reference ( $L_{Aeq}$ -unfiltered).

In total, 11 h of valid data were available from the monitoring event (August 28 - 30) after 39 h were filtered out due to recorded weather conditions or set-up/take-down. No secondary filtering was required.

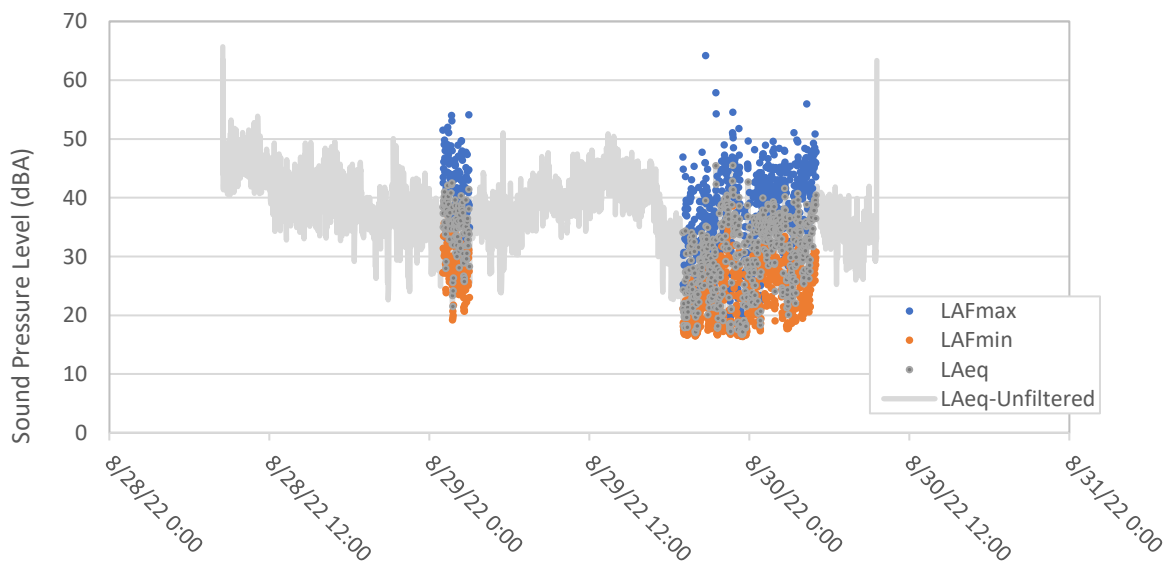
Final calculated daytime, night-time, and 24-h  $L_{eq}$  values are provided in Table 6. No exceedances of design targets or FEIS predictions occurred.

Weather data and hourly  $L_{eq}$  values for both events are provided in Appendix B.

Noises noted in the field log for this location include helicopters and animals (Appendix C).

**Table 6. Daytime, night-time, and 24-h  $L_{eq}$  values for monitoring locations R4. NA = no survey. Periods with insufficient valid data are excluded (-).**

Monitoring Station and Start Date (M/DD)		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		$L_{eq, 24h}$ (dBA)	
		Design Target	Measured Value	Design Target	Measured Value	FEIS Prediction	Measured Value
R4	1: 8/28	55	33.3	45	34.3	58 - 63	34.0
	2: NA		-		-		-



**Figure 5. 1-min  $L_{eq}$ ,  $L_{max}$  and  $L_{min}$  values recorded at station R4 during monitoring event 1.**

### 3.5 R5

Recorded 1-min  $L_{eq}$  values, maximum sound levels ( $L_{max}$ ), and minimum sound levels ( $L_{min}$ ) during monitoring event 1 (August 30 – September 1) at R5 are shown in Figure 6. Invalid data points filtered out prior to data analysis (as described in Section 2.4) are indicated for reference ( $L_{Aeq}$ -unfiltered).

In total, 45 h of valid data were available after 5 h were filtered out due to recorded weather conditions or set-up/take-down. No secondary filtering was required.

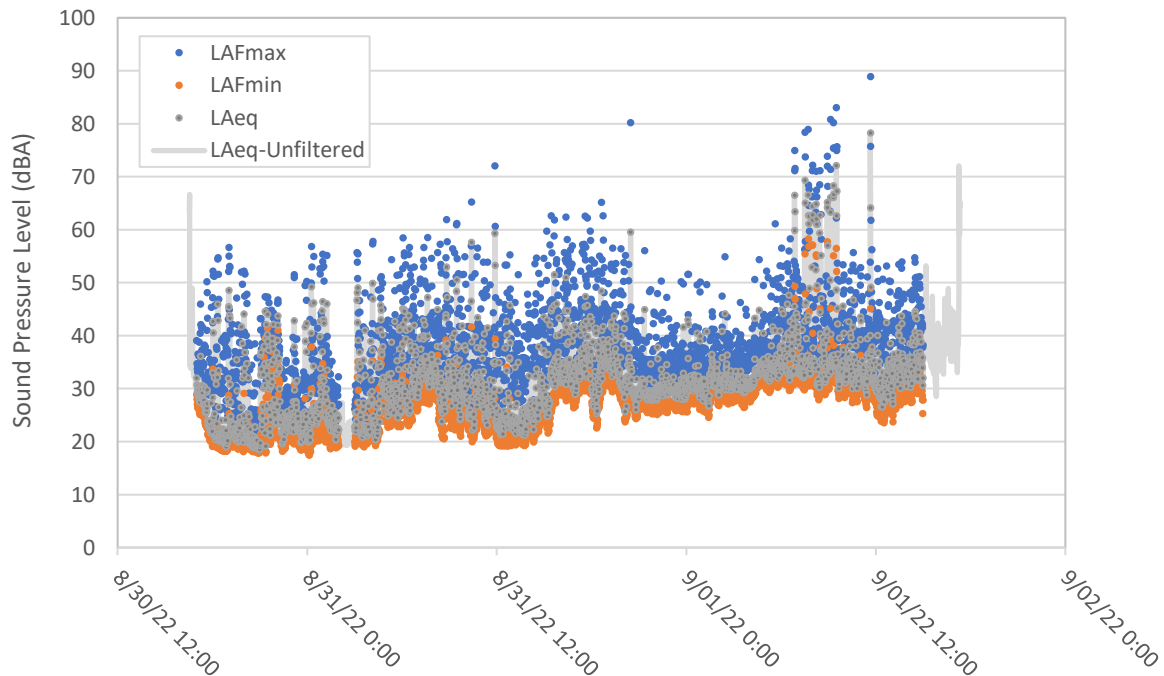
Final calculated daytime, night-time, and 24-h  $L_{eq}$  values are provided in Table 7. No exceedances of design targets or FEIS predictions occurred.

Weather data and hourly  $L_{eq}$  values for both events are provided in Appendix B.

Noises noted in the field log for this location include helicopters and animals (Appendix C).

**Table 7. Daytime, night-time, and 24-h  $L_{eq}$  values for monitoring locations R5. NA = no survey. Periods with insufficient valid data are excluded (-).**

Monitoring Station and Start Date (M/DD)		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		$L_{eq, 24h}$ (dBA)	
		Design Target	Measured Value	Design Target	Measured Value	FEIS Prediction	Measured Value
R5	1: 8/30	55	49.4	45	40.5	1 h $L_{eqs} < 57$	48.0
	2: NA		-		-		-



**Figure 6. 1-min  $L_{eq}$ ,  $L_{max}$  and  $L_{min}$  values recorded at station R5 during monitoring event 1.**

### 3.6 R6

Recorded 1-min  $L_{eq}$  values, maximum sound levels ( $L_{max}$ ), and minimum sound levels ( $L_{min}$ ) during monitoring event 1 at R6 are shown in Figure 7. Invalid data points filtered out prior to data analysis (as described in Section 2.4) are indicated for reference ( $L_{Aeq}$ -unfiltered).

In total, 29 h of valid data were available after 22 h were filtered out due to recorded weather conditions or set-up/take-down. No secondary filtering was required.

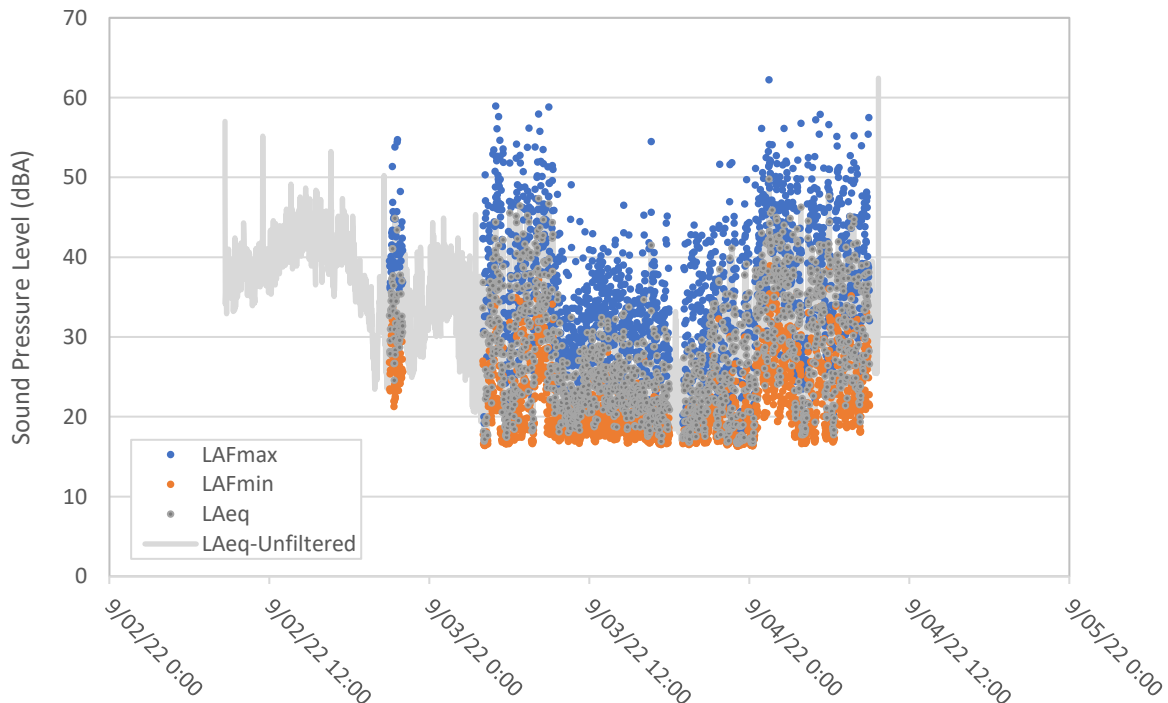
Final calculated daytime, night-time, and 24-h  $L_{eq}$  values are provided in Table 8. No exceedances of site noise targets or FEIS predictions occurred.

Weather data and hourly  $L_{eq}$  values are provided in Appendix B.

Audible noises noted in the field log at this location include animals (Appendix C).

**Table 8. Daytime, night-time, and 24-h  $L_{eq}$  values for monitoring locations R6. NA = no survey. Periods with insufficient valid data are excluded (-).**

Monitoring Station and Start Date (M/DD)		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		$L_{eq, 24h}$ (dBA)	
		Design Target	Measured Value	Design Target	Measured Value	FEIS Prediction	Measured Value
R6	1: 9/02	55	30.6	45	36.1	40.5 - 42.5	33.4
	2: NA		-		-		-



**Figure 7. 1-min  $L_{eq}$ ,  $L_{max}$  and  $L_{min}$  values recorded at station R6 during monitoring event 1.**

### 3.7 R7

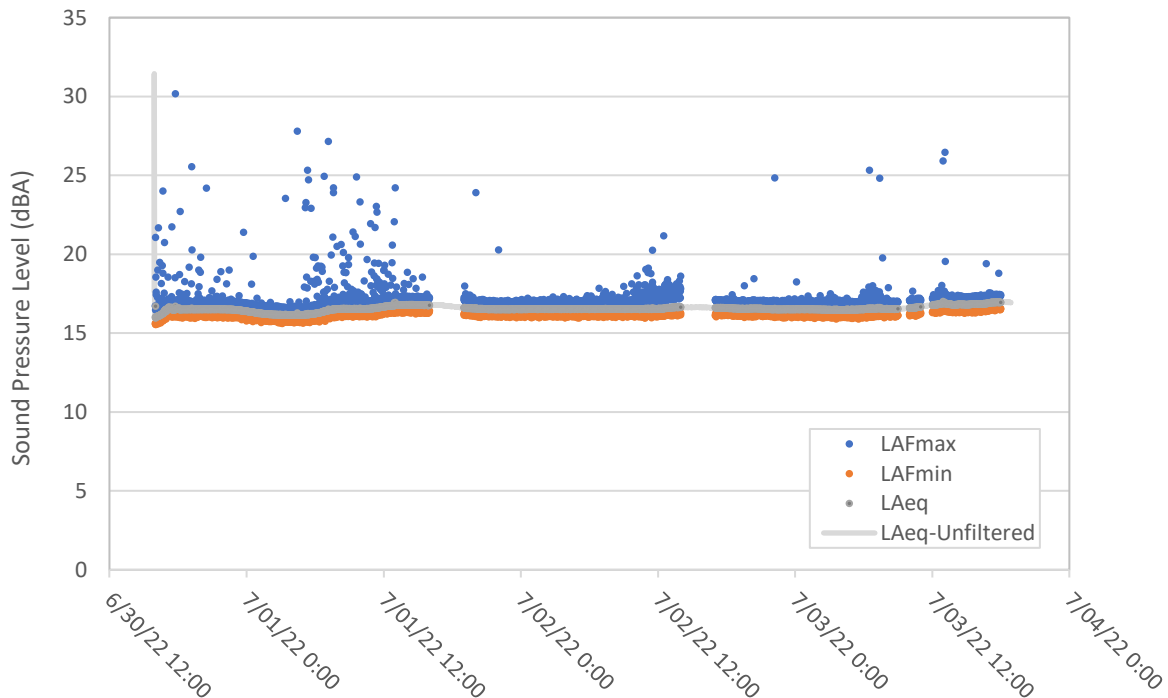
Results for R7 are not analyzed because a mechanical problem with the microphone and cable occurred. The recorded data (Figure 14) appears to indicate this malfunction. Recorded sound levels were abnormally low throughout the monitoring period, well below regular background measurements (in the range of 30 dBA). Sound recordings were reviewed, and only a monotonous static-like sound is audible. These data suggest the instrument was not functioning properly, despite passing field calibration procedures. New parts were ordered.

Weather data is provided in Appendix B.

Audible noises noted in the field log at this location include helicopter and road noise (Appendix C).

**Table 9. Daytime, night-time, and 24-h  $L_{eq}$  values for monitoring locations R7. NA = no survey. Periods with insufficient valid data are excluded (-).**

Monitoring Station and Start Date (M/DD)		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		$L_{eq, 24h}$ (dBA)	
		Design Target	Measured Value	Design Target	Measured Value	FEIS Prediction	Measured Value
R7	1: 6/30	55	-	45	-	36.2 - 40.4	-
	2: NA		-		-		-



**Figure 8. 1-min  $L_{eq}$ ,  $L_{max}$  and  $L_{min}$  values recorded at station R7 at the Meadowbank Complex during monitoring event 1. Results are not considered valid, since the logged sound levels are well below typical background measurements and sound recordings did not display normal patterns.**

### 3.8 R8A

Recorded 1-min  $L_{eq}$  values, maximum sound levels ( $L_{max}$ ), and minimum sound levels ( $L_{min}$ ) during monitoring event 1 at R8a are shown in Figure 9. Invalid data points filtered out prior to data analysis (as described in Section 2.4) are indicated for reference ( $L_{Aeq-unfiltered}$ ).

In total, 49 h of valid data were available after 2 h were filtered out due to recorded weather conditions or set-up/take-down. No secondary filtering was required.

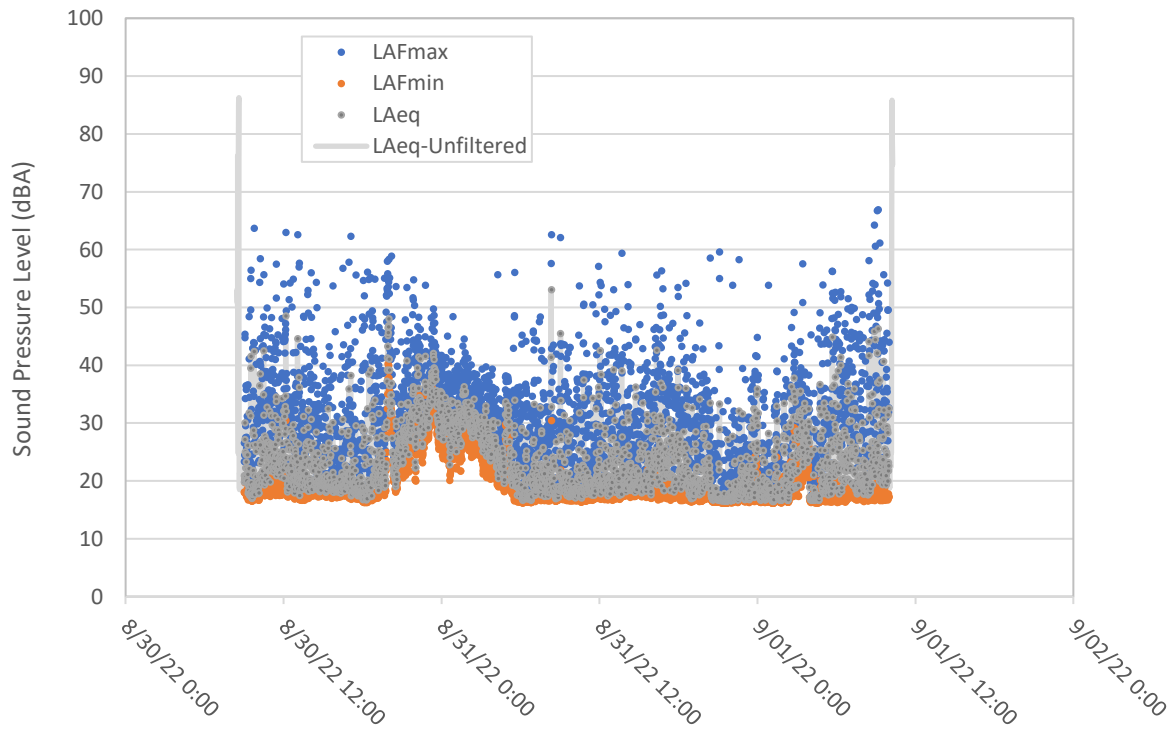
Final calculated daytime, night-time, and 24-h  $L_{eq}$  values are provided in Table 10. Results did not exceed the site's day-time and night-time sound targets or FEIS predictions for this monitoring station.

