

Ambient Air and Sound  
Monthly Report

**STONEY TRAIL AGGREGATE RESOURCE**

**BURNCO**

**LAFARGE**



**Volker Stevin**  
Contracting Ltd.



**Heidelberg  
Materials**

February 2025

# **Glossary**

- L<sub>eq</sub>** - Equivalent Continuous Sound Pressure Level. The total sound energy logged over the course of a measurement. (Uses logarithmic averaging).
- L<sub>eq24</sub>** - Measured over the entire 24-period (00:00 – 23:59)
- L<sub>eqDay</sub>** - Measured over the daytime period (07:00 – 22:00)
- L<sub>eqNight</sub>** - Measured over the nighttime period (22:00 – 07:00)
- SPL (dBA)** - Sound Pressure Level in dBA (A-weighted, which is corrected for human hearing)
- TSP** - Total Suspended Particulate Matter. Includes particulates with a diameter of greater than 10 micrometers and smaller.
- PM<sub>2.5</sub>** - Particulate Matter with a diameter of 2.5 micrometers and smaller.

## 1.0 SOUND LEVEL MEASUREMENT RESULTS

The results of the sound monitoring at the STAR Pit can be found in Table 1. Table 1 provides the daily averaged  $L_{eq24}$ ,  $L_{eqDay}$  and  $L_{eqNight}$  sound levels in addition to the minimum and maximum  $L_{eq24}$  values.

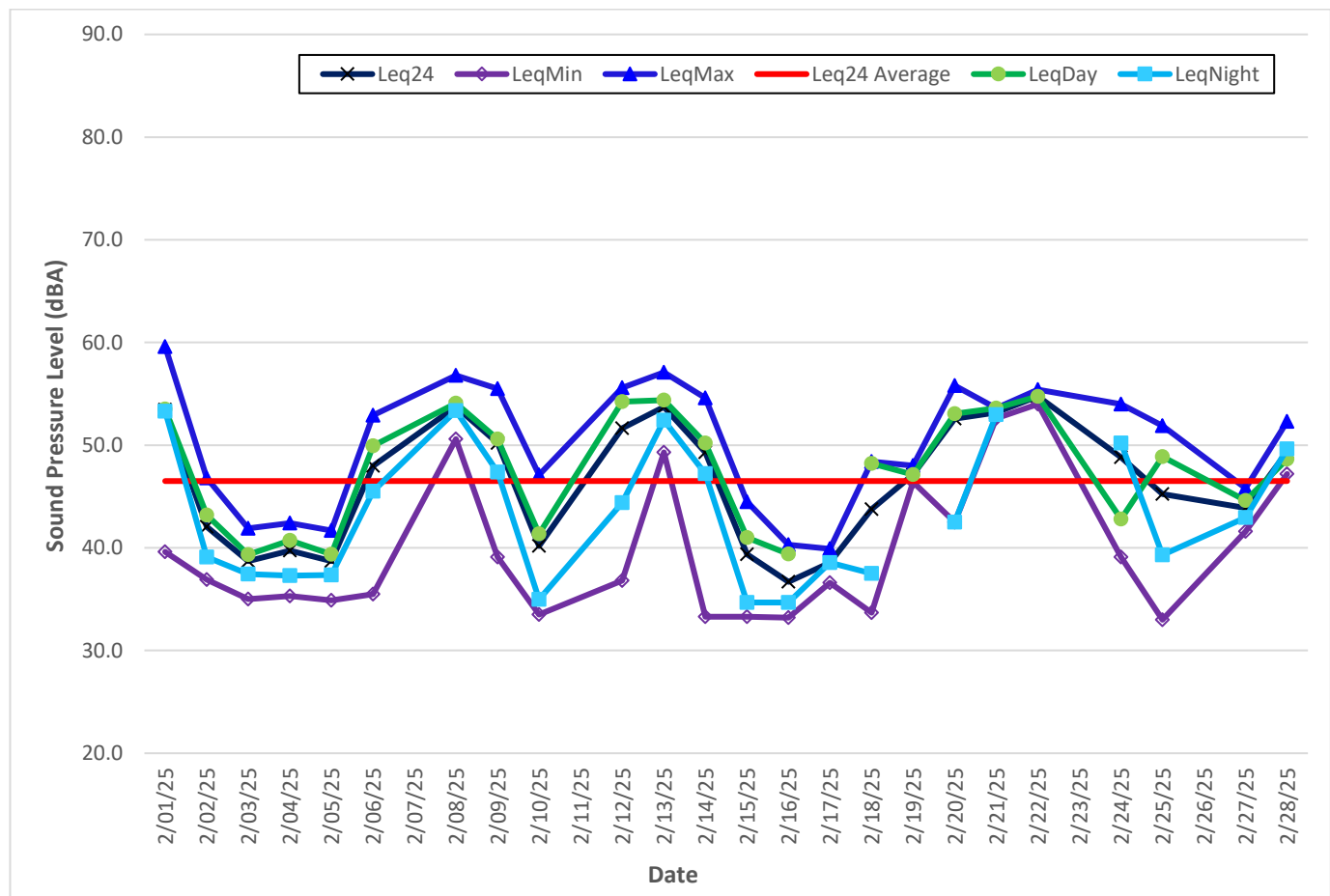
**Table 1. February 2025 – STAR PIT – Sound Monitoring Results<sup>1</sup>**