Weather data and hourly  $L_{eq}$  values for both events are provided in Appendix B.

Audible noises noted in the field log for this location include helicopters and animals (Appendix C).

**Table 10. Daytime, night-time, and 24-h  $L_{eq}$  values for monitoring locations R8a. NA = no survey. Periods with insufficient valid data are excluded (-).**

Monitoring Station and Start Date (M/DD)		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		$L_{eq, 24h}$ (dBA)	
		Design Target	Measured Value	Design Target	Measured Value	FEIS Prediction	Measured Value
R8a	1: 8/30	55	29.6	45	29.4	36.2 – 40.4	29.5
	2: NA		-		-		-



**Figure 9. 1-min  $L_{eq}$ ,  $L_{max}$  and  $L_{min}$  values recorded at station R8a during monitoring event 1.**

### 3.9 R9A

Recorded 1-min  $L_{eq}$  values, maximum sound levels ( $L_{max}$ ), and minimum sound levels ( $L_{min}$ ) during monitoring event 1 at R9a are shown in Figure 10. Invalid data points filtered out prior to data analysis (as described in Section 2.4) are indicated for reference ( $LA_{eq}$ -unfiltered).

In total, 56 h of valid data were available after 41 h were filtered out due to recorded weather conditions or set-up/take-down. No secondary filtering was required.

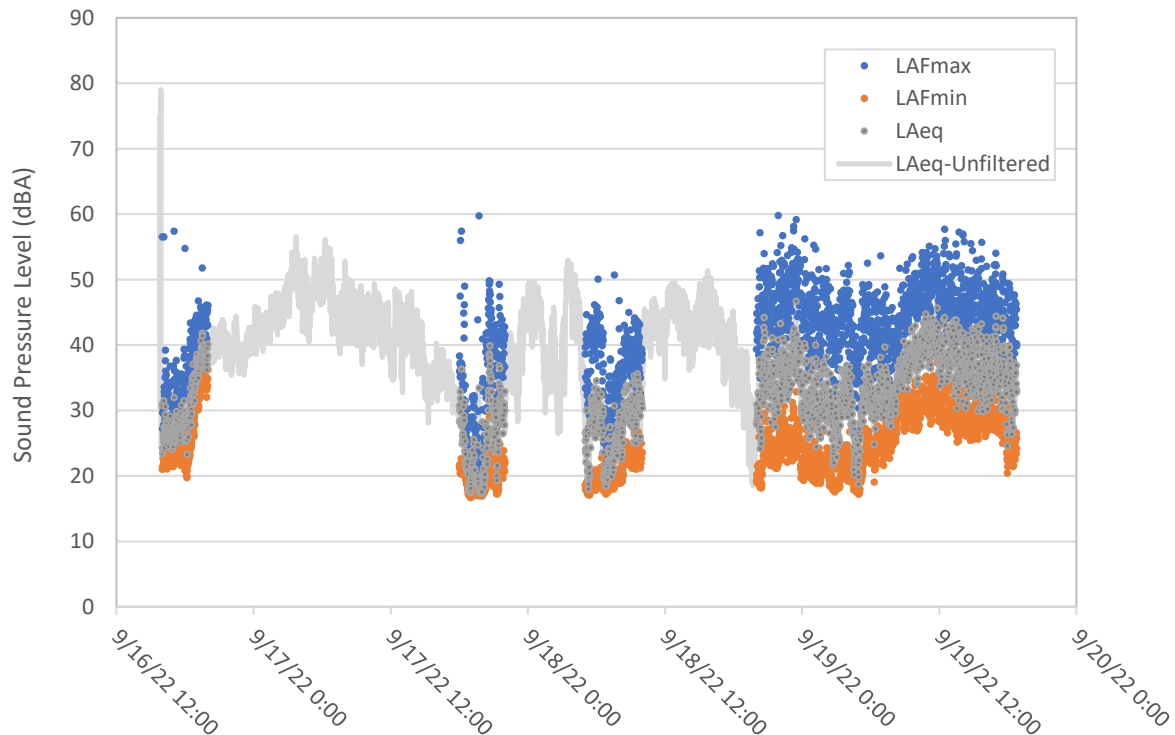
Final calculated daytime, night-time, and 24-h  $L_{eq}$  values are provided in Table 11. No exceedances of site noise targets or FEIS predictions occurred.

Weather data and hourly  $L_{eq}$  values for both events are provided in Appendix B.

Audible noises noted in the field log for this location include mine activity and helicopters (Appendix C).

**Table 11. Daytime, night-time, and 24-h  $L_{eq}$  values for monitoring locations R9a. NA = no survey. Periods with insufficient valid data are excluded (-).**

Monitoring Station and Start Date (M/DD)		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		$L_{eq, 24h}$ (dBA)	
		Design Target	Measured Value	Design Target	Measured Value	FEIS Prediction	Measured Value
R9a	1: 9/16	55	34.9	45	31.0	40.4 - 45.1	34.0
	2: NA		-		-		-



**Figure 10. 1-min  $L_{eq}$ ,  $L_{max}$  and  $L_{min}$  values recorded at station R9a during monitoring event 1.**

### 3.10 R10A

Recorded 1-min  $L_{eq}$  values, maximum sound levels ( $L_{max}$ ), and minimum sound levels ( $L_{min}$ ) during monitoring event 1 at R10a are shown in Figure 11. Invalid data points filtered out prior to data analysis (as described in Section 2.4) are indicated for reference ( $L_{Aeq-unfiltered}$ ).

In total, 31 h of valid data were available after 40 h were filtered out due to recorded weather conditions or set-up/take-down. No secondary filtering was required.

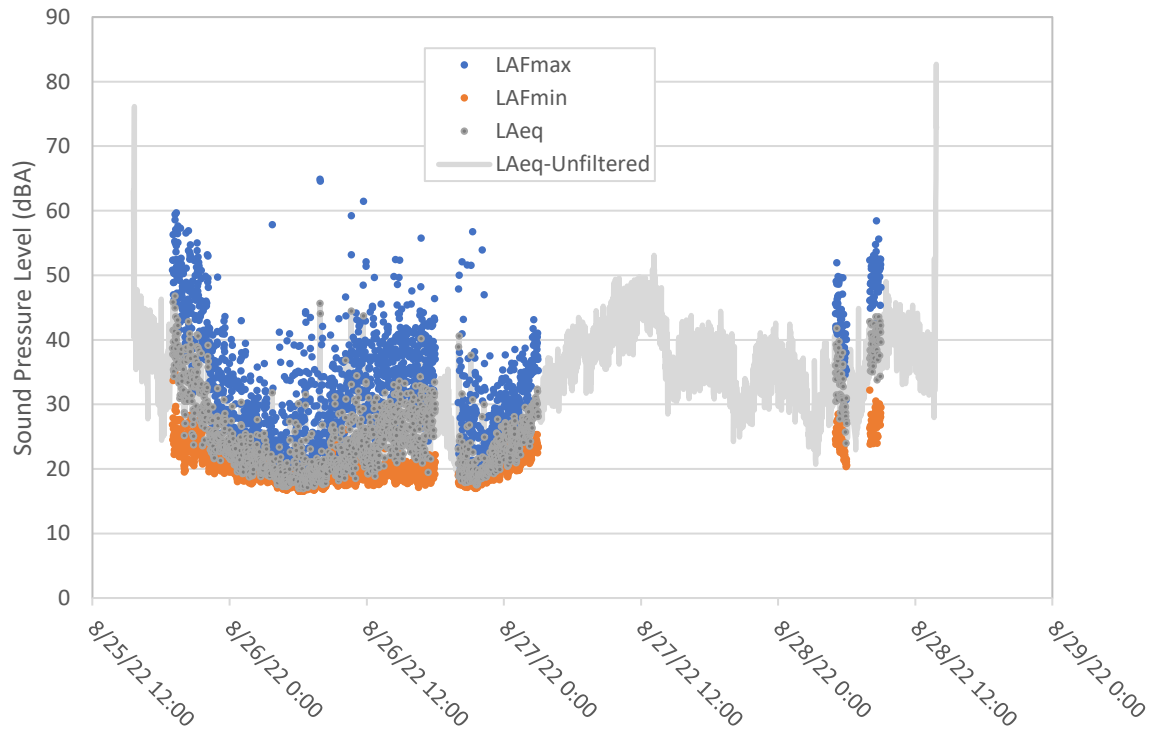
Final calculated daytime, night-time, and 24-h  $L_{eq}$  values are provided in Table 12. Neither the FEIS prediction nor the site target sound levels were exceeded.

Weather data and hourly  $L_{eq}$  values are provided in Appendix B.

Audible noise sources noted in the field logs for this location included road traffic (haul road 1.5 km away), helicopters, and wildlife (Appendix C).

**Table 12. Daytime, night-time, and 24-h  $L_{eq}$  values for monitoring locations R10a. NA = no survey. Periods with insufficient valid data are excluded (-).**

Monitoring Station and Start Date (M/DD)		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		$L_{eq, 24h}$ (dBA)	
		Design Target	Measured Value	Design Target	Measured Value	FEIS Prediction	Measured Value
R10a	1: 8/25	55	31.1	45	25.6	36.2 – 40.4	29.9
	2: NA		-		-		-



**Figure 11. 1-min  $L_{eq}$ ,  $L_{max}$  and  $L_{min}$  values recorded at station R10a during monitoring event 1.**

### 3.11 R11A

Results for monitoring event 1 at R11a in 2022 are not analyzed or reported because the noise meter tripod was found to have fallen over.

Weather data is provided in Appendix B.

No audible noises were specifically noted in the field log for this location (Appendix C).

**Table 13. Daytime, night-time, and 24-h  $L_{eq}$  values for monitoring locations R11a. NA = no survey. Periods with insufficient valid data are excluded (-).**

Monitoring Station and Start Date (M/DD)		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		$L_{eq, 24h}$ (dBA)	
		Design Target	Measured Value	Design Target	Measured Value	FEIS Prediction	Measured Value
R11a	1: 9/02	55	-	45	-	45.1 – 50.0	-
	2: NA		-		-		-

### 3.12 R12

Recorded 1-min  $L_{eq}$  values, maximum sound levels ( $L_{max}$ ), and minimum sound levels ( $L_{min}$ ) during monitoring event 1 at R12 are shown in Figure 12. Invalid data points filtered out prior to data analysis (as described in Section 2.4) are indicated for reference ( $L_{Aeq-unfiltered}$ ).

In total, 19 h of valid data were available after 41 h were filtered out due to recorded weather conditions or set-up/take-down. No secondary filtering was required.

Final calculated daytime, night-time, and 24-h  $L_{eq}$  values are provided in Table 14. Neither the FEIS prediction nor the site target sound levels were exceeded.

Weather data and hourly  $L_{eq}$  values for both events are provided in Appendix B.

No audible noise sources were specifically noted in the field logs for this location (Appendix C).

**Table 14. Daytime, night-time, and 24-h  $L_{eq}$  values for monitoring locations R10. NA = no survey. Periods with insufficient valid data are excluded (-).**

Monitoring Station and Start Date (M/DD)		$L_{eq, day}$ (dBA)		$L_{eq, night}$ (dBA)		$L_{eq, 24h}$ (dBA)	
		Design Target	Measured Value	Design Target	Measured Value	FEIS Prediction	Measured Value
R12	1: 9/16	50	31.5	40	29.7	<35	31.0
	2: NA		-		-		-

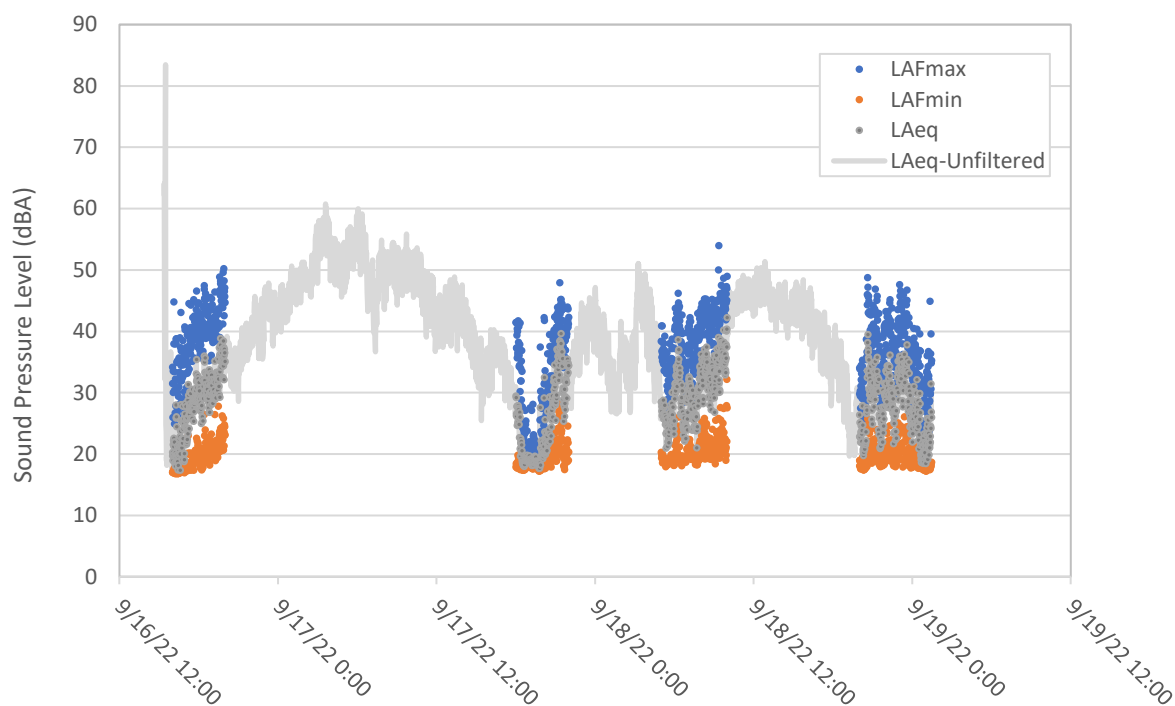


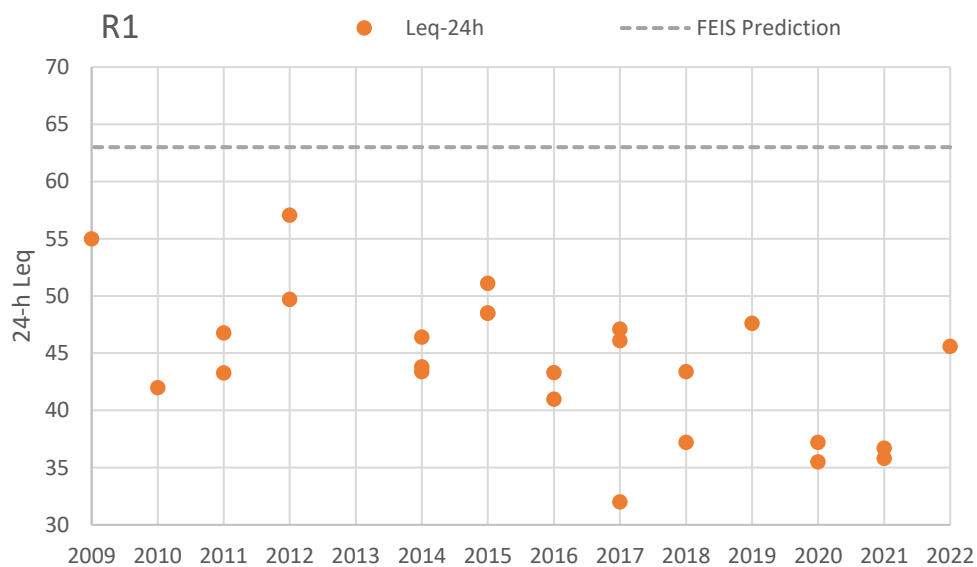
Figure 12. 1-min  $L_{eq}$ ,  $L_{max}$  and  $L_{min}$  values recorded at station R12 during monitoring event 1.

## SECTION 4 • HISTORICAL DATA

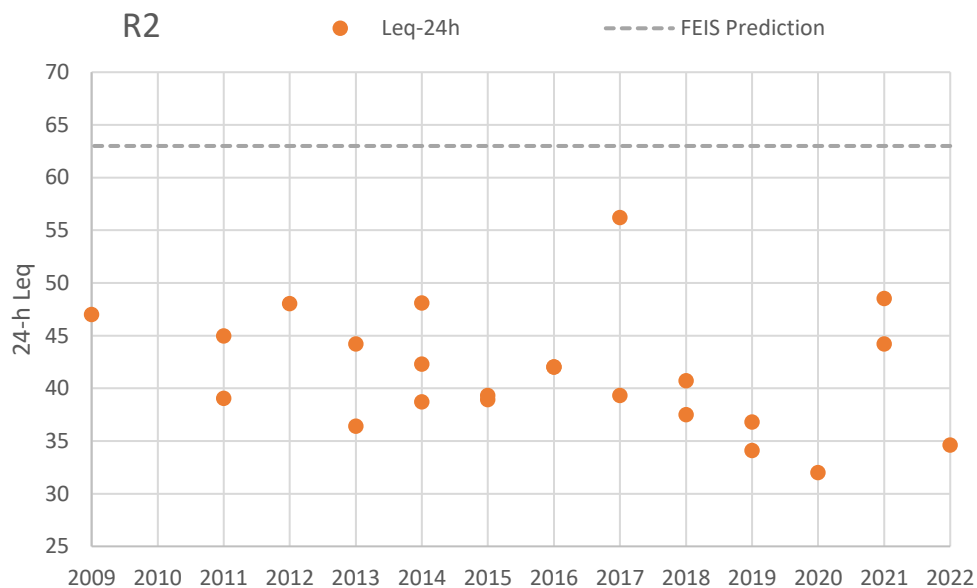
### 4.1 MEADOWBANK SITE

Historical 24-h  $L_{eq}$  measurements (2009 – 2021) for Meadowbank area monitoring stations R1 – R5 are shown in Figures 13 - 17 in relation to FEIS (Cumberland, 2005) predictions.