Day	Leq24	L <sub>eq</sub> Min	L <sub>eq</sub> Max	LeqDay	LeqNight
Saturday 01-Feb-25	53.4	39.6	59.6	53.5	53.3
Sunday 02-Feb-25	42.1	36.9	46.8	43.2	39.1
Monday 03-Feb-25	38.7	35.0	41.9	39.3	37.4
Tuesday 04-Feb-25	39.7	35.3	42.4	40.7	37.3
Wednesday 05-Feb-25	38.7	34.9	41.7	39.4	37.4
Thursday 06-Feb-25	48.0	35.5	52.9	49.9	45.5
Friday 07-Feb-25	52.2	44.5	54.1	53.4	52.0
Saturday 08-Feb-25	53.7	50.6	56.8	54.1	53.4
Sunday 09-Feb-25	50.2	39.1	55.5	50.6	47.4
Monday 10-Feb-25	40.2	33.5	47.1	41.3	35.0
Tuesday 11-Feb-25	44.2	37.1	51.2	45.2	37.2
Wednesday 12-Feb-25	51.7	36.8	55.6	54.2	44.4
Thursday 13-Feb-25	53.7	49.3	57.1	54.4	52.4
Friday 14-Feb-25	49.3	33.3	54.6	50.2	47.2
Saturday 15-Feb-25	39.4	33.3	44.5	41.0	34.7
Sunday 16-Feb-25	36.7	33.2	40.3	39.4	34.7
Monday 17-Feb-25	38.6	36.6	39.9		38.6
Tuesday 18-Feb-25	43.8	33.7	48.4	48.2	37.5
Wednesday 19-Feb-25	47.1	46.4	48.0	47.1	
Thursday 20-Feb-25	52.6	42.5	55.8	53.0	42.5
Friday 21-Feb-25	53.2	52.6	53.6	53.6	53.0
Saturday 22-Feb-25	54.8	54.0	55.4	54.8	
Sunday 23-Feb-25	No Data				
Monday 24-Feb-25	48.8	39.1	54.0	42.8	50.2
Tuesday 25-Feb-25	45.3	33.0	51.9	48.9	39.3
Wednesday 26-Feb-25	No Data				
Thursday 27-Feb-25	43.9	41.6	45.8	44.6	43.0
Friday 28-Feb-25	49.4	47.2	52.3	48.7	49.6
Monthly Average	46.5	39.8	50.3	47.7	43.4
Monthly Maximum	54.8	54.0	59.6	54.8	53.4
Monthly Minimum	36.7	33.0	39.9	39.3	34.7

<sup>1</sup> It should be noted that all measured sound levels provided in Table 1 are for instances in which the wind speeds were below 11 km/hr and rainfall was below 3mm/hr, as both conditions will impact the validity of the measured results. As such, it is possible that there will time periods/days in which there is no valid data.