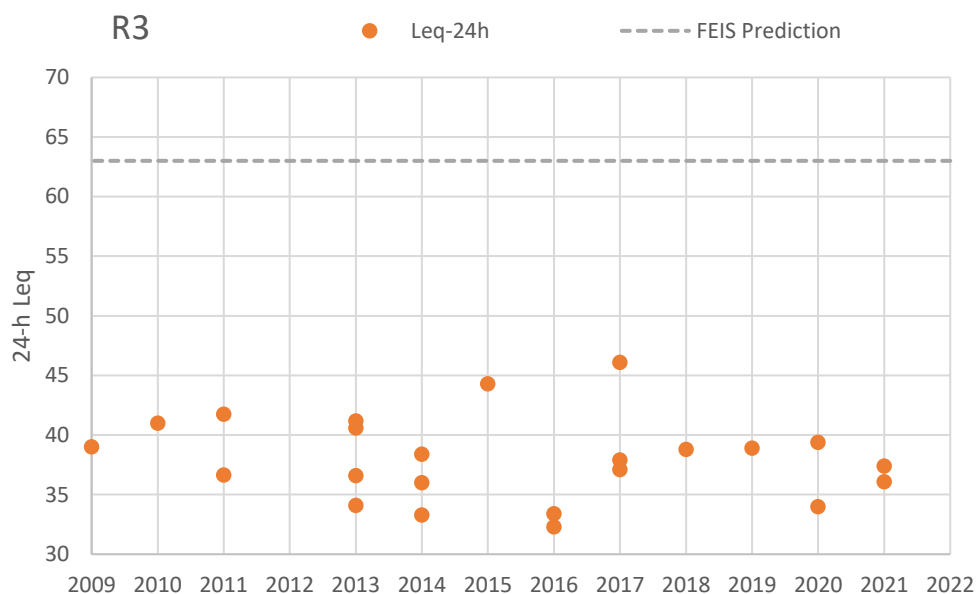
No clear trends towards increasing noise levels are evident. For all sites except one instance at R4 in 2018, measured 24-h  $L_{eq}$  values have remained below predictions.



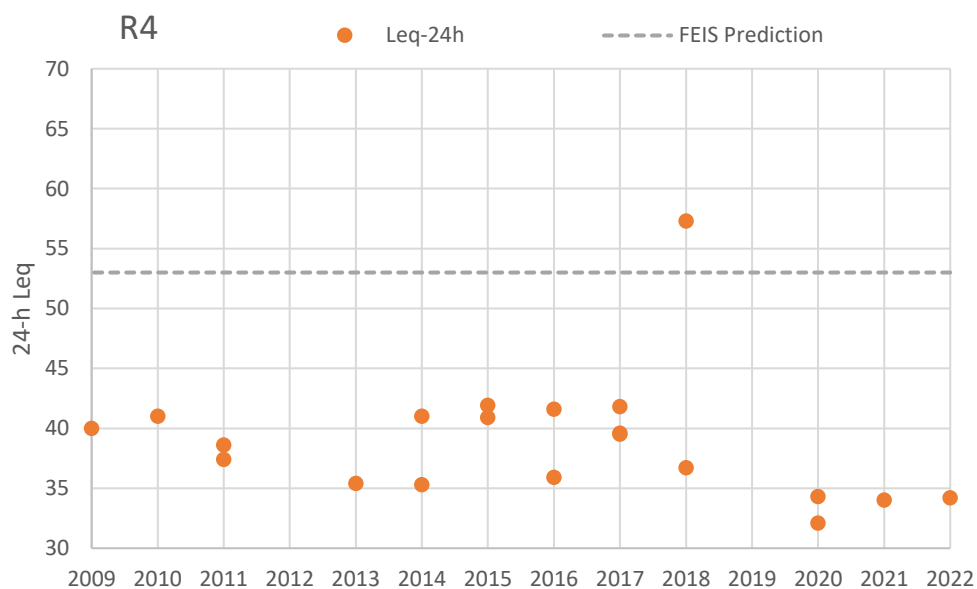
**Figure 13. Historical 24-h  $L_{eq}$  values for monitoring station R1 at the Meadowbank site. Dashed line indicates the maximum FEIS prediction. No measurement was available in 2013.**



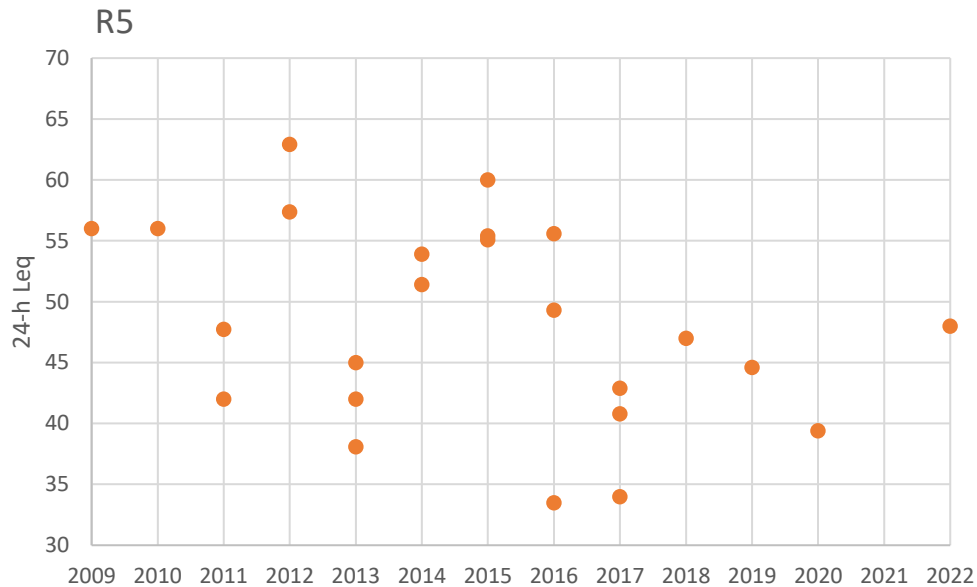
**Figure 14. Historical 24-h  $L_{eq}$  values for monitoring station R2 at the Meadowbank site. Dashed line indicates the maximum FEIS prediction. No measurement was available in 2010.**



**Figure 15. Historical 24-h  $L_{eq}$  values for monitoring station R3 at the Meadowbank site. Dashed line indicates the maximum FEIS prediction. No measurement was available in 2012 or 2022.**



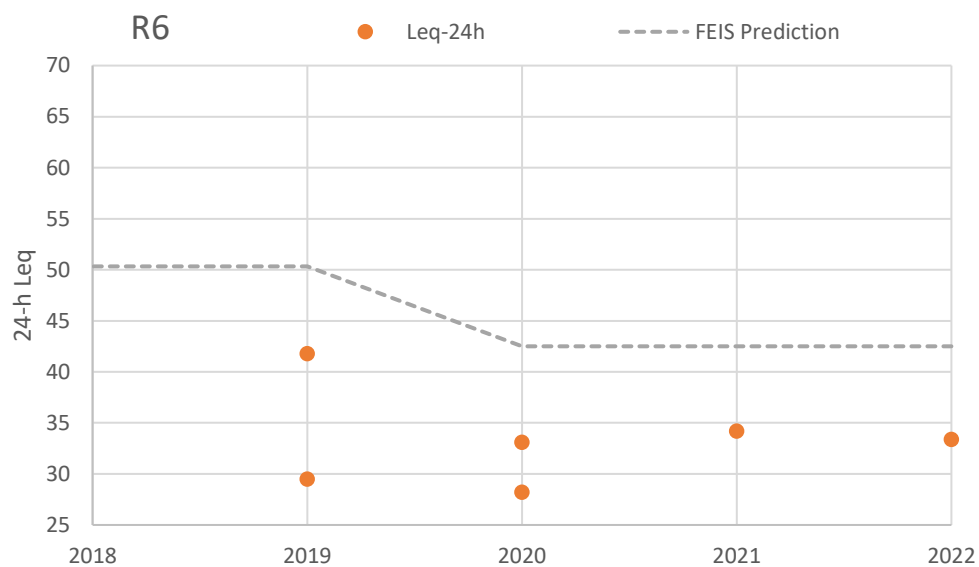
**Figure 16. Historical 24-h  $L_{eq}$  values for monitoring station R4 at the Meadowbank site. Dashed line indicates the maximum FEIS prediction. No measurement was available in 2012 or 2019.**



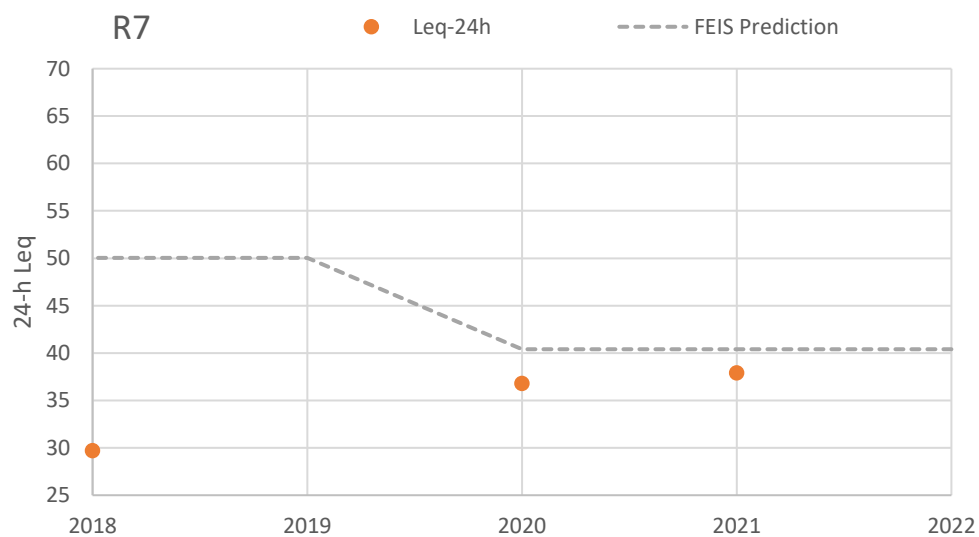
**Figure 17. Historical 24-h  $L_{eq}$  values for monitoring station R5 at the Meadowbank site. No FEIS prediction for the 24-h  $L_{eq}$  was available. No measurement was available in 2021.**

## 4.2 WHALE TAIL SITE

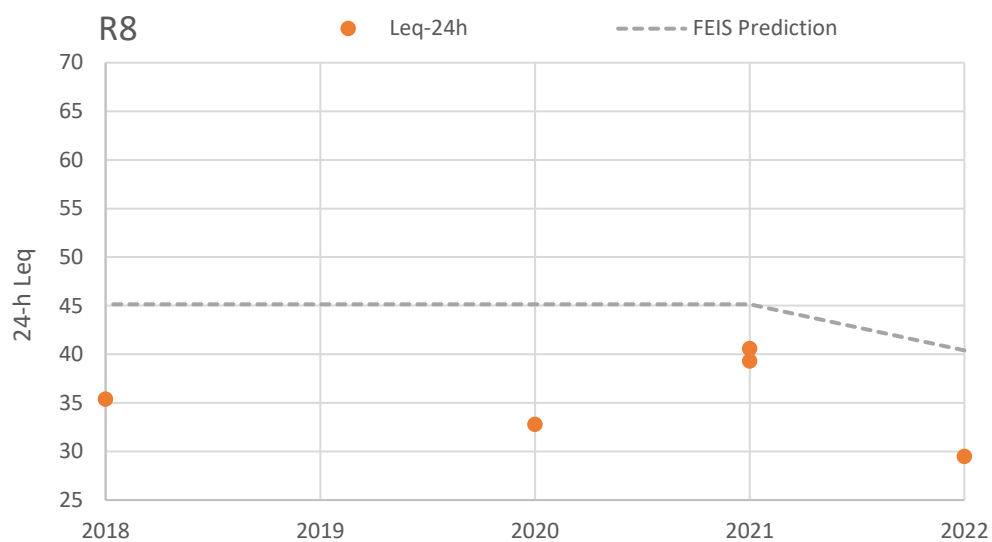
For stations R6 – R11, available historical results are shown in Figures 18 - 23 along with maximum FEIS predictions for 2018/2019 (Agnico Eagle, 2016), and FEIS Addendum predictions for 2020 onwards (Agnico Eagle, 2018). Monitoring data was not available for R7 – R11 in 2019. Overall, no clear trends towards unpredicted noise levels are evident at this time.



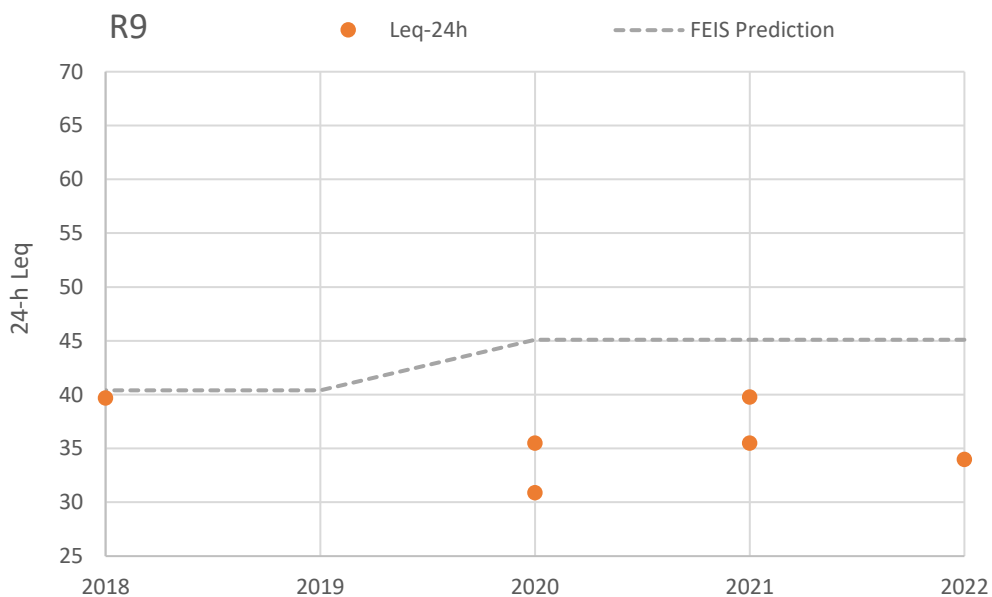
**Figure 18. Historical 24-h  $L_{eq}$  values for monitoring station R6 at the Meadowbank site. Dashed line indicates the maximum FEIS prediction (2018, 2019 – Agnico Eagle, 2016; 2020+ - Agnico Eagle, 2018). No measurement was available in 2018.**



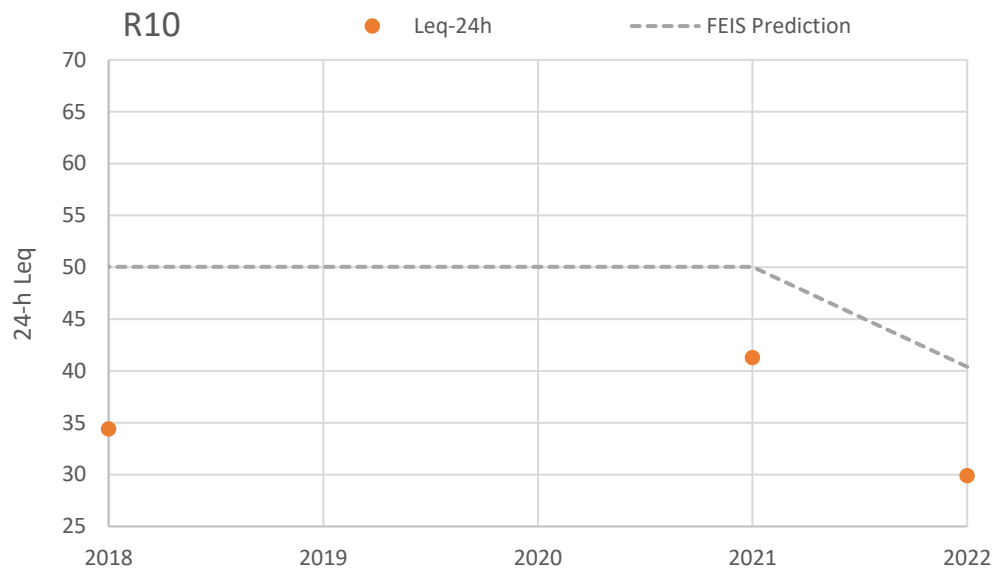
**Figure 19. Historical 24-h  $L_{eq}$  values for monitoring station R7 along the Whale Tail Haul Road. Dashed line indicates the maximum FEIS prediction (2018, 2019 – Agnico Eagle, 2016; 2020+ - Agnico Eagle, 2018). No measurement was available in 2019 or 2022.**



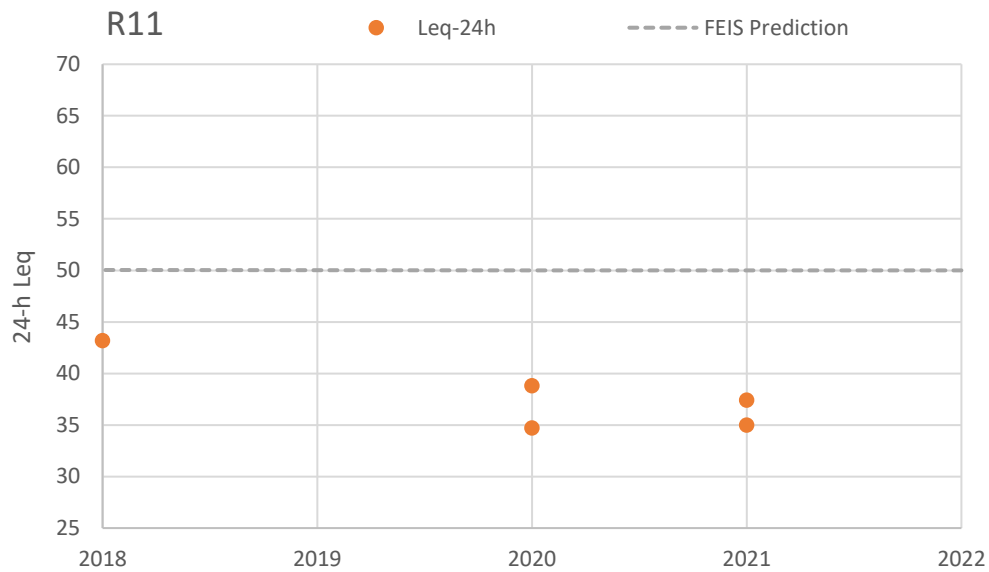
**Figure 20. Historical 24-h  $L_{eq}$  values for monitoring station R8 (2018 – 2021) and R8a (2022+) at the Whale Tail site. Dashed line indicates the maximum FEIS prediction (2018, 2019 – Agnico Eagle, 2016; 2020+ – Agnico Eagle, 2018). No measurement was available in 2019.**



**Figure 21. Historical 24-h  $L_{eq}$  values for monitoring station R9 (2018 – 2021) and R9a (2022+) at the Meadowbank site. Dashed line indicates the maximum FEIS prediction (2018, 2019 – Agnico Eagle, 2016; 2020+ – Agnico Eagle, 2018). No measurement was available in 2019.**



**Figure 22. Historical 24-h  $L_{eq}$  values for monitoring station R10 (2018 – 2021) and R10a (2022+) at the Whale Tail site. Dashed line indicates the maximum FEIS prediction (2018, 2019 – Agnico Eagle, 2016; 2020+ – Agnico Eagle, 2018). No valid data was available in 2019 or 2020.**



**Figure 23. Historical 24-h  $L_{eq}$  values for monitoring station R11 (2018 – 2020) and R11a (2021+) at the Whale Tail site. Dashed line indicates the maximum FEIS prediction (2018, 2019 – Agnico Eagle, 2016; 2020+ – Agnico Eagle, 2018), which is the same for both R11 and R11a locations. No measurements were available in 2019 or 2022.**

## **SECTION 5 • SUMMARY**

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The objective of the noise monitoring program at Meadowbank is to measure noise levels at 11 previously determined monitoring locations over at least two 24 h periods each year, and periodically at one additional far field monitoring station. Agnico Eagle aims to conduct a minimum of two monitoring events of two to four days per station annually, since high winds in the area tend to substantially reduce the quantity of available valid data.