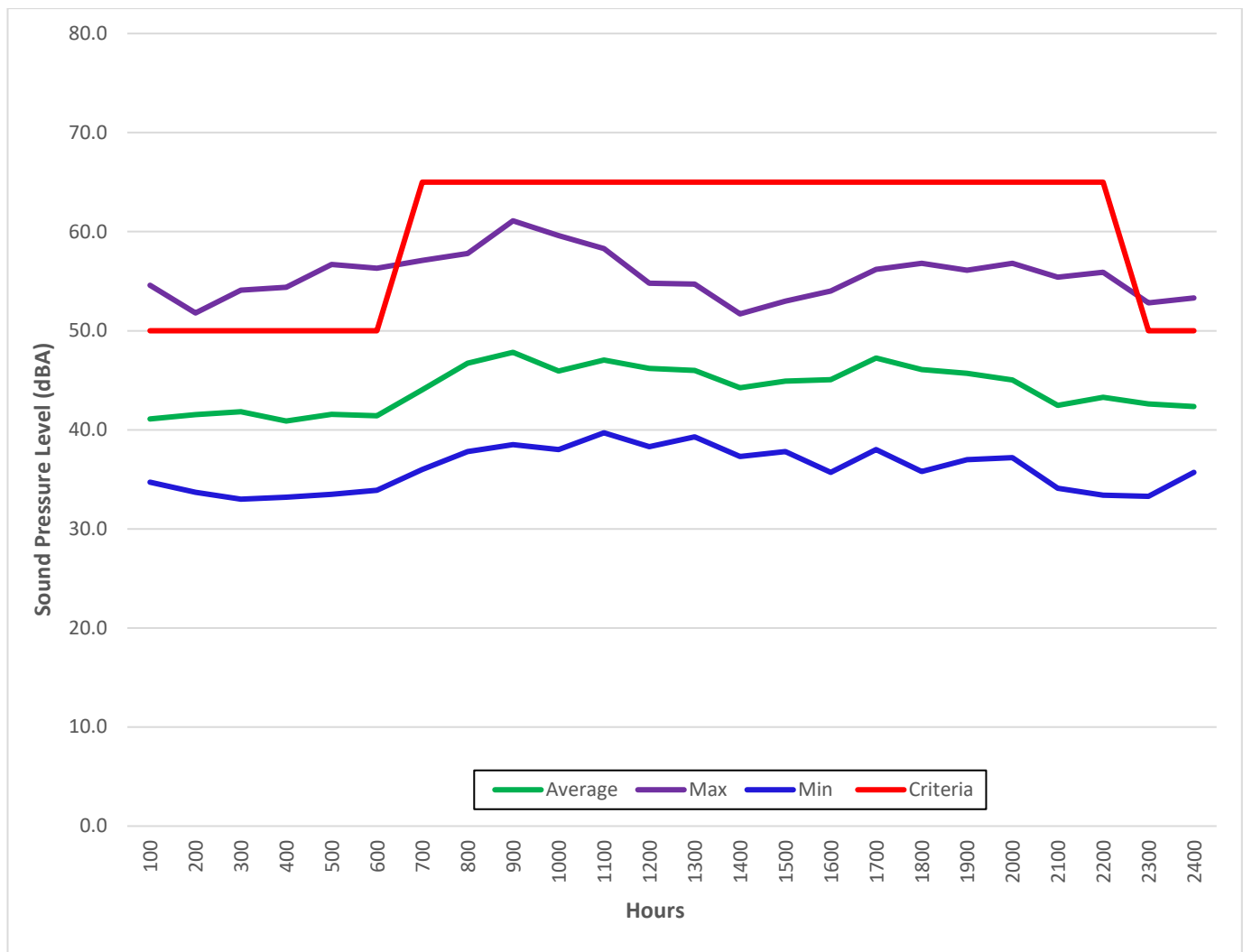
Figure 1 provides the graphical representation of the results found in Table 1. Figure 2 illustrates the hourly average, maximum and minimum  $L_{eq}$  dBA values for the entire month. In addition, the City of Calgary's Community Standards Bylaw values have been included.

It is important to note that the monitoring stations are located inside the perimeter berms, adjacent to operations and not beyond the site boundaries. Measurements are intended to help monitor and measure the internal operations performance and are not representative of the lower offsite levels.



**Figure 1. STAR PIT – February 2025 – Daily Sound Monitoring Results<sup>2</sup>**

<sup>2</sup> Values of 30 were given to dates in which there was no data. This was to allow for the creation of the graph. The values within Table 1 are correctly calculated ignoring the dates of no data (due to wind or rain).



**Figure 2. STAR PIT – February 2025 – Hourly Sound Monitoring Summary**

## 2.0 SOUND LEVEL EXCEEDANCES

As per the development permit, the permissible sound level for this site is 50 dBA  $L_{eq}$ -1Hour for the nighttime and 65 dBA  $L_{eq}$ -1Hour for the daytime hours. As shown in Table 2, from February 1 to February 28, 2025, there were 25 exceedances. All exceedances occurred during the nighttime.

**Table 2. STAR PIT – February 2025 – Sound Level Exceedances**

Date	$L_{eq}$ 1-hour (dBA)	Wind Speed (Km/hr)	Temperature (°C)	Wind Direction	Hourly Rainfall (mm)	Day/Night
Feb-01-2025 01:00	50.1	5.8	-11.2	South-West	0.00	Night
Feb-01-2025 03:00	53.8	5.8	-11.7	South-West	0.00	Night
Feb-01-2025 04:00	56.7	5.8	-12.0	South-West	0.00	Night
Feb-01-2025 05:00	56.3	5.8	-12.3	South-West	0.00	Night
Feb-06-2025 23:00	50.3	7.9	-13.2	South-West	0.00	Night
Feb-07-2025 01:00	50.6	9.0	-14.1	South-West	0.00	Night
Feb-07-2025 02:00	54.1	9.5	-13.5	South	0.00	Night
Feb-07-2025 03:00	53.6	9.9	-13.7	South	0.00	Night
Feb-07-2025 04:00	53.4	9.9	-13.9	South	0.00	Night
Feb-07-2025 05:00	52.0	7.9	-14.4	South	0.00	Night
Feb-08-2025 02:00	54.0	10.8	-15.8	South-West	0.00	Night
Feb-08-2025 03:00	54.4	10.4	-15.6	West	0.00	Night
Feb-08-2025 04:00	54.1	10.4	-15.1	West	0.00	Night
Feb-08-2025 22:00	51.6	7.7	-13.1	South-West	0.00	Night
Feb-08-2025 23:00	51.9	6.8	-12.4	West	0.00	Night
Feb-13-2025 03:00	50.5	8.8	-11.0	North-West	0.00	Night
Feb-13-2025 04:00	54.4	8.0	-12.5	North-West	0.00	Night
Feb-13-2025 05:00	52.7	4.6	-12.8	North	0.00	Night
Feb-13-2025 22:00	52.8	10.1	-17.1	North	0.00	Night
Feb-14-2025 00:00	54.6	6.6	-18.8	North	0.00	Night
Feb-21-2025 22:00	52.6	9.7	3.9	South-West	0.00	Night
Feb-21-2025 23:00	53.3	10.5	3.8	South-West	0.00	Night
Feb-24-2025 01:00	51.8	7.7	2.9	South-West	0.00	Night
Feb-24-2025 02:00	54.0	10.7	2.4	South-West	0.00	Night
Feb-28-2025 22:00	52.3	11.0	2.4	South	0.00	Night