In 2022, two surveys were performed at station R1, but only one survey was performed for all other stations due to an issue with the BK2250 microphone and cables. In addition, as a result of operational difficulties (e.g. fallen noise meter, corrupted data file, apparent recording errors), four surveys were voided prior to data processing.

Following removal of datapoints obtained under sub-optimal weather conditions, one set of valid measurements were available for each monitoring period (daytime, night-time, 24 h) for nine of the twelve stations.

No exceedances of the site's day-time or night-time design targets or FEIS predictions occurred for any station, and all results were within recorded historical ranges.

Based on these results, no changes to noise abatement or mitigation measures are proposed at this time. Actions to ensure more complete data collection in 2023 are described in Section 6.

Impacts of sensory disturbance on wildlife are determined through the Terrestrial Ecosystem Monitoring Plan (TEMP), and reported annually in the Wildlife Summary Report.

## **SECTION 6 • ACTIONS**

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Data collection in 2022 did not meet management plan targets (2 noise surveys per monitoring station) primarily due to the mechanical issues with the microphone and cables, along with turnaround time to receive new parts.

In 2023 Agnico has purchased additional parts for the noise monitoring units. All parts requiring calibration have been shipped to the manufacturer and returned to site. In-house field testing will be completed prior to field deployment to ensure better data collection in 2023.

## **SECTION 7 • REFERENCES**

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Cumberland, 2005. Meadowbank Gold Project Environmental Impact Statement. Cumberland Resources Ltd. October, 2005.

AER (Alberta Energy Regulator), 2007. Directive 038: Noise Control.

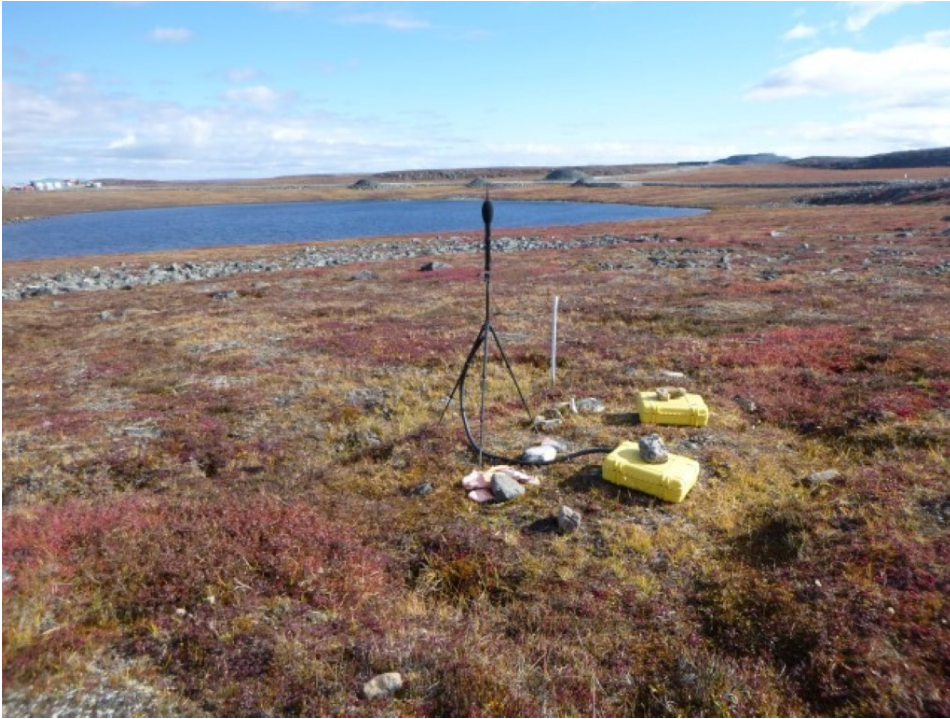
Agnico Eagle, 2018. Final Environment Impact Statement (FEIS) Addendum - Whale Tail Pit Expansion Project. Volume 4 – Atmospheric Environment. Agnico Eagle Mines Ltd. December, 2018.

Agnico Eagle, 2016. Final Environment Impact Statement (FEIS) for the Whale Tail Pit Project.  
Volume 4 – Atmospheric Environment. Agnico Eagle Mines Ltd. May, 2016.

**APPENDIX A**

**Site Photos**





**Figure -Apx 1: Monitoring location R1 (September 4, 2022).**



**Figure -Apx 2: Monitoring location R2 (July 7, 2022).**

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Figure -Apx 3: Monitoring location R3 (July 4, 2022).

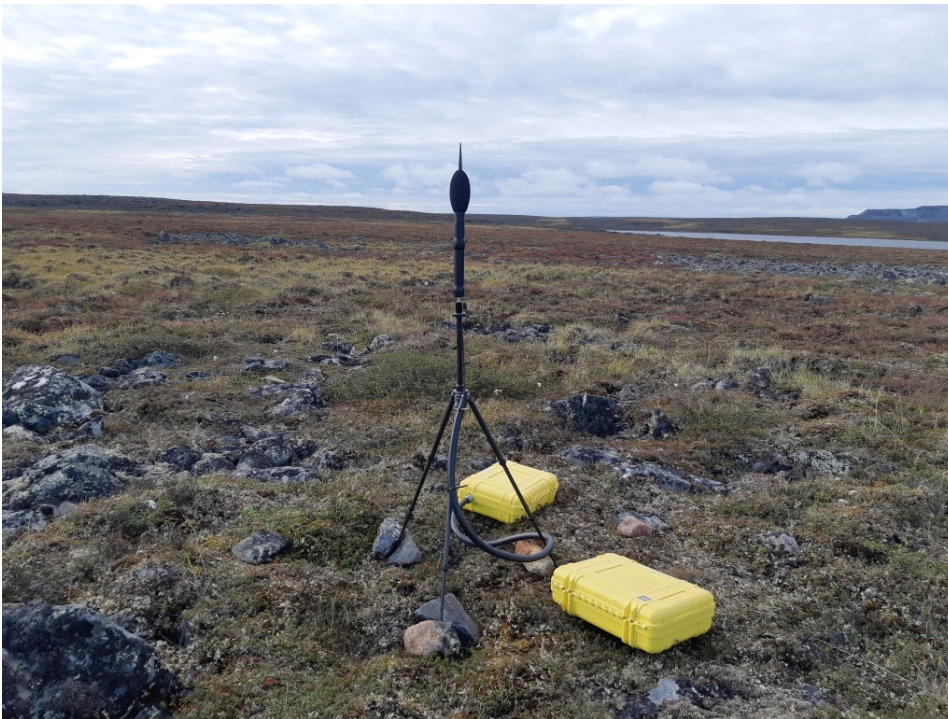
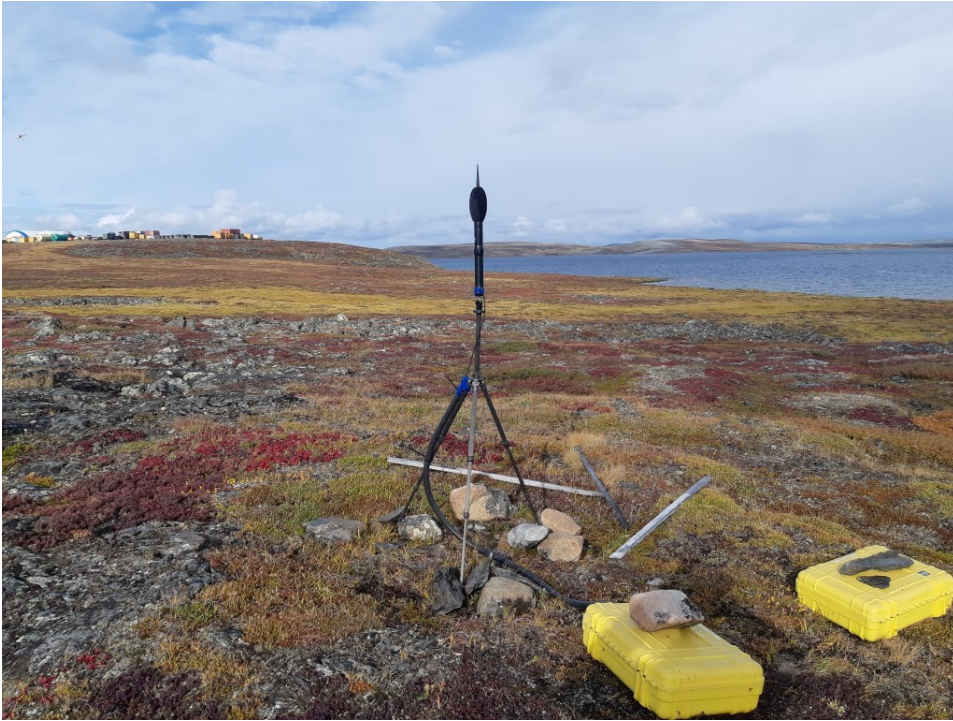
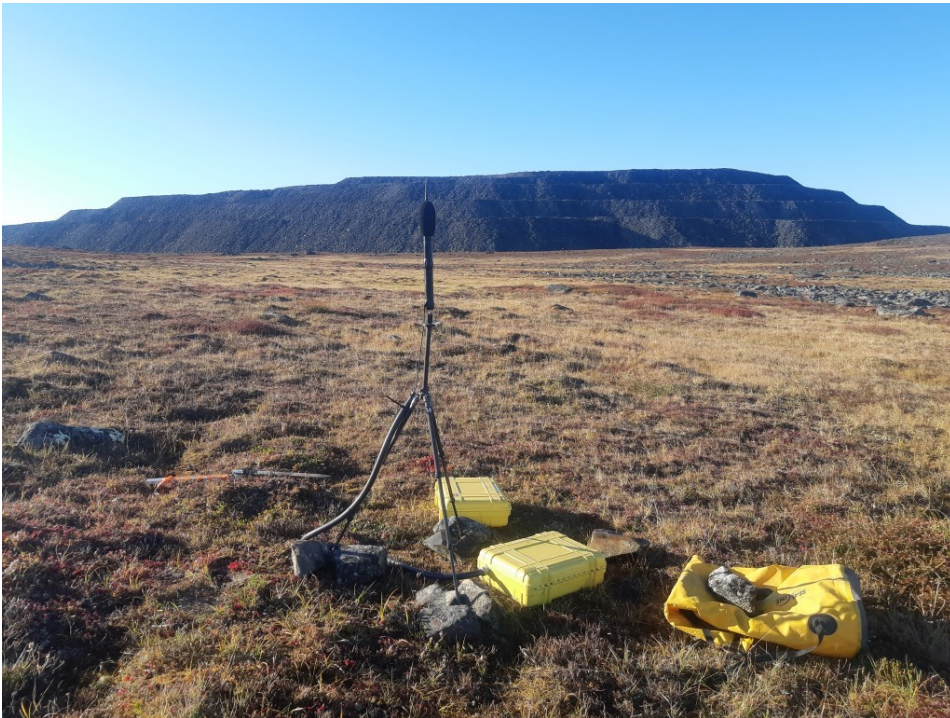


Figure -Apx 4: Monitoring location R4 (August 28, 2022).

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**Figure -Apx 5: Monitoring location R5 (August 30, 2022).**

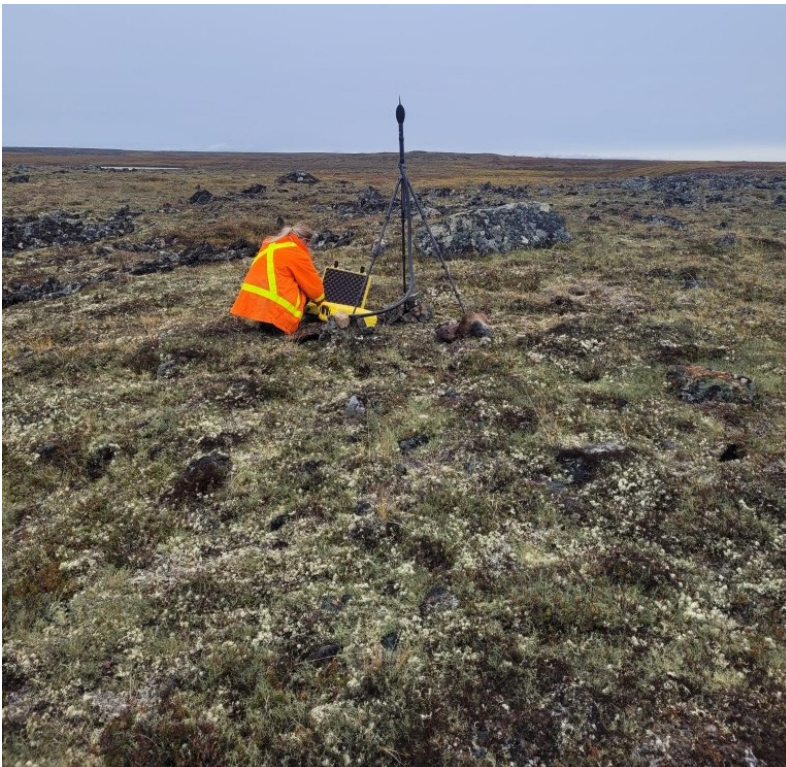


**Figure Apx 6: Monitoring location R6, looking south at Vault Waste Rock Facility (September 6, 2022).**

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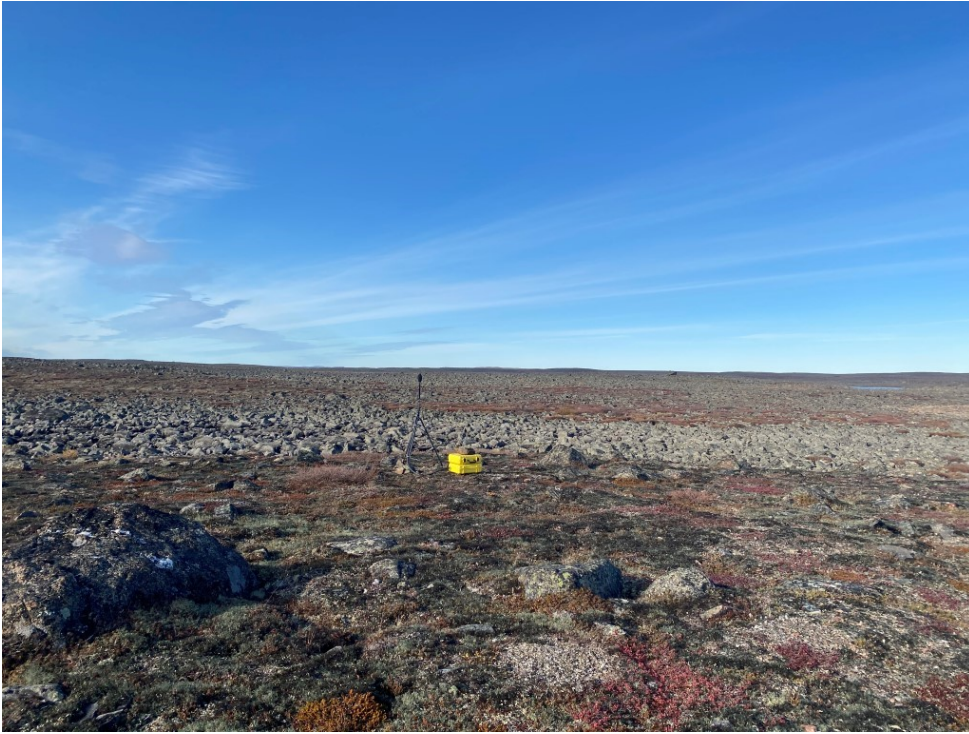