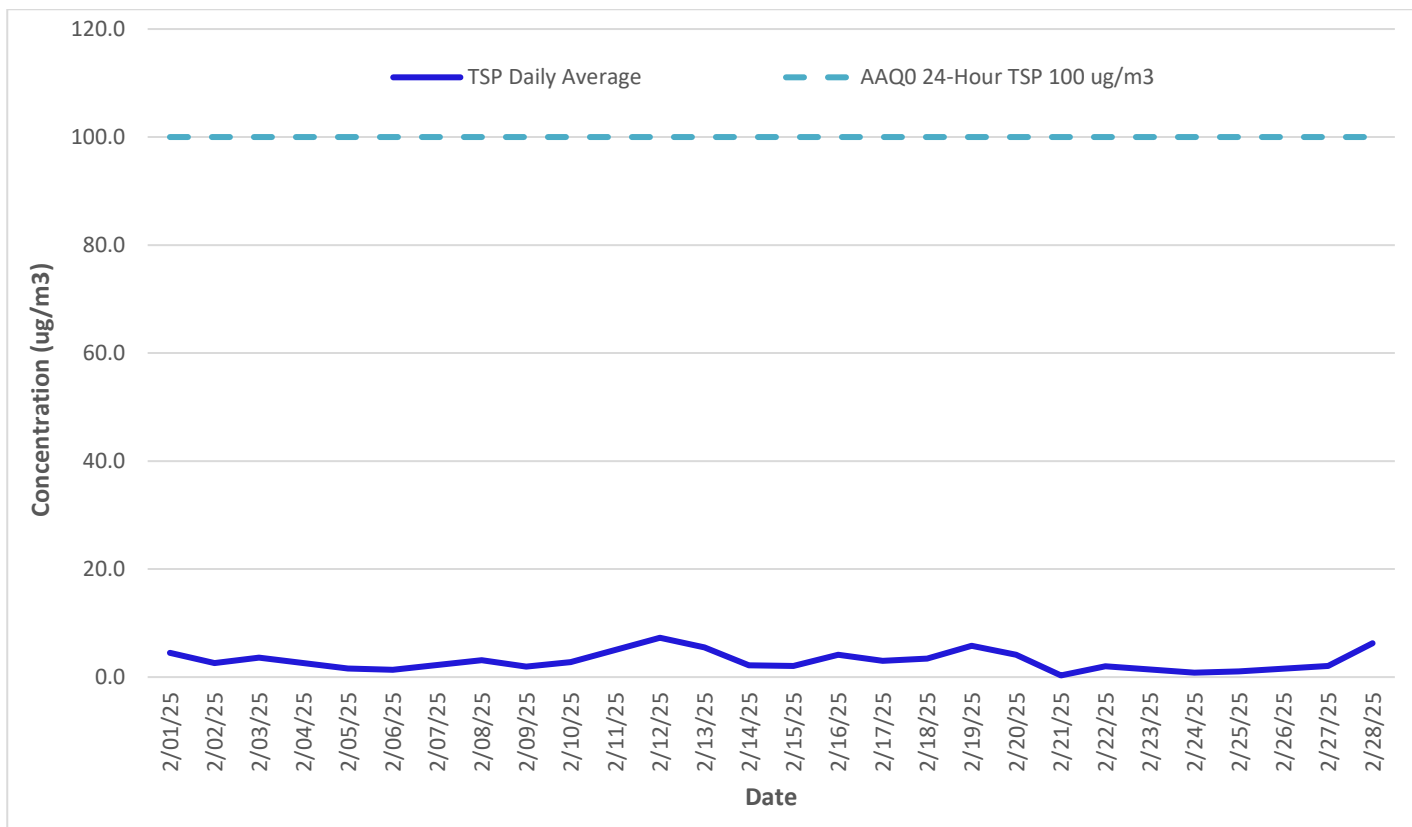
### 3.0 PARTICULATE RESULTS

As per development permit the air quality threshold values of particulate matter for this site are of 100 µg/m³ for TSP Daily, 29 µg/m³ for the PM2.5 Daily and 80 µg/m³ for the PM2.5 Hourly. As shown in Table 3, there were no exceedances.

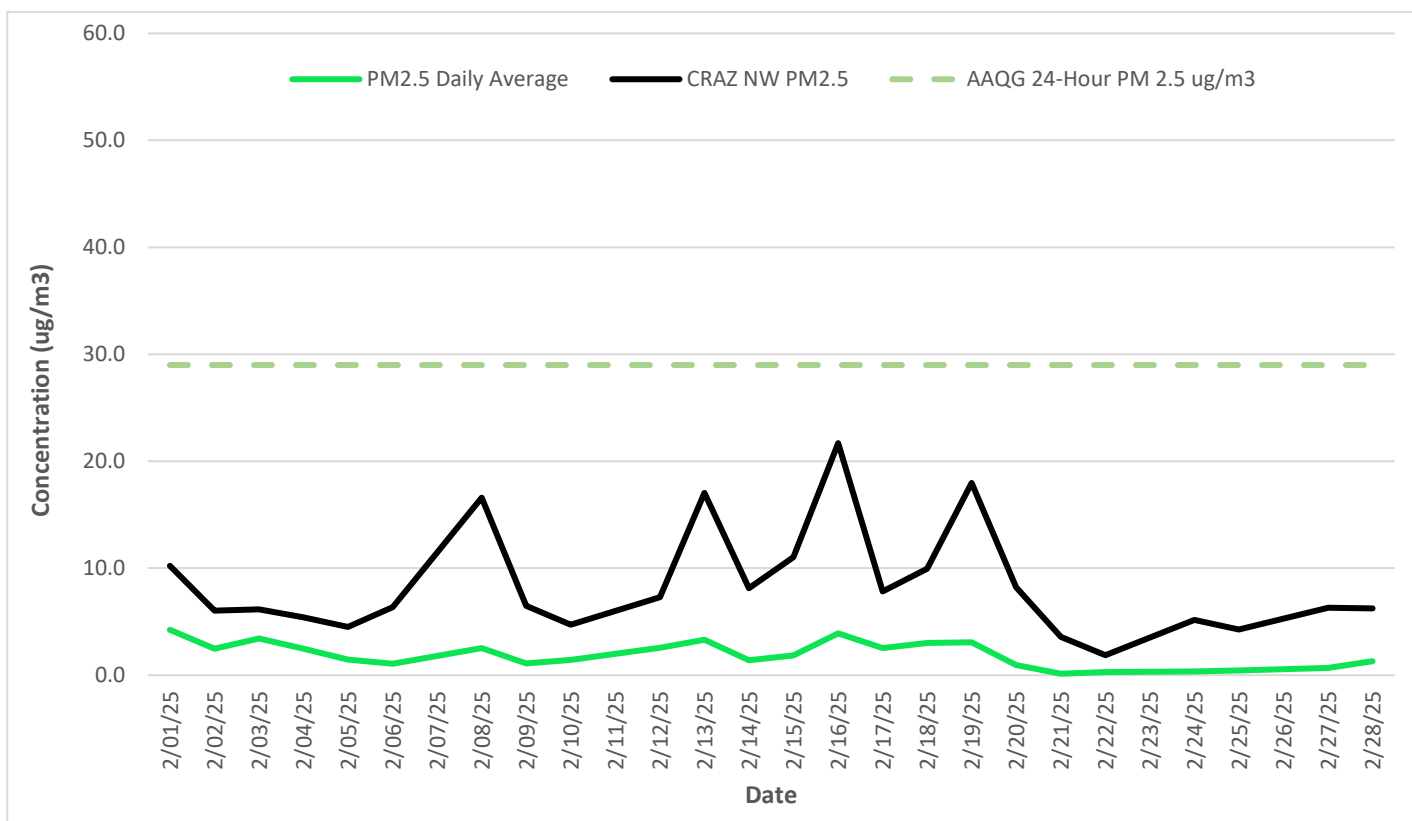
**Table 3. STAR PIT – February 2025 – Particulate Results**

Date	TSP Daily Average	PM2.5 Daily Average	CRAZ NW PM2.5	PM2.5 Hourly Max
Saturday 01-Feb-25	4.5	4.2	10.2	7.7
Sunday 02-Feb-25	2.6	2.5	6.0	3.1
Monday 03-Feb-25	3.6	3.4	6.1	4.1
Tuesday 04-Feb-25	2.6	2.5	5.4	3.5
Wednesday 05-Feb-25	1.6	1.5	4.5	2.8
Thursday 06-Feb-25	1.4	1.1	6.4	1.9
Friday 07-Feb-25	1.0	0.8	7.1	0.9
Saturday 08-Feb-25	3.1	2.5	16.6	3.4
Sunday 09-Feb-25	1.9	1.1	6.5	2.1
Monday 10-Feb-25	2.8	1.4	4.7	2.2
Tuesday 11-Feb-25	2.1	1.5	6.4	2.0
Wednesday 12-Feb-25	7.3	2.6	7.3	6.4
Thursday 13-Feb-25	5.5	3.3	17.0	6.4
Friday 14-Feb-25	2.2	1.4	8.1	2.8
Saturday 15-Feb-25	2.1	1.9	11.0	3.5
Sunday 16-Feb-25	4.1	3.9	21.7	4.4
Monday 17-Feb-25	3.0	2.5	7.8	2.6
Tuesday 18-Feb-25	3.4	3.0	9.9	3.7
Wednesday 19-Feb-25	5.8	3.1	18.0	7.6
Thursday 20-Feb-25	4.1	0.9	8.2	2.3
Friday 21-Feb-25	0.3	0.1	3.6	0.2
Saturday 22-Feb-25	2.0	0.3	1.9	0.3
Sunday 23-Feb-25	High Winds			
Monday 24-Feb-25	0.8	0.4	5.2	0.4
Tuesday 25-Feb-25	1.1	0.5	4.3	0.7
Wednesday 26-Feb-25	High Winds			
Thursday 27-Feb-25	2.0	0.7	6.3	1.3
Friday 28-Feb-25	6.2	1.3	6.2	2.5
Monthly Average	3.0	1.9	8.3	3.0

Figure 3 & Figure 4 illustrate the values in Table 3 and compares the TSP & PM 2.5 values to the AAAQO & AAAQG criteria, respectively.