**Figure -Apx 7: Monitoring location R7 (June 30, 2022).**



**Figure -Apx 8: Monitoring location R8a (August 30, 2022).**

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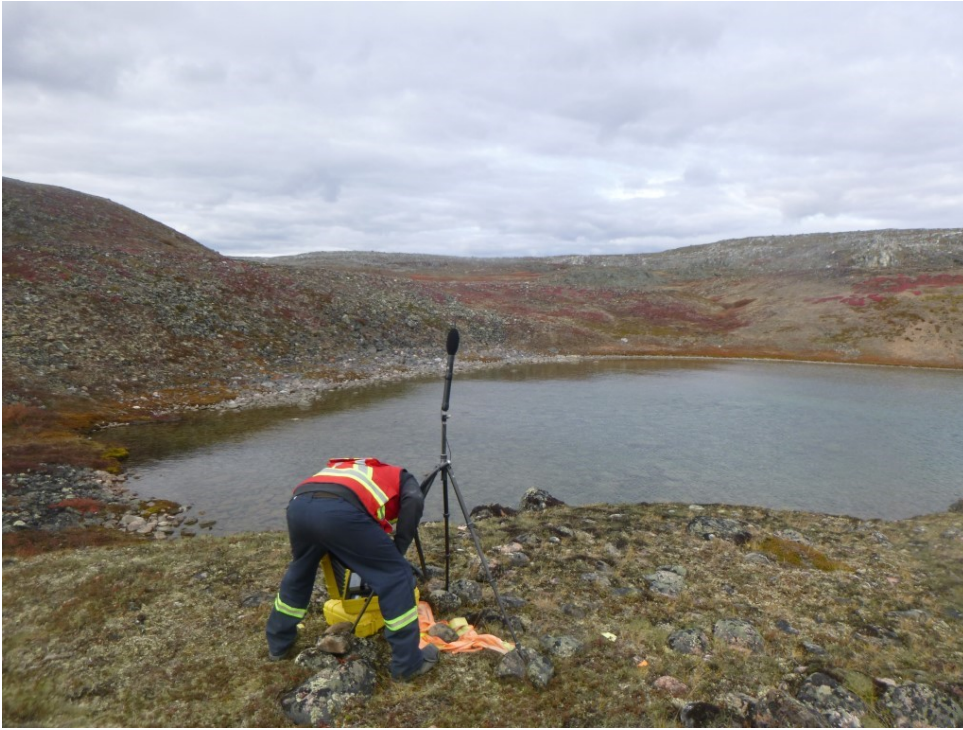


**Figure Apx 9: Monitoring Location R9a (September 16, 2022).**



**Figure Apx 10: Monitoring location R10a (August 25, 2022).**

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**Figure Apx 11: Monitoring location R11a (September 2, 2022).**



**Figure Apx 12: Monitoring location R12 (September 16, 2022).**

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## **APPENDIX B**

### **Weather Data and 1-h $L_{eq}$ Values**

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**App. Table 1. Average hourly air temperature, relative humidity, wind speed, and wind direction for the Meadowbank site weather station and calculated valid 1-h  $L_{eq}$  values for Meadowbank stations R1 – R6. Those filtered out from analyses based on unacceptable weather conditions or set-up/take-down are excluded (blank).**

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	$L_{eq}$ 1 h (dBA)	Station
7/07/22 15:00	20.8	37	1.7	268		R2
7/07/22 16:00	20.9	33	2.1	205	34.6	R2
7/07/22 17:00	21.4	33	1.9	219	23.4	R2
7/07/22 18:00	21.5	32	1.2	190	22.7	R2
7/07/22 19:00	21.8	35	1.1	183	23.6	R2
7/07/22 20:00	21.3	35	1.1	225	23.9	R2
7/07/22 21:00	20.8	43	0.7	226	26.3	R2
7/07/22 22:00	19.1	48	1.2	178	28.9	R2
7/07/22 23:00	18.3	48	0.3	172	29.7	R2
7/08/22 0:00	17.3	57	0.0	219	31.7	R2
7/08/22 1:00	16.3	54	0.0	324	33.7	R2
7/08/22 2:00	15.8	73	0.1	324	32.7	R2
7/08/22 3:00	14.3	76	0.1	104	33.6	R2
7/08/22 4:00	14.0	73	0.6	96	33.7	R2
7/08/22 5:00	13.6	85	0.2	89	30.5	R2
7/08/22 6:00	13.1	91	0.0	86	28.5	R2
7/08/22 7:00	14.9	84	0.0	0	29.3	R2
7/08/22 8:00	17.1	65	0.0	0	23.4	R2
7/08/22 9:00	18.7	54	0.4	152	23.4	R2
7/08/22 10:00	19.7	46	0.8	149	25.3	R2
7/08/22 11:00	21.1	38	1.1	152	27.3	R2
7/08/22 12:00	22.4	37	1.5	164	42.3	R2
7/08/22 13:00	23.5	36	1.3	175	21.9	R2
7/08/22 14:00	24.2	33	1.3	196	32.5	R2
7/08/22 15:00	24.8	31	1.1	308	25.2	R2
7/08/22 16:00	25.5	32	1.2	178	24.4	R2
7/08/22 17:00	25.8	31	1.3	285	22.3	R2
7/08/22 18:00	25.7	33	1.2	192	21.8	R2
7/08/22 19:00	26.1	32	0.8	237	23.3	R2
7/08/22 20:00	25.9	33	0.9	203	24.2	R2
7/08/22 21:00	24.9	47	1.6	174	25.4	R2
7/08/22 22:00	22.6	49	2.5	158	27.3	R2
7/08/22 23:00	20.6	56	1.2	168	28.4	R2
7/09/22 0:00	18.6	64	1.4	181	27.9	R2
7/09/22 1:00	17.7	68	1.3	185	29.3	R2

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
7/09/22 2:00	17.0	68	1.2	186	29.0	R2
7/09/22 3:00	16.5	69	1.0	179	27.8	R2
7/09/22 4:00	16.1	67	0.6	183	30.3	R2
7/09/22 5:00	16.6	63	0.9	147	28.3	R2
7/09/22 6:00	16.7	71	2.1	100	29.2	R2
7/09/22 7:00	16.7	64	3.3	88	33.4	R2
7/09/22 8:00	17.9	56	3.6	90	35.2	R2
7/09/22 9:00	19.5	49	3.5	96	27.1	R2
7/09/22 10:00	20.9	47	3.7	103	39.4	R2
7/09/22 11:00	22.7	42	3.8	115	35.5	R2
7/09/22 12:00	24.2	36	4.5	105		R2
7/09/22 13:00	25.3	35	4.6	114		R2
7/09/22 14:00	25.7	38	4.1	137	26.0	R2
7/09/22 15:00	25.6	33	3.8	159	40.5	R2
7/09/22 16:00	26.1	35	3.6	163	31.4	R2
7/09/22 17:00	26.4	31	3.3	150	42.0	R2
7/09/22 18:00	26.6	30	3.9	119	46.6	R2
7/09/22 19:00	26.8	29	4.1	105	29.1	R2
7/09/22 20:00	26.1	33	3.8	98	30.4	R2
7/09/22 21:00	25.3	34	3.8	111	32.1	R2
7/09/22 22:00	23.7	49	4.2	132		R2
7/09/22 23:00	21.2	57	6.6	140		R2
7/10/22 0:00	19.4	64	6.8	149		R2
7/10/22 1:00	17.9	69	5.2	142		R2
7/10/22 2:00	16.4	75	5.0	145		R2
7/10/22 3:00	15.7	79	5.1	151		R2
7/10/22 4:00	15.0	86	4.2	157		R2
7/10/22 5:00	14.2	93	3.8	169	29.7	R2
7/10/22 6:00	14.3	93	3.2	158	28.7	R2
7/10/22 7:00	14.8	92	2.9	160		R2
8/25/22 16:00	6.5	71	6.7	328		R1
8/25/22 17:00	7.0	70	7.3	326		R1
8/25/22 18:00	7.0	72	7.3	329		R1
8/25/22 19:00	6.5	73	6.5	333	46.9	R1
8/25/22 20:00	5.8	76	5.1	345	44.5	R1
8/25/22 21:00	5.1	80	5.4	347	42.8	R1
8/25/22 22:00	4.3	83	5.0	355	39.9	R1

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
8/25/22 23:00	3.6	84	4.0	352	36.2	R1
8/26/22 0:00	3.4	83	3.3	351	28.9	R1
8/26/22 1:00	3.3	84	2.7	342	28.4	R1
8/26/22 2:00	3.1	84	2.6	14	26.1	R1
8/26/22 3:00	2.8	84	2.1	11	26.5	R1
8/26/22 4:00	2.5	85	2.4	22	25.5	R1
8/26/22 5:00	2.0	86	2.0	37	25.4	R1
8/26/22 6:00	1.6	92	1.4	326	41.7	R1
8/26/22 7:00	1.4	96	1.6	360	32.4	R1
8/26/22 8:00	1.4	95	1.9	56	26.7	R1
8/26/22 9:00	1.3	91	1.8	40	52.7	R1
8/26/22 10:00	1.7	87	1.9	70	31.5	R1
8/26/22 11:00	2.5	80	2.3	51	31.7	R1
8/26/22 12:00	3.1	78	2.5	96	30.2	R1
8/26/22 13:00	3.7	76	2.8	100	31.0	R1
8/26/22 14:00	4.5	74	2.7	113	37.7	R1
8/26/22 15:00	5.1	69	2.6	101	38.3	R1
8/26/22 16:00	6.2	62	3.3	115	52.4	R1
8/26/22 17:00	7.2	59	3.8	110	38.7	R1
8/26/22 18:00	8.0	57	3.6	116		R1
8/26/22 19:00	8.6	55	3.5	117		R1
8/26/22 20:00	8.6	59	3.7	92	31.6	R1
8/26/22 21:00	8.1	64	3.1	97	33.9	R1
8/26/22 22:00	7.1	68	3.1	150	28.5	R1
8/26/22 23:00	6.7	71	3.2	141	30.1	R1
8/27/22 0:00	7.0	67	3.9	124	35.1	R1
8/27/22 1:00	7.2	68	4.7	118	34.7	R1
8/27/22 2:00	7.2	70	4.9	118		R1
8/27/22 3:00	7.3	66	5.4	119		R1
8/27/22 4:00	7.3	68	6.6	114		R1
8/27/22 5:00	7.2	68	6.8	115		R1
8/27/22 6:00	7.2	68	6.7	112		R1
8/27/22 7:00	7.0	71	6.7	111		R1
8/27/22 8:00	7.0	69	7.5	111		R1
8/27/22 9:00	7.0	67	7.6	108		R1
8/27/22 10:00	7.2	66	7.7	104		R1
8/27/22 11:00	7.1	70	7.8	113		R1
8/27/22 12:00	7.1	70	7.1	118		R1

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
8/27/22 13:00	7.2	75	7.8	124		R1
8/27/22 14:00	6.8	74	6.5	132		R1
						R1
8/28/22 7:00	5.7	80	6.9	89		
8/28/22 8:00	5.7	79	7.3	87		R4
8/28/22 9:00	5.9	78	7.5	91		R4
8/28/22 10:00	6.5	71	7.2	100		R4
8/28/22 11:00	7.4	63	6.8	110		R4
8/28/22 12:00	7.9	58	6.4	102		R4
8/28/22 13:00	8.0	54	6.6	93		R4
8/28/22 14:00	8.3	53	5.8	97		R4
8/28/22 15:00	8.6	52	6.0	98		R4
8/28/22 16:00	8.6	52	6.4	95		R4
8/28/22 17:00	9.0	52	5.5	97		R4
8/28/22 18:00	9.2	54	5.4	97		R4
8/28/22 19:00	9.4	58	5.7	98		R4
8/28/22 20:00	9.0	54	5.4	91		R4
8/28/22 21:00	8.4	62	4.2	92		R4
8/28/22 22:00	7.5	68	4.4	86		R4
8/28/22 23:00	7.6	73	5.2	87		R4
8/29/22 0:00	7.3	76	4.2	88		R4
8/29/22 1:00	7.1	78	3.9	86	37.4	R4
8/29/22 2:00	7.3	71	4.7	98		R4
8/29/22 3:00	7.0	73	4.6	85		R4
8/29/22 4:00	6.8	72	5.3	85		R4
8/29/22 5:00	6.5	76	6.1	86		R4
8/29/22 6:00	6.3	76	5.3	83		R4
8/29/22 7:00	6.1	73	5.7	81		R4
8/29/22 8:00	6.2	77	6.1	81		R4
8/29/22 9:00	6.5	72	6.3	83		R4
8/29/22 10:00	7.0	66	6.2	87		R4
8/29/22 11:00	7.5	61	6.2	87		R4
8/29/22 12:00	8.0	57	6.2	87		R4
8/29/22 13:00	8.6	55	5.9	78		R4
8/29/22 14:00	9.1	56	6.8	78		R4
8/29/22 15:00	9.3	56	6.6	81		R4
8/29/22 16:00	9.3	58	6.1	91		R4
8/29/22 17:00	8.9	61	6.4	100		R4

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
8/29/22 18:00	8.6	62	4.9	97		R4
8/29/22 19:00	8.2	70	3.4	108	28.0	R4
8/29/22 20:00	7.6	73	2.0	112	30.3	R4
8/29/22 21:00	7.2	81	0.7	114	32.9	R4
8/29/22 22:00	6.8	87	0.6	323	36.9	R4
8/29/22 23:00	6.5	89	0.2	341	32.0	R4
8/30/22 0:00	6.5	87	0.3	336	32.8	R4
8/30/22 1:00	6.5	85	1.1	18	35.1	R4
8/30/22 2:00	6.5	85	1.6	16	34.2	R4
8/30/22 3:00	5.9	89	4.0	68	33.7	R4
8/30/22 4:00	5.6	91	3.8	62	35.5	R4
8/30/22 5:00	5.3	92	5.0	46		R4
8/30/22 6:00	5.0	93	6.0	45		R4
8/30/22 7:00	4.8	94	5.6	58		R4
8/30/22 8:00	4.9	94	4.3	56		R4
8/30/22 9:00	5.2	94	3.9	41		R4
8/30/22 16:00	7.1	81	2.8	27		R5
8/30/22 17:00	7.6	71	3.7	33	28.1	R5
8/30/22 18:00	8.0	74	3.0	51	32.5	R5
8/30/22 19:00	8.1	70	2.0	64	35.8	R5
8/30/22 20:00	7.5	76	1.9	72	29.1	R5
8/30/22 21:00	7.0	82	1.2	127	35.4	R5
8/30/22 22:00	6.7	84	1.7	197	31.4	R5
8/30/22 23:00	6.1	88	2.9	225	31.6	R5
8/31/22 0:00	5.7	93	3.2	254	37.4	R5
8/31/22 1:00	5.4	94	3.4	255	32.2	R5
8/31/22 2:00	4.9	98	4.5	271		R5
8/31/22 3:00	4.9	94	3.4	285	36.5	R5
8/31/22 4:00	4.8	92	2.9	313	37.5	R5
8/31/22 5:00	4.4	96	2.8	339	32.6	R5
8/31/22 6:00	4.2	99	2.8	353	37.1	R5
8/31/22 7:00	4.2	96	2.4	10	36.3	R5
8/31/22 8:00	4.7	90	0.6	92	38.6	R5
8/31/22 9:00	5.6	82	1.0	67	37.0	R5
8/31/22 10:00	6.5	78	0.6	337	40.8	R5
8/31/22 11:00	7.3	74	1.2	44	42.8	R5
8/31/22 12:00	8.1	58	2.8	65	32.5	R5

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
8/31/22 13:00	8.8	47	2.2	42	25.5	R5
8/31/22 14:00	9.3	49	2.2	52	30.9	R5
8/31/22 15:00	9.3	46	2.6	40	38.7	R5
8/31/22 16:00	9.2	50	3.5	32	38.5	R5
8/31/22 17:00	9.4	48	3.3	42	38.5	R5
8/31/22 18:00	9.3	49	3.6	44	36.6	R5
8/31/22 19:00	9.4	51	3.7	38	36.6	R5
8/31/22 20:00	8.7	55	3.7	55	42.4	R5
8/31/22 21:00	8.0	62	3.2	55	31.5	R5
8/31/22 22:00	7.4	61	2.3	51	30.6	R5
8/31/22 23:00	7.2	64	2.4	37	30.7	R5
9/01/22 0:00	6.5	66	2.8	48	33.6	R5
9/01/22 1:00	5.5	72	2.6	59	32.1	R5
9/01/22 2:00	5.1	78	2.4	35	33.3	R5
9/01/22 3:00	4.4	82	2.4	26	30.9	R5
9/01/22 4:00	4.1	86	2.5	28	34.7	R5
9/01/22 5:00	3.7	86	3.3	21	35.2	R5
9/01/22 6:00	3.0	89	3.2	18	51.4	R5
9/01/22 7:00	3.0	85	3.5	19	56.4	R5
9/01/22 8:00	3.7	81	3.9	30	54.7	R5
9/01/22 9:00	4.3	79	3.4	35	58.8	R5
9/01/22 10:00	5.5	71	3.1	36	35.9	R5
9/01/22 11:00	6.3	62	3.3	34	60.7	R5
9/01/22 12:00	6.8	53	3.3	31	32.9	R5
9/01/22 13:00	7.5	49	3.5	35	35.4	R5
9/01/22 14:00	8.2	48	4.0	24	37.6	R5
9/01/22 15:00	9.0	46	4.3	14		R5
9/01/22 16:00	9.5	48	4.7	1		R5
9/01/22 17:00	9.9	49	5.1	342		R5
9/02/22 8:00	3.4	94	4.8	303		R6
9/02/22 9:00	4.3	80	6.5	304		R6
9/02/22 10:00	5.2	71	7.1	315		R6
9/02/22 11:00	6.0	67	6.8	312		R6
9/02/22 12:00	7.3	66	6.0	311		R6
9/02/22 13:00	8.7	62	6.2	303		R6
9/02/22 14:00	10.0	55	8.1	300		R6
9/02/22 15:00	11.2	49	8.5	299		R6