**Figure 3. STAR PIT – February 2025 – TSP Daily Particulate Monitoring Results**



**Figure 4. STAR PIT – February 2025 – PM 2.5 Daily Particulate Monitoring Results**

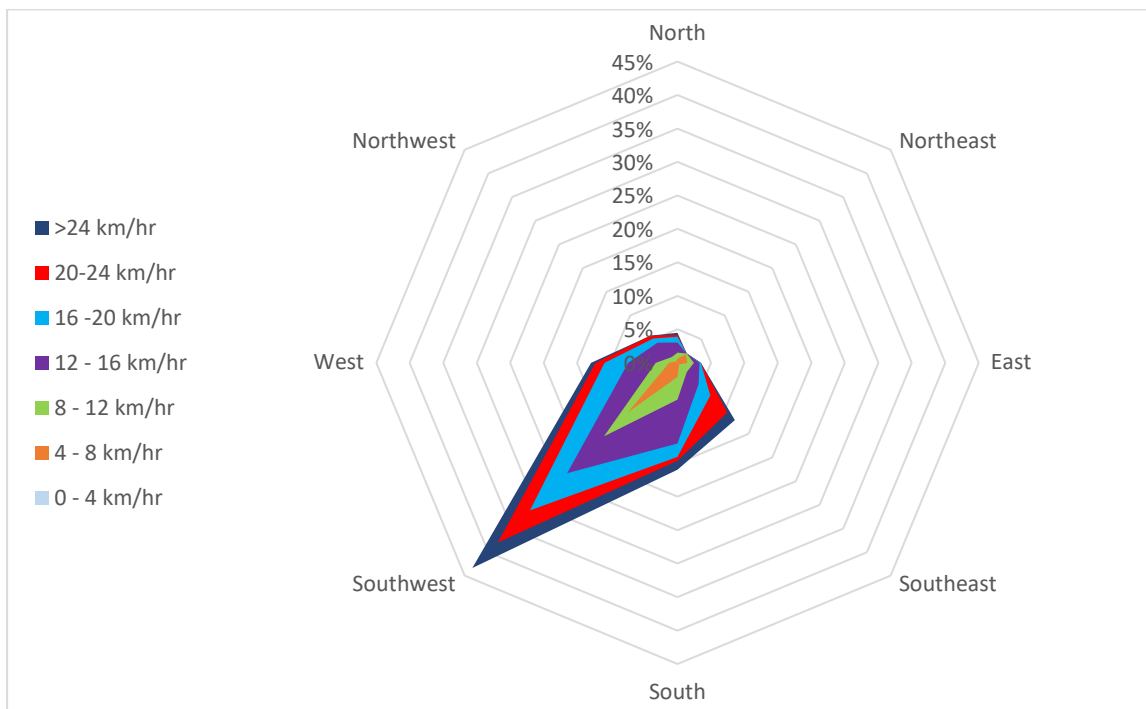
## 4.0 METEOROLOGICAL DATA

### 4.1 TRAILER

As indicated in Table 4 & Figure 5, the primary wind direction for February 2025 was generally from the southwest. The monthly values for the temperature and precipitation can be found in Table 5.

**Table 4. STAR PIT Trailer – February 2025 – Wind Data Results**

Count of Direction	Column Labels								Grand Total
Row Labels	East	North	Northeast	Northwest	South	Southeast	Southwest	West	
0-4	0.00%	0.04%	0.00%	0.04%	0.14%	0.14%	0.00%	0.08%	0.45%
4-8	1.44%	0.56%	1.74%	0.24%	1.98%	0.18%	10.39%	1.19%	17.71%
8-12	1.01%	0.91%	0.24%	0.92%	3.39%	1.61%	5.15%	1.98%	15.21%
12-16	0.82%	1.51%	0.00%	3.03%	6.57%	2.51%	7.78%	4.13%	26.35%
16-20	0.22%	0.87%	0.00%	0.92%	1.99%	2.48%	7.86%	3.54%	17.89%
20-24	0.00%	0.26%	0.00%	0.56%	0.57%	3.57%	6.79%	1.32%	13.06%
>24	0.00%	0.32%	0.00%	0.00%	1.32%	1.61%	5.38%	0.70%	9.33%
<b>Grand Total</b>	<b>3.49%</b>	<b>4.48%</b>	<b>1.97%</b>	<b>5.70%</b>	<b>15.96%</b>	<b>12.11%</b>	<b>43.36%</b>	<b>12.93%</b>	<b>100.00%</b>



**Figure 5. STAR PIT Trailer – February 2025 - Wind Rose**

**Table 5. STAR PIT Trailer – February 2025 – Wind Data Results**

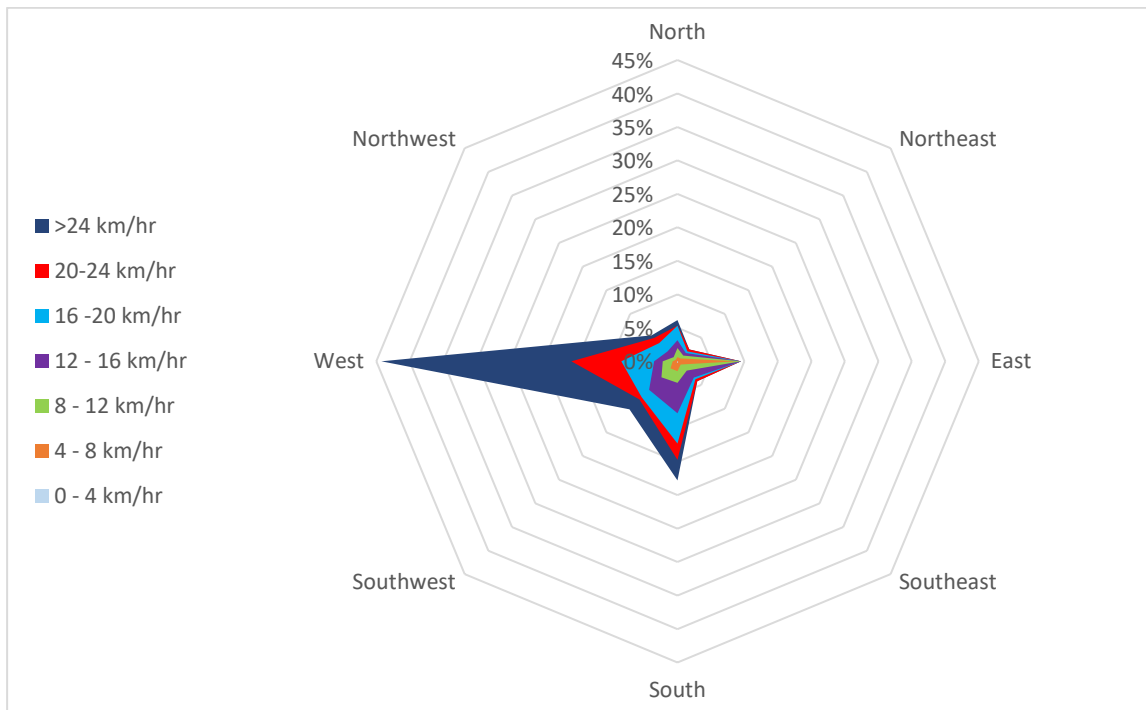
Parameter	Monthly Average	1-Hour	
		Maximum	Minimum
Temperature (°C)	-11.5	12.0	-28.7
Precipitation (mm)	0.0	0.2	0.0
Total Monthly Precipitation (mm)		0.8	

## 4.2 OFFICE

As indicated in Table 6 & Figure 6, the primary wind direction for February 2025 was from the west with high windspeeds (between 8 and +24 km/hr). The monthly values for the temperature and precipitation can be found in Table 7.

**Table 6. STAR PIT Office – February 2025 – Wind Data Results**

Count of Direction	Column Labels								Grand Total
Row Labels	East	North	Northeast	Northwest	South	Southeast	Southwest	West	
0-4	0.04%	0.00%	0.03%	0.00%	0.28%	0.15%	0.14%	0.02%	0.66%
4-8	8.72%	0.62%	0.56%	0.34%	1.20%	0.53%	1.35%	0.71%	14.03%
8-12	0.71%	1.35%	0.58%	0.50%	1.74%	1.26%	1.91%	1.48%	9.54%
12-16	0.00%	1.18%	0.56%	1.23%	4.55%	1.49%	2.61%	1.28%	12.90%
16-20	0.00%	2.17%	0.34%	1.79%	4.52%	0.34%	1.59%	4.90%	15.65%
20-24	0.00%	0.00%	0.44%	1.08%	2.44%	0.44%	0.43%	7.46%	12.28%
>24	0.00%	0.83%	0.00%	0.51%	3.07%	0.00%	2.13%	28.39%	34.94%
<b>Grand Total</b>	<b>9.47%</b>	<b>6.15%</b>	<b>2.51%</b>	<b>5.46%</b>	<b>17.80%</b>	<b>4.20%</b>	<b>10.16%</b>	<b>44.25%</b>	<b>100.00%</b>



**Figure 6. STAR PIT Office – February 2025 - Wind Rose**

**Table 7. STAR PIT Office – February 2025 – Wind Data Results**

Parameter	Monthly Average	1-Hour	
		Maximum	Minimum
Temperature (°C)	-11.5	11.8	-28.5
Precipitation (mm)	0.0	0.0	0.0
Total Monthly Precipitation (mm)		0.0	

## 5.0 CALIBRATION RECORDS

### Record of Calibration Results

Description	Location	Date	Time	Pre / Post	Calibration Level	Calibrator Model	Serial Number
Pre-Measurement Calibration	STAR PIT	November 6, 2024	09:25	Post	93.9 dBA	B&K 4231	2575493
Post-Measurement Calibration	STAR PIT	March 3, 2025	09:25	Pre	93.7 dBA	B&K 4231	2575493