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
9/02/22 16:00	11.4	51	8.5	295		R6
9/02/22 17:00	11.9	49	7.4	294		R6
9/02/22 18:00	11.9	44	7.0	297		R6
9/02/22 19:00	11.8	51	7.1	292		R6
9/02/22 20:00	11.3	55	5.8	287		R6
9/02/22 21:00	10.3	55	4.0	262	35.0	R6
9/02/22 22:00	9.7	62	4.3	250		R6
9/02/22 23:00	8.7	65	4.5	244		R6
9/03/22 0:00	8.2	68	5.5	243		R6
9/03/22 1:00	8.0	71	5.7	246		R6
9/03/22 2:00	7.5	74	5.7	247		R6
9/03/22 3:00	6.6	80	4.6	256		R6
9/03/22 4:00	6.1	83	2.0	274	34.1	R6
9/03/22 5:00	5.0	96	3.0	198	32.6	R6
9/03/22 6:00	4.3	89	1.6	146	36.2	R6
9/03/22 7:00	4.6	83	1.1	152	36.4	R6
9/03/22 8:00	5.8	80	2.0	172	38.6	R6
9/03/22 9:00	6.8	70	1.1	139	32.4	R6
9/03/22 10:00	8.3	71	2.1	85	22.8	R6
9/03/22 11:00	9.7	62	2.9	91	24.6	R6
9/03/22 12:00	11.3	51	3.3	109	26.6	R6
9/03/22 13:00	12.2	49	3.7	111	25.7	R6
9/03/22 14:00	12.8	47	3.9	109	26.3	R6
9/03/22 15:00	13.3	47	3.5	110	23.6	R6
9/03/22 16:00	13.6	48	3.1	108	27.4	R6
9/03/22 17:00	13.5	46	4.0	92	23.8	R6
9/03/22 18:00	13.7	50	4.2	96		R6
9/03/22 19:00	13.3	51	3.5	99	22.5	R6
9/03/22 20:00	12.8	54	2.7	117	23.7	R6
9/03/22 21:00	11.9	58	2.7	122	29.3	R6
9/03/22 22:00	11.0	69	2.4	108	30.3	R6
9/03/22 23:00	10.0	73	2.9	96	28.8	R6
9/04/22 0:00	9.7	75	2.6	96	33.7	R6
9/04/22 1:00	9.6	80	1.5	93	39.4	R6
9/04/22 2:00	9.6	85	2.0	116	38.3	R6
9/04/22 3:00	9.6	90	2.7	126	36.5	R6
9/04/22 4:00	9.5	93	2.9	128	34.1	R6
9/04/22 5:00	9.2	98	1.6	132	36.8	R6

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
9/04/22 6:00	9.0	99	2.6	128	35.2	R6
9/04/22 7:00	8.7	100	2.8	103	36.6	R6
9/04/22 8:00	8.8	100	2.7	90	34.1	R6
9/04/22 9:00	9.5	98	2.7	103		R6

**App. Table 2. Average hourly air temperature, relative humidity, wind speed, and wind direction for the Whale Tail Mine weather station and valid calculated 1-h L<sub>eq</sub> values for Whale Tail Mine stations R7 – R11. Those filtered out from analyses based on unacceptable weather conditions and set up/take down are excluded (blank).**

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
8/25/22 15:00	5.5	79	5.5	326		R10
8/25/22 16:00	6.0	77	4.9	333		R10
8/25/22 17:00	5.6	79	4.8	333		R10
8/25/22 18:00	5.3	81	4.4	334		R10
8/25/22 19:00	5.0	82	3.6	353	38.9	R10
8/25/22 20:00	4.5	85	2.7	348	34.9	R10
8/25/22 21:00	3.7	87	2.1	0	33.8	R10
8/25/22 22:00	2.8	89	2.0	29	29.1	R10
8/25/22 23:00	2.4	90	2.3	349	24.7	R10
8/26/22 0:00	2.3	90	1.9	0	23.0	R10
8/26/22 1:00	2.1	90	1.3	2	22.6	R10
8/26/22 2:00	1.9	91	1.4	27	21.7	R10
8/26/22 3:00	1.8	91	1.2	29	22.0	R10
8/26/22 4:00	1.4	91	1.5	57	19.1	R10
8/26/22 5:00	1.3	92	1.5	76	20.5	R10
8/26/22 6:00	1.1	91	1.4	110	21.7	R10
8/26/22 7:00	1.1	91	0.9	93	30.6	R10
8/26/22 8:00	1.1	92	2.0	95	21.5	R10
8/26/22 9:00	1.0	94	2.4	94	23.6	R10
8/26/22 10:00	1.2	90	2.6	89	29.2	R10
8/26/22 11:00	2.3	85	3.1	118	29.3	R10
8/26/22 12:00	2.4	86	3.3	113	24.7	R10
8/26/22 13:00	2.9	83	3.3	108	27.0	R10
8/26/22 14:00	4.5	75	3.4	128	28.4	R10
8/26/22 15:00	5.7	70	4.0	133	27.5	R10
8/26/22 16:00	6.9	65	3.9	145	29.1	R10
8/26/22 17:00	7.7	62	3.9	143	28.8	R10

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
8/26/22 18:00	8.3	59	4.4	136		R10
8/26/22 19:00	8.4	58	4.6	140		R10
8/26/22 20:00	7.6	60	4.1	144	26.8	R10
8/26/22 21:00	6.5	68	2.8	125	23.0	R10
8/26/22 22:00	5.7	73	3.0	120	21.3	R10
8/26/22 23:00	4.9	79	3.2	114	23.2	R10
8/27/22 0:00	5.0	80	3.7	120	24.7	R10
8/27/22 1:00	5.5	79	4.1	125	25.2	R10
8/27/22 2:00	5.7	80	4.9	130		R10
8/27/22 3:00	5.8	77	5.6	131		R10
8/27/22 4:00	5.6	79	5.6	125		R10
8/27/22 5:00	5.8	76	6.4	129		R10
8/27/22 6:00	5.7	77	6.0	122		R10
8/27/22 7:00	5.7	77	6.9	128		R10
8/27/22 8:00	5.6	79	6.2	114		R10
8/27/22 9:00	6.0	77	7.8	122		R10
8/27/22 10:00	6.6	73	7.4	117		R10
8/27/22 11:00	7.1	70	8.9	121		R10
8/27/22 12:00	7.2	70	8.6	126		R10
8/27/22 13:00	7.5	68	8.8	131		R10
8/27/22 14:00	7.7	67	7.9	131		R10
8/27/22 15:00	7.5	68	6.8	130		R10
8/27/22 16:00	7.9	66	6.7	132		R10
8/27/22 17:00	8.1	63	6.4	123		R10
8/27/22 18:00	8.2	62	NAN	NAN		R10
8/27/22 19:00	8.2	61	NAN	NAN		R10
8/27/22 20:00	7.9	61	NAN	NAN		R10
8/27/22 21:00	7.4	64	NAN	NAN		R10
8/27/22 22:00	7.1	67	NAN	NAN		R10
8/27/22 23:00	6.8	75	NAN	NAN		R10
8/28/22 0:00	6.4	78	5.7	113		R10
8/28/22 1:00	6.3	75	5.7	117		R10
8/28/22 2:00	6.3	69	5.9	125		R10
8/28/22 3:00	6.0	72	4.5	120		R10
8/28/22 4:00	5.4	75	3.9	106	34.9	R10
8/28/22 5:00	5.2	76	4.8	113		R10
8/28/22 6:00	5.0	78	5.0	121		R10
8/28/22 7:00	4.5	81	4.2	100	35.5	R10

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
8/28/22 8:00	4.9	81	5.3	99		R10
8/28/22 9:00	5.7	76	5.7	107		R10
8/28/22 10:00	6.3	75	7.1	119		R10
8/28/22 11:00	6.9	71	7.1	125		R10
8/28/22 12:00	7.4	67	7.1	122		R10
8/28/22 13:00	8.0	59	6.1	124		R10
8/30/22 8:00	4.9	92	3.1	96		R8
8/30/22 9:00	5.0	91	2.6	107	29.5	R8
8/30/22 10:00	5.4	88	2.5	105	29.1	R8
8/30/22 11:00	5.9	85	1.9	55	27.1	R8
8/30/22 12:00	6.4	83	1.8	51	32.1	R8
8/30/22 13:00	6.8	74	2.7	64	29.4	R8
8/30/22 14:00	7.4	69	2.3	68	22.5	R8
8/30/22 15:00	7.9	66	2.1	79	22.8	R8
8/30/22 16:00	8.0	68	2.0	88	23.1	R8
8/30/22 17:00	8.5	63	1.6	70	23.8	R8
8/30/22 18:00	8.6	62	1.5	81	27.5	R8
8/30/22 19:00	8.6	61	1.2	133	36.6	R8
8/30/22 20:00	8.9	62	1.6	215	33.5	R8
8/30/22 21:00	6.3	83	2.6	139	31.1	R8
8/30/22 22:00	5.6	90	1.5	200	33.9	R8
8/30/22 23:00	5.4	91	0.5	221	36.0	R8
8/31/22 0:00	5.1	93	1.1	245	30.5	R8
8/31/22 1:00	5.1	92	2.4	253	31.6	R8
8/31/22 2:00	5.1	92	2.1	277	30.2	R8
8/31/22 3:00	5.3	91	2.6	299	27.9	R8
8/31/22 4:00	4.9	90	2.4	322	26.6	R8
8/31/22 5:00	4.4	91	2.3	327	25.9	R8
8/31/22 6:00	4.1	92	1.8	343	21.3	R8
8/31/22 7:00	3.9	93	0.9	288	23.4	R8
8/31/22 8:00	4.6	93	1.7	334	35.8	R8
8/31/22 9:00	5.6	90	1.7	320	29.1	R8
8/31/22 10:00	6.8	86	0.7	316	24.1	R8
8/31/22 11:00	7.8	79	0.8	100	24.9	R8
8/31/22 12:00	9.0	67	2.2	107	27.8	R8
8/31/22 13:00	9.1	54	2.3	125	27.0	R8
8/31/22 14:00	9.7	50	1.4	94	24.6	R8

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
8/31/22 15:00	9.8	49	2.1	101	23.8	R8
8/31/22 16:00	9.8	45	2.8	102	29.5	R8
8/31/22 17:00	9.6	46	3.3	76	26.9	R8
8/31/22 18:00	9.4	49	3.3	84	24.5	R8
8/31/22 19:00	9.2	50	3.4	87	23.6	R8
8/31/22 20:00	8.9	52	3.4	76	22.0	R8
8/31/22 21:00	8.0	56	3.1	67	20.4	R8
8/31/22 22:00	7.1	61	2.7	71	21.4	R8
8/31/22 23:00	6.3	66	2.4	74	26.2	R8
9/01/22 0:00	5.4	74	2.3	84	21.4	R8
9/01/22 1:00	4.5	79	2.7	81	22.4	R8
9/01/22 2:00	4.5	79	2.5	69	28.5	R8
9/01/22 3:00	3.9	80	2.6	69	28.7	R8
9/01/22 4:00	3.4	82	2.5	72	24.1	R8
9/01/22 5:00	2.9	87	2.0	69	30.6	R8
9/01/22 6:00	3.3	85	1.6	50	30.1	R8
9/01/22 7:00	3.7	80	1.5	49	26.2	R8
9/01/22 8:00	4.3	79	1.7	44	33.2	R8
9/01/22 9:00	5.6	74	1.8	52	32.7	R8
9/01/22 10:00	6.1	70	2.6	61		R8
9/02/22 17:00	12.0	51	5.9	308		R11
9/02/22 18:00	12.0	48	6.1	309		R11
9/02/22 19:00	11.5	50	5.6	308		R11
9/02/22 20:00	10.9	52	4.6	300		R11
9/02/22 21:00	9.9	54	4.1	289	19.5	R11
9/02/22 22:00	8.9	60	3.2	275	24.1	R11
9/02/22 23:00	8.0	66	3.4	263	28.6	R11
9/03/22 0:00	7.4	70	4.3	263		R11
9/03/22 1:00	6.8	72	4.4	259		R11
9/03/22 2:00	5.6	78	3.9	254	32.1	R11
9/03/22 3:00	4.5	85	2.5	260	26.8	R11
9/03/22 4:00	3.8	89	2.0	273	24.1	R11
9/03/22 5:00	3.5	90	1.6	259	26.5	R11
9/03/22 6:00	2.9	93	0.5	243	30.0	R11
9/03/22 7:00	4.0	91	0.8	252	30.5	R11
9/03/22 8:00	7.2	74	0.2	198	35.4	R11
9/03/22 9:00	8.9	74	0.3	122	29.1	R11

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
9/03/22 10:00	9.5	68	1.0	119	21.1	R11
9/03/22 11:00	11.1	59	2.2	140	22.9	R11
9/03/22 12:00	12.1	53	2.4	136	25.6	R11
9/03/22 13:00	12.5	50	2.9	137	26.5	R11
9/03/22 14:00	13.1	48	2.9	157	23.0	R11
9/03/22 15:00	13.7	47	2.6	160	23.6	R11
9/03/22 16:00	14.2	46	2.1	202	22.5	R11
9/03/22 17:00	14.2	47	2.4	156	25.9	R11
9/03/22 18:00	13.6	48	2.9	131	23.8	R11
9/03/22 19:00	13.5	50	2.6	155	30.4	R11
9/03/22 20:00	12.5	55	3.2	138	36.6	R11
9/03/22 21:00	11.0	62	3.1	137	39.2	R11
9/03/22 22:00	10.1	66	2.8	132	41.4	R11
9/03/22 23:00	9.1	72	2.3	123	39.2	R11
9/04/22 0:00	8.8	74	2.2	112	38.8	R11
9/04/22 1:00	8.4	77	2.3	101	39.4	R11
9/04/22 2:00	8.1	76	1.6	114	39.7	R11
9/04/22 3:00	7.6	79	1.6	103	39.4	R11
9/04/22 4:00	7.1	83	2.2	78	38.8	R11
9/04/22 5:00	6.7	86	2.1	89	38.5	R11
9/04/22 6:00	6.6	91	2.0	115	44.1	R11
9/04/22 7:00	6.2	95	1.7	99	37.6	R11
9/04/22 8:00	6.7	93	2.1	107	38.2	R11
9/04/22 9:00	8.3	92	1.5	103	33.6	R11
9/04/22 10:00	9.9	88	2.2	125	27.1	R11
9/04/22 11:00	12.1	81	2.9	139	26.2	R11
9/04/22 12:00	13.4	74	3.3	140	29.3	R11
9/04/22 13:00	13.8	72	3.7	140	31.9	R11
9/04/22 14:00	14.5	70	4.1	151	27.8	R11
9/04/22 15:00	14.6	69	3.4	137	27.6	R11
9/04/22 16:00	14.9	67	3.3	142	25.9	R11
9/04/22 17:00	15.5	64	3.3	134	26.0	R11
9/04/22 18:00	15.5	64	3.5	135	35.6	R11
9/04/22 19:00	15.2	64	3.4	141	33.2	R11
9/04/22 20:00	14.0	67	4.0	136	37.9	R11
9/04/22 21:00	12.2	73	3.6	130	40.1	R11
9/04/22 22:00	10.9	78	3.5	120	43.4	R11
9/04/22 23:00	9.9	82	3.9	120	42.6	R11

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
9/05/22 0:00	9.6	84	4.4	140		R11
9/05/22 1:00	9.2	88	4.0	144	40.5	R11
9/05/22 2:00	9.1	89	4.0	151	44.2	R11
9/05/22 3:00	8.8	90	4.8	140		R11
9/05/22 4:00	8.4	92	5.3	141		R11
9/05/22 5:00	8.1	93	6.0	142		R11
9/05/22 6:00	7.8	92	6.9	141		R11
9/05/22 7:00	7.9	90	6.3	150		R11
9/05/22 8:00	8.0	90	6.8	140		R11
9/05/22 9:00	8.3	89	9.1	142		R11
9/05/22 10:00	8.5	86	10.4	144		R11
9/05/22 11:00	8.9	83	9.4	144		R11
9/05/22 12:00	9.4	77	9.9	140		R11
9/05/22 13:00	9.8	72	11.5	140		R11
9/05/22 14:00	10.4	71	12.0	139		R11
9/16/22 15:00	6.0	74	1.4	217		R9
9/16/22 16:00	6.5	72	2.2	199	26.7	R9
9/16/22 17:00	6.2	73	2.5	159	27.9	R9
9/16/22 18:00	6.0	74	3.4	129	31.9	R9
9/16/22 19:00	5.6	77	4.0	124	38.4	R9
9/16/22 20:00	5.3	81	4.7	124		R9
9/16/22 21:00	4.9	84	5.1	127		R9
9/16/22 22:00	4.7	86	4.9	132		R9
9/16/22 23:00	5.0	86	5.4	144		R9
9/17/22 0:00	4.9	85	5.6	139		R9
9/17/22 1:00	5.0	86	5.7	140		R9
9/17/22 2:00	4.5	89	6.2	138		R9
9/17/22 3:00	4.4	90	6.2	135		R9
9/17/22 4:00	4.8	87	7.6	137		R9
9/17/22 5:00	4.8	87	8.0	146		R9
9/17/22 6:00	4.5	90	7.9	151		R9
9/17/22 7:00	4.2	89	7.8	150		R9
9/17/22 8:00	3.9	92	7.1	150		R9
9/17/22 9:00	4.0	94	7.5	151		R9
9/17/22 10:00	4.2	97	7.0	152		R9
9/17/22 11:00	4.6	99	7.1	147		R9
9/17/22 12:00	5.3	99	6.6	148		R9

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
9/17/22 13:00	6.0	99	6.6	156		R9
9/17/22 14:00	6.9	98	7.1	168		R9
9/17/22 15:00	7.3	97	6.3	165		R9
9/17/22 16:00	8.3	95	5.1	163		R9
9/17/22 17:00	10.5	91	5.1	171		R9
9/17/22 18:00	11.4	88	3.9	157	26.7	R9
9/17/22 19:00	10.6	90	2.7	152	21.6	R9
9/17/22 20:00	9.8	92	2.3	182	31.6	R9
9/17/22 21:00	9.2	94	3.3	274	30.1	R9
9/17/22 22:00	8.1	98	4.4	295		R9
9/17/22 23:00	7.2	98	4.4	279		R9
9/18/22 0:00	6.6	98	5.6	284		R9
9/18/22 1:00	5.7	98	6.6	300		R9
9/18/22 2:00	5.3	96	4.7	307		R9
9/18/22 3:00	5.2	95	5.0	303		R9
9/18/22 4:00	4.8	94	5.3	305		R9
9/18/22 5:00	4.1	92	5.8	304		R9
9/18/22 6:00	3.4	95	3.8	306	28.1	R9
9/18/22 7:00	3.5	95	3.3	284	24.9	R9
9/18/22 8:00	3.5	96	3.4	269	29.8	R9
9/18/22 9:00	3.9	94	3.6	270	31.3	R9
9/18/22 10:00	5.0	91	4.3	263		R9
9/18/22 11:00	7.3	81	5.2	264		R9
9/18/22 12:00	9.1	71	6.0	264		R9
9/18/22 13:00	9.4	69	6.8	263		R9
9/18/22 14:00	10.0	69	6.8	272		R9
9/18/22 15:00	10.3	69	6.2	287		R9
9/18/22 16:00	10.4	64	6.5	294		R9
9/18/22 17:00	9.8	63	6.4	302		R9
9/18/22 18:00	8.9	67	5.0	310		R9
9/18/22 19:00	7.9	71	4.7	307		R9
9/18/22 20:00	6.9	76	4.1	305	35.8	R9
9/18/22 21:00	5.9	82	2.9	322	35.1	R9
9/18/22 22:00	5.1	81	2.3	345	37.0	R9
9/18/22 23:00	4.1	83	2.2	347	38.5	R9
9/19/22 0:00	3.2	85	3.5	333	33.3	R9
9/19/22 1:00	2.7	85	2.4	339	33.0	R9
9/19/22 2:00	2.6	86	2.6	330	31.5	R9

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
9/19/22 3:00	2.1	93	2.3	333	32.1	R9
9/19/22 4:00	1.7	98	2.3	336	29.6	R9
9/19/22 5:00	1.5	100	1.6	335	32.4	R9
9/19/22 6:00	1.4	100	2.0	342	31.7	R9
9/19/22 7:00	1.3	100	1.5	354	32.8	R9
9/19/22 8:00	1.1	100	1.0	48	35.3	R9
9/19/22 9:00	1.2	100	2.2	2	38.6	R9
9/19/22 10:00	1.6	97	2.6	24	40.3	R9
9/19/22 11:00	2.7	87	2.3	61	40.9	R9
9/19/22 12:00	3.9	81	2.0	42	39.3	R9
9/19/22 13:00	4.1	78	1.8	44	39.0	R9
9/19/22 14:00	4.1	78	2.3	27	37.5	R9
9/19/22 15:00	4.1	77	2.5	37	38.0	R9
9/19/22 16:00	4.1	76	2.4	54	37.7	R9
9/19/22 17:00	4.1	74	2.7	57	36.6	R9
9/19/22 18:00	3.7	74	2.8	60	35.1	R9
9/19/22 19:00	3.3	75	2.1	54	29.8	R9
9/19/22 20:00	3.0	74	2.5	57	27.4	R9
9/19/22 21:00	2.8	79	1.2	63	28.6	R9
9/19/22 22:00	2.4	87	0.7	40	29.5	R9
9/19/22 23:00	2.1	91	1.5	1	26.4	R9
9/20/22 0:00	1.6	94	0.9	27	27.4	R9
9/20/22 1:00	1.5	93	0.8	41	20.7	R9
9/20/22 2:00	1.5	93	1.1	23	23.2	R9
9/20/22 3:00	0.8	95	1.8	61	23.0	R9
9/20/22 4:00	0.8	93	1.2	58	19.2	R9
9/20/22 5:00	0.3	95	0.7	65	18.2	R9
9/20/22 6:00	0.2	95	0.7	66	20.6	R9
9/20/22 7:00	0.0	96	0.7	46	19.5	R9
9/20/22 8:00	0.0	98	0.8	63	21.7	R9
9/20/22 9:00	0.0	97	1.7	67	22.6	R9
9/20/22 10:00	0.2	94	1.6	61	21.7	R9
9/20/22 11:00	0.7	92	1.4	56	23.8	R9
9/20/22 12:00	1.2	91	1.2	40	25.9	R9
9/20/22 13:00	1.9	85	1.4	10	29.4	R9
9/20/22 14:00	2.4	81	2.3	332	27.8	R9
9/20/22 15:00	2.7	77	2.4	345	32.8	R9

**App. Table 3. Average hourly air temperature, relative humidity, wind speed, and wind direction for the Whale Tail Mine weather station and valid calculated 1-h  $L_{eq}$  values for far-field station R12. Those filtered out from analyses based on unacceptable weather conditions and set up/take down are excluded (blank).**

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	$L_{eq}$ 1 h (dBA)	Station
9/16/22 15:00	6.0	74	1.4	217		R12
9/16/22 16:00	6.5	72	2.2	199	22.9	R12
9/16/22 17:00	6.2	73	2.5	159	29.0	R12
9/16/22 18:00	6.0	74	3.4	129	31.1	R12
9/16/22 19:00	5.6	77	4.0	124	33.9	R12
9/16/22 20:00	5.3	81	4.7	124		R12
9/16/22 21:00	4.9	84	5.1	127		R12
9/16/22 22:00	4.7	86	4.9	132		R12
9/16/22 23:00	5.0	86	5.4	144		R12
9/17/22 0:00	4.9	85	5.6	139		R12
9/17/22 1:00	5.0	86	5.7	140		R12
9/17/22 2:00	4.5	89	6.2	138		R12
9/17/22 3:00	4.4	90	6.2	135		R12
9/17/22 4:00	4.8	87	7.6	137		R12
9/17/22 5:00	4.8	87	8.0	146		R12
9/17/22 6:00	4.5	90	7.9	151		R12
9/17/22 7:00	4.2	89	7.8	150		R12
9/17/22 8:00	3.9	92	7.1	150		R12
9/17/22 9:00	4.0	94	7.5	151		R12
9/17/22 10:00	4.2	97	7.0	152		R12
9/17/22 11:00	4.6	99	7.1	147		R12
9/17/22 12:00	5.3	99	6.6	148		R12
9/17/22 13:00	6.0	99	6.6	156		R12
9/17/22 14:00	6.9	98	7.1	168		R12
9/17/22 15:00	7.3	97	6.3	165		R12
9/17/22 16:00	8.3	95	5.1	163		R12
9/17/22 17:00	10.5	91	5.1	171		R12
9/17/22 18:00	11.4	88	3.9	157	23.4	R12
9/17/22 19:00	10.6	90	2.7	152	19.5	R12
9/17/22 20:00	9.8	92	2.3	182	27.1	R12
9/17/22 21:00	9.2	94	3.3	274	34.3	R12
9/17/22 22:00	8.1	98	4.4	295		R12
9/17/22 23:00	7.2	98	4.4	279		R12
9/18/22 0:00	6.6	98	5.6	284		R12
9/18/22 1:00	5.7	98	6.6	300		R12

Date and Time	Avg. Air Temp. (°C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)	L <sub>eq</sub> 1 h (dBA)	Station
9/18/22 2:00	5.3	96	4.7	307		R12
9/18/22 3:00	5.2	95	5.0	303		R12
9/18/22 4:00	4.8	94	5.3	305		R12
9/18/22 5:00	4.1	92	5.8	304		R12
9/18/22 6:00	3.4	95	3.8	306	31.2	R12
9/18/22 7:00	3.5	95	3.3	284	29.6	R12
9/18/22 8:00	3.5	96	3.4	269	33.6	R12
9/18/22 9:00	3.9	94	3.6	270	36.0	R12
9/18/22 10:00	5.0	91	4.3	263		R12
9/18/22 11:00	7.3	81	5.2	264		R12
9/18/22 12:00	9.1	71	6.0	264		R12
9/18/22 13:00	9.4	69	6.8	263		R12
9/18/22 14:00	10.0	69	6.8	272		R12
9/18/22 15:00	10.3	69	6.2	287		R12
9/18/22 16:00	10.4	64	6.5	294		R12
9/18/22 17:00	9.8	63	6.4	302		R12
9/18/22 18:00	8.9	67	5.0	310		R12
9/18/22 19:00	7.9	71	4.7	307		R12
9/18/22 20:00	6.9	76	4.1	305	30.4	R12
9/18/22 21:00	5.9	82	2.9	322	29.9	R12
9/18/22 22:00	5.1	81	2.3	345	30.7	R12
9/18/22 23:00	4.1	83	2.2	347	32.6	R12
9/19/22 0:00	3.2	85	3.5	333	25.8	R12
9/19/22 1:00	2.7	85	2.4	339	23.9	R12

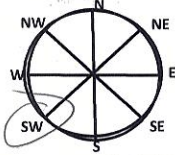
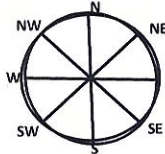
**APPENDIX C**

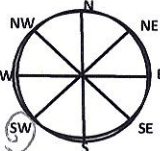
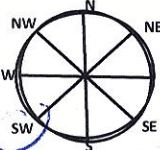
**Field Logs**

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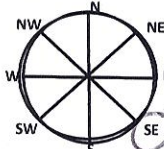
MONITORING STARTS			
Operator: LD AB		Location: R1	
Date: 2022-08-25		Noise Meter Start Time: 16h00	
Calibration complete?: yes		Sensitivity: 48.37	
Deviation: 0.00		Time of Calibration: 15:50	
Battery Power Check: yes		Check available disk memory (Y/N)	
Photographs of Setup (Y/N)		Photographs of Surrounding (Y/N)	
Cloud cover:	cloudy	partly cloudy	sunny
Height of cloud (feet):	0-10,000	10,000-25,000	25,000 +
Air Temperature (C): 10.2		Wind Speed (km/hr): 18	
Wind Direction: North West			
Barometric Pressure (kPa):		Relative Humidity (%): 59.9 %	
Precipitation: None none drizzle rain			
GENERAL SITE DESCRIPTION			
GPS Location	Latitude	Longitude	Altitude
	65°3'6.07 N	96°6'23.08 W	531 m
Type of Ground Surface:			
Acoustic Environment: Helicopter			
Traffic			
Human activities			
Animal: Goose Lots of wind			
Other noise sources			
MONITORING ENDS			
Operator: LD JL		Total Monitoring Period: 47h 46m	
Date: 2022-08-27		Noise Meter End Time: 16h00	
Calibration complete?: yes		Sensitivity: 48.7	
Deviation: 0.02		Time of Calibration: 16h02	
Cloud cover:	cloudy	partly cloudy	sunny
Height of cloud (feet):	0-10,000	10,000-25,000	25,000 +
Air Temperature (C): 8.3		Wind Speed (km/hr): 10.3	
Wind Direction: South East			
Barometric Pressure (kPa):		Relative Humidity (%): 59.9	
Precipitation: none drizzle rain			
Comments:			

MONITORING STARTS			
Operator: FQS, JFD		Location: Rqy R1	
Date: 2022/09/04		Noise Meter Start Time: 14:02	
Calibration complete?: yes		Sensitivity: 48.21	
Deviation: 0.03		Time of Calibration: 13:51	
Battery Power Check: ✓ 100%		Check available disk memory (Y/N)	
Photographs of Setup (Y/N)		Photographs of Surrounding (Y/N)	
Cloud cover: cloudy		partly cloudy	
Height of cloud (feet): 0-10,000		10,000-25,000	
Air Temperature (C): 15.4°C		Wind Speed (km/hr): 8.2	
Wind Direction: Sw			
Barometric Pressure (kPa):		Relative Humidity (%): 69.3	
Precipitation: none		drizzle	
GENERAL SITE DESCRIPTION			
GPS Location	Latitude: 65°3'6.09	Longitude: 96°6'23.08	Altitude: 531
Type of Ground Surface: Acoustic Environment: Traffic: chopper Human activities: Animal: Other noise sources:			
MONITORING ENDS			
Operator: FQS, SS		Total Monitoring Period: 50h 5m	
Date: 2022-09-06		Noise Meter End Time: 4:07 (16h07)	
Calibration complete?: yes		Sensitivity: 48.39	
Deviation: 0.03		Time of Calibration: 16:10	
Cloud cover: fog		cloudy	
Height of cloud (feet): 0-10,000		10,000-25,000	
Air Temperature (C): 9.9		Wind Speed (km/hr): 3.2	
Wind Direction: SE			
Barometric Pressure (kPa):		Relative Humidity (%): 100%	
Precipitation: none		drizzle	
Comments: Tri-pod fall on the side due to high winds			

MONITORING STARTS			
Operator: LD		Location: R2	
Date: 2022-07-07		Noise Meter Start Time: 15:25	
Calibration complete?: Y		Sensitivity: 51.93	
Deviation: -0.07		Time of Calibration: 15112	
Battery Power Check: Y		Check available disk memory (Y/N) Y	
Photographs of Setup (Y/N) Y		Photographs of Surrounding (Y/N) Y	
Cloud cover: cloudy		partly cloudy	
Height of cloud (feet): 0-10,000		10,000-25,000	
Air Temperature (C): 24.8		Wind Speed (km/hr): 3.4	
Wind Direction: SW			
Barometric Pressure (kPa):		Relative Humidity (%): 38.0	
Precipitation: none		drizzle rain	
GENERAL SITE DESCRIPTION			
GPS Location	Latitude	Longitude	Altitude
14111	636795	7214435	191 m
Type of Ground Surface:			
Acoustic Environment:			
Traffic Helicopter / Plan			
Human activities			
Animal Muskoxen near			
Other noise sources Mosquitoes			
MONITORING ENDS			
Operator: NB JL		Total Monitoring Period	
Date: 2022-07-10		Noise Meter End Time: 7h53	
Calibration complete?: Y		Sensitivity: 52.18	
Deviation: 0.07		Time of Calibration: 8h44	
Cloud cover: cloudy		partly cloudy	
Height of cloud (feet): 0-10,000		10,000-25,000	
Air Temperature (C): 13.8		Wind Speed (km/hr): 5.3	
Wind Direction: SW			
Barometric Pressure (kPa):		Relative Humidity (%): 68.1	
Precipitation: none		drizzle rain	
Comments: Bagner Cuikl life different more shot near the station.			

MONITORING STARTS			
Operator: LD/DN		Location: R-3	
Date: 22-07-04		Noise Meter Start Time: 16:00	
Calibration complete?: Yes		Sensitivity: 52.18	
Deviation: -0.01		Time of Calibration: 16:00	
Battery Power Check: Full 100%		Check available disk memory (Y/N)	
Photographs of Setup (Y/N)		Photographs of Surrounding (Y/N)	
Cloud cover:		cloudy	partly cloudy
Height of cloud (feet):		0-10,000	10,000-25,000
Air Temperature (C): 15.7		Wind Speed (km/hr): 9.5	
Wind Direction: N			
Barometric Pressure (kPa):		Relative Humidity (%): 54.5	
Precipitation:		none	drizzle
GENERAL SITE DESCRIPTION			
GPS Location	Latitude	Longitude	Altitude
	65°1'24.52'	96°0'14.01	140 m
Type of Ground Surface:			
Acoustic Environment:			
Traffic			
Human activities			
Animal Birds Helicop w/ Road			
Other noise sources			
MONITORING ENDS			
Operator: LD/DN		Total Monitoring Period: 63.5 hours	
Date: 22-07-07		Noise Meter End Time: 07:30	
Calibration complete?: Yes		Sensitivity: 52.33	
Deviation: 0.02		Time of Calibration: 8:30	
Cloud cover:		cloudy	partly cloudy
Height of cloud (feet):		0-10,000	10,000-25,000
Air Temperature (C): 13.6		Wind Speed (km/hr): 3.0	
Wind Direction: No wind			
Barometric Pressure (kPa):		Relative Humidity (%): 66.5	
Precipitation:		none	drizzle
Error on arrival:			
Comments: An unexpected error has occurred in BasicENV.exe. select Quit and then restart this program or select Detail for more information. Could not convert the system time.			

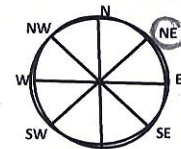
## MONITORING STARTS

Operator: <del>LD-43</del> LD-A13	Location: R4
Date: 2022-08-28	Noise Meter Start Time: <del>8h20</del> 8h30
Calibration complete?: Y	Sensitivity: 48.28
Deviation: -0.04	Time of Calibration: 8h20
Battery Power Check: <del>Y</del>	Check available disk memory (Y/N)
Photographs of Setup (Y/N)	Photographs of Surrounding (Y/N)
Cloud cover: cloudy	partly cloudy
Height of cloud (feet): 0-10,000	10,000-25,000
Air Temperature (C): 6.2	Wind Speed (km/hr): 12 km/h
Wind Direction: South East	
Barometric Pressure (kPa):	Relative Humidity (%): 70.5
Precipitation: none	drizzle


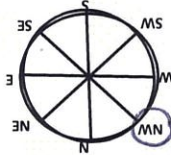
## GENERAL SITE DESCRIPTION

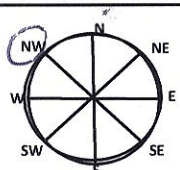
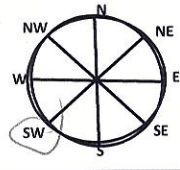
GPS Location	Latitude	Longitude	Altitude
	65°3'46.86"N	96°2'6.68"W	243 m
Type of Ground Surface:			
Acoustic Environment:			
Traffic: Helicopter			
Human activities			
Animal: geosher, crane			
Other noise sources			

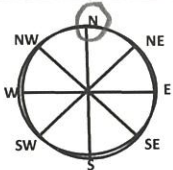
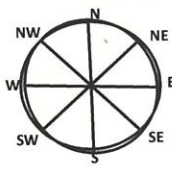
## MONITORING ENDS

Operator: LD. DN	Total Monitoring Period
Date:	Noise Meter End Time: 9h33
Calibration complete?: Y	Sensitivity: 48.39
Deviation: 0.02	Time of Calibration: 9h35
Cloud cover: cloudy	partly cloudy
Height of cloud (feet): 0-10,000	10,000-25,000
Air Temperature (C): 5.8	Wind Speed (km/hr): 9.5
Wind Direction: North East	
Barometric Pressure (kPa):	Relative Humidity (%): 77.5
Precipitation: none	drizzle

Comments: Drizzle on the night of 29<sup>th</sup> to 30<sup>th</sup>

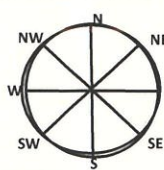
MONITORING STARTS	
Operator: LP-DN	Location: P5
Date: 2022-08-30	Noise Meter Start Time: 16:32
Calibration complete?: Y	Sensitivity: 38.21
Deviation: -0.03	Time of Calibration: 16:30
Battery Power Check: Y	Check available disk memory (Y/N): Y
Photographs of Setup (Y/N): Y	Photographs of Surrounding (Y/N): Y
Cloud cover: cloudy	Height of cloud (feet): 0-10,000
Air Temperature (C): 11.8	Wind Speed (km/hr): 8.17 km/h
Wind Direction: North East	
Barometric Pressure (kPa):	Relative Humidity (%): 70.8
Precipitation: none	drizzle
GENERAL SITE DESCRIPTION	
GPS Location	Latitude: 65° 13' 95"
Longitude: 96° 9' 34.05"	Altitude: 479
Type of Ground Surface:	Acoustic Environment:
Traffic	Human activities
Animal	Other noise sources
Helicopter	Geese
MONITORING ENDS	
Operator: P5, LD	Date: 2022/09/01
Calibration complete?: Y	Sensitivity: 48.28
Time of Calibration: 5:24	Time of Calibration: 5:24
Cloud cover: cloudy	Height of cloud (feet): 10,000-25,000
Air Temperature (C): 10	Wind Speed (km/hr): 6.2
Wind Direction: North West	
Barometric Pressure (kPa):	Relative Humidity (%): 52.4
Precipitation: none	drizzle
Comments:	

MONITORING STARTS			
Operator: FQS, LD		Location: R6	
Date: 2022/09/02		Noise Meter Start Time: 8h 39	
Calibration complete?: <del>49h02</del> Yes		Sensitivity: 48,19	
Deviation: -0,02		Time of Calibration: 8h30	
Battery Power Check: 1/6		Check available disk memory (Y/N)	
Photographs of Setup (Y/N)		Photographs of Surrounding (Y/N)	
Cloud cover: cloudy partly cloudy <u>sunny?</u>			
Height of cloud (feet): 0-10,000 10,000-25,000 25,000 +			
Air Temperature (C): 5,8		Wind Speed (km/hr): 8 km/h	
Wind Direction: North West			
Barometric Pressure (kPa):		Relative Humidity (%): 81,6	
Precipitation: <u>none</u> drizzle rain			
GENERAL SITE DESCRIPTION			
GPS Location: 14W	Latitude: 640708	Longitude: 7221964	Altitude: 512 feet
Type of Ground Surface: Acoustic Environment: Traffic Human activities Animal: <u>Goose</u> Other noise sources			
MONITORING ENDS			
Operator: FOS - JFD		Total Monitoring Period: 49h02	
Date: 2022/09/04		Noise Meter End Time: 9:41	
Calibration complete?: <u>✓</u>		Sensitivity: 48,04	
Deviation: -0,02		Time of Calibration: 9:53	
Cloud cover: <u>Cloudy 90%</u> cloudy <u>partly cloudy</u> sunny			
Height of cloud (feet): <u>0-10,000</u> 10,000-25,000 25,000 +			
Air Temperature (C):		Wind Speed (km/hr): 8,6	
Wind Direction: South West			
Barometric Pressure (kPa):		Relative Humidity (%): 80,3	
Precipitation: <u>none</u> drizzle rain			
Comments: Wind Gust First 24 hours			

MONITORING STARTS			
Operator: <u>Kathleen Newberry</u> <u>Sarah Swiderski</u>		Location: <u>R7</u>	
Date: <u>2022-06-30</u>		Noise Meter Start Time: <u>16:55</u>	
Calibration complete?: <u>Yes</u>		Sensitivity: <u>44.64</u>	
Deviation: <u>-0.66</u>		Time of Calibration: <u>16:50</u>	
Battery Power Check: <u>Yes</u>		Check available disk memory (Y/N) <u>Y</u>	
Photographs of Setup (Y/N) <u>Y</u>		Photographs of Surrounding (Y/N) <u>Y</u>	
Cloud cover: <u>cloudy</u>		<u>partly cloudy</u> <u>sunny</u>	
Height of cloud (feet): <u>0-10,000</u>		<u>10,000-25,000</u> <u>25,000 +</u>	
Air Temperature (C): <u>11.3</u>		Wind Speed (km/hr): <u>11.5</u>	
Wind Direction:			
Barometric Pressure (kPa): <u>101.1</u>		Relative Humidity (%): <u>58.9%</u>	
Precipitation: <u>none</u>		<u>drizzle</u> <u>rain</u>	
GENERAL SITE DESCRIPTION			
GPS Location	Latitude	Longitude	Altitude
<u>14W</u>	<u>620194</u>	<u>7239038</u>	
Type of Ground Surface:			
Acoustic Environment:			
Traffic <u>none</u> Human activities <u>chopper / road.</u> Animal Other noise sources			
MONITORING ENDS			
Operator: <u>Kathleen Newberry, Joannie Lechona</u>		Total Monitoring Period <u>90:38</u>	
Date: <u>2022-07-04</u>		Noise Meter End Time: <u>11:33</u>	
Calibration complete?: <u>—</u>		Sensitivity: <u>—</u>	
Deviation <u>—</u>		Time of Calibration: <u>—</u>	
Cloud cover: <u>cloudy</u>		<u>partly cloudy</u> <u>sunny</u>	
Height of cloud (feet): <u>0-10,000</u>		<u>10,000-25,000</u> <u>25,000 +</u>	
Air Temperature (C): <u>11.6</u>		Wind Speed (km/hr): <u>7.1</u>	
Wind Direction:			
Barometric Pressure (kPa): <u>102.0</u>		Relative Humidity (%): <u>100.0%</u>	
Precipitation: <u>none</u>		<u>drizzle</u> <u>rain</u>	
Comments:			

\*Second deployment recorded on Reverse Side →

# MONITORING STARTS

Operator: SS, KN		Location: R8	
Date: 2022-08-29		Noise Meter Start Time:	
Calibration complete?: Yes		Sensitivity: 52.27	
Deviation: 0.02		Time of Calibration: 9:58	
Battery Power Check: Yes		Check available disk memory (Y/N) Yes.	
Photographs of Setup (Y/N) Yes		Photographs of Surrounding (Y/N) Yes	
Cloud cover: drizzle	cloudy	partly cloudy	sunny
Height of cloud (feet):	0-10,000	10,000-25,000	25,000 +
Air Temperature (C): 7.4		Wind Speed (km/hr): 15	
Wind Direction:  ENE			
Barometric Pressure (kPa): 101.4		Relative Humidity (%): 62.7	
Precipitation: none drizzle rain			

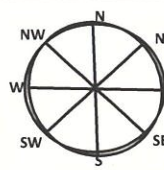
## GENERAL SITE DESCRIPTION

GPS Location	Latitude	Longitude	Altitude
14W	612414	7256890	

Type of Ground Surface: Tundra  
 Acoustic Environment:  
 Traffic - None  
 Human activities - None  
 Animal - Birds heard nearby  
 Other noise sources - Helicopter traffic

Initial deployment only lasted 12hrs as the external battery wouldn't connect to the PDA. We returned the next day and redeployed the monitor using the spare PDA from MBK

## MONITORING ENDS

Operator: E.L		Total Monitoring Period: Initial deployment ~2 hrs / second deployment ~48 hrs	
Date: 2022/09/01		Noise Meter End Time: 10:15	
Calibration complete?: Yes		Sensitivity: 52.19	
Deviation: -0.10		Time of Calibration: 10:18	
Cloud cover: cloudy	partly cloudy	sunny	
Height of cloud (feet):	0-10,000	10,000-25,000	25,000 +
Air Temperature (C): 6.9		Wind Speed (km/hr): 3.5	
Wind Direction:  NNW			
Barometric Pressure (kPa): 101.0		Relative Humidity (%): 57.2	
Precipitation: none drizzle rain			

Comments: Actual Stop time is 10:15am although when talking into the mic I said 9:15, that was a mistake

had some issue with the charging.

deploying again. with the spare one

2022-08-30. sensitivity was

deviation 0.8  
calibrated again

sensitivity 52.81

deviation 0.00

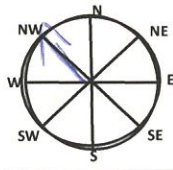
Temp 5.6

H = 1.55

W = 3.8 kmh

101.6 kPa

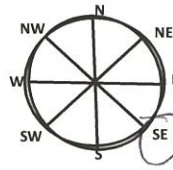
## MONITORING STARTS

Operator: <u>AW EM JO</u>		Location: <u>R9</u>	
Date: <u>2022-09-16</u>		Noise Meter Start Time: <u>15:45</u>	
Calibration complete?: <u>X</u>		Sensitivity: <u>51.80</u>	
Deviation: <u>-0.04</u>		Time of Calibration: <u>15:40</u>	
Battery Power Check: <u>✓</u>		Check available disk memory (Y/N) <u>✓</u>	
Photographs of Setup (Y/N) <u>✓</u>		Photographs of Surrounding (Y/N) <u>✓</u>	
Cloud cover: <u>cloudy</u>		<u>partly cloudy</u> <u>sunny</u>	
Height of cloud (feet): <u>0-10,000</u>		<u>10,000-25,000</u> <u>25,000+</u>	
Air Temperature (C): <u>4.6</u>		Wind Speed (km/hr): <u>15.9, Avg. 7</u>	
Wind Direction:			
Barometric Pressure (kPa): <u>101</u>		Relative Humidity (%): <u>74.8</u>	
Precipitation: <u>none</u> <u>drizzle</u> <u>rain</u>			

## GENERAL SITE DESCRIPTION

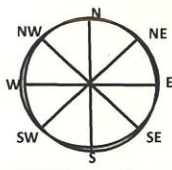
GPS Location	Latitude	Longitude	Altitude
	<u>603301</u>	<u>7256750</u>	<u>480 ft</u>
Type of Ground Surface:			
Acoustic Environment:			
Traffic <u>mine.</u>			
Human activities <u>helicopter.</u>			
Animal			
Other noise sources			

## MONITORING ENDS

Operator: <u>E-T, KN</u>		Total Monitoring Period <u>95:50</u>	
Date: <u>2022-09-23</u>		Noise Meter End Time: <u>2022-09-20 3:35 PM</u> <u>2022-09-20 16:15</u>	
Calibration complete?: <u>No battery dead.</u>		Sensitivity: <u>N/A</u>	
Deviation: <u>*Noise meter not working*</u>		Time of Calibration: <u>N/A</u>	
Cloud cover: <u>can't calibrate.</u>		<u>cloudy</u> <u>partly cloudy</u> <u>sunny</u>	
Height of cloud (feet): <u>0-10,000</u>		<u>10,000-25,000</u> <u>25,000+</u>	
Air Temperature (C): <u>0.6</u>		Wind Speed (km/hr): <u>20</u>	
Wind Direction: <u>SE</u>			
Barometric Pressure (kPa): <u>99.5</u>		Relative Humidity (%): <u>80.9</u>	
Precipitation: <u>none</u> <u>drizzle</u> <u>rain</u>			

Comments: calibration done at office. - no battery when retrieved NOISE NOT WORKING

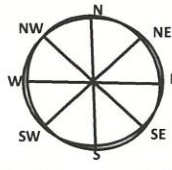
## MONITORING STARTS

Operator: K.N, E.L, S.S		Location: R-10	
Date: 2022-08-25		Noise Meter Start Time: 15:40	
Calibration complete?: Y		Sensitivity: 52.16	
Deviation: 0.02		Time of Calibration: 15:25	
Battery Power Check: Y		Check available disk memory (Y/N)	
Photographs of Setup (Y/N) Y		Photographs of Surrounding (Y/N)	
Cloud cover: Y <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">cloudy</span> partly cloudy sunny			
Height of cloud (feet): <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">0-10,000</span> 10,000-25,000 25,000 +			
Air Temperature (C): 8.7		Wind Speed (km/hr): 17.6	
Wind Direction: NW			
Barometric Pressure (kPa): 101		Relative Humidity (%): 54	
Precipitation: <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">none</span> drizzle rain			

## GENERAL SITE DESCRIPTION


GPS Location	Latitude	Longitude	Altitude
14W	608154	7250529	
Type of Ground Surface: Tundra			
Acoustic Environment:			
Traffic	helicopter	wildlife	
Human activities	Road WTHR		
Animal			
Other noise sources			

## MONITORING ENDS

Operator: EL KN		Total Monitoring Period: 70:15	
Date: 2022-08-28		Noise Meter End Time: 13:55	
Calibration complete?: Y		Sensitivity: 52.13	
Deviation: 0.00		Time of Calibration: 13:58	
Cloud cover: <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">cloudy</span> partly cloudy sunny			
Height of cloud (feet): <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">0-10,000</span> 10,000-25,000 25,000 +			
Air Temperature (C): 9.0		Wind Speed (km/hr): 10.8	
Wind Direction: SE			
Barometric Pressure (kPa): 101.2 kPa		Relative Humidity (%): 52	
Precipitation: <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">none</span> drizzle rain			

Comments:


## MONITORING STARTS

Operator: <u>Laurence Archambault, Eric Leonard</u>	Location: <u>R11</u>
Date: <u>2022-09-02</u>	Noise Meter Start Time: <u>17:05</u>
Calibration complete?: <u>Y</u>	Sensitivity: <u>51.78</u>
Deviation: <u>-0.07</u>	Time of Calibration: <u>16:55</u>
Battery Power Check: <u>Y</u>	Check available disk memory (Y/N) <u>Y</u>
Photographs of Setup (Y/N) <u>Y</u>	Photographs of Surrounding (Y/N) <u>Y</u>
Cloud cover: <u>cloudy</u>	partly cloudy
Height of cloud (feet): <u>0-10,000</u>	10,000-25,000
Air Temperature (C): <u>13.6</u>	Wind Speed (km/hr): <u>18.5</u>
Wind Direction:	
Barometric Pressure (kPa): <u>101.8</u>	Relative Humidity (%): <u>50.1</u>
Precipitation: <u>none</u>	drizzle



## GENERAL SITE DESCRIPTION

GPS Location	Latitude	Longitude	Altitude
	<u>44.65.432055</u>	<u>-96.698504</u>	<u>158m</u>
Type of Ground Surface: <u>Tundra, rocks</u>			
Acoustic Environment:			
Traffic			
Human activities			
Animal			
Other noise sources: <u>chopper, boat (?)</u>			

## MONITORING ENDS

Operator: <u>LA EL KM</u>	Total Monitoring Period: <u>65h 6min</u>
Date: <u>2022/09/05</u>	Noise Meter End Time: <u>14:38</u>
Calibration complete?: <u>Y</u>	Sensitivity: <u>52.03</u>
Deviation: <u>0.04</u>	Time of Calibration: <u>14:44</u>
Cloud cover: <u>cloudy</u>	partly cloudy
Height of cloud (feet): <u>0-10,000</u>	10,000-25,000
Air Temperature (C): <u>10.2</u>	Wind Speed (km/hr): <u>35.9</u>
Wind Direction:	
Barometric Pressure (kPa): <u>100.5 kPa</u>	Relative Humidity (%): <u>52.2</u>
Precipitation: <u>none</u>	drizzle

Comments: Tripod fell over, Super windy today

MONITORING STARTS			
Operator: <u>RW Em JO</u>		Location: <u>RMax</u>	
Date: <u>2022-09-16</u>		Noise Meter Start Time: <u>15:15</u>	
Calibration complete?: <u>Y</u>		Sensitivity: <u>46.55</u>	
Deviation: <u>-0.34</u>		Time of Calibration: <u>15:15</u>	
Battery Power Check: <u>✓</u>		Check available disk memory (Y/N) <u>Y</u>	
Photographs of Setup (Y/N) <u>Y</u>		Photographs of Surrounding (Y/N) <u>Y</u>	
Cloud cover: <u>cloudy</u> <u>partly cloudy</u> <u>sunny</u>			
Height of cloud (feet): <u>0-10,000</u> <u>10,000-25,000</u> <u>25,000 +</u>			
Air Temperature (C): <u>4.6C</u>		Wind Speed (km/hr): <u>3.8km</u>	
Wind Direction:			
Barometric Pressure (kPa): <u>101</u>		Relative Humidity (%): <u>69.6</u>	
Precipitation: <u>none</u> <u>drizzle</u> <u>rain</u>			
GENERAL SITE DESCRIPTION			
GPS Location	Latitude	Longitude	Altitude
	<u>594641</u>	<u>725632</u>	<u>527 ft</u>
Type of Ground Surface:			
Acoustic Environment:			
Traffic			
Human activities			
Animal			
Other noise sources			
MONITORING ENDS			
Operator: <u>ET-KN</u>		Total Monitoring Period: <u>57:55</u>	
Date: <u>2022-09-23</u>		Noise Meter End Time: <u>2022-09-19 1:10 AM</u>	
Calibration complete?: <u>No</u>		Sensitivity: <u>48.27</u>	
Deviation: <u>0.32</u>		Time of Calibration: <u>2022-09-24 - 5:41 AM</u>	
Cloud cover: <u>cloudy</u> <u>partly cloudy</u> <u>sunny</u>			
Height of cloud (feet): <u>0-10,000</u> <u>10,000-25,000</u> <u>25,000 +</u>			
Air Temperature (C): <u>0.6</u>		Wind Speed (km/hr): <u>30</u>	
Wind Direction: <u>SE</u>			
Barometric Pressure (kPa): <u>99.5</u>		Relative Humidity (%): <u>80.9</u>	
Precipitation: <u>NONE</u> <u>none</u> <u>drizzle</u> <u>rain</u>			
Comments: <u>calibration done at office - No battery when retrieved.</u>			