

Ambient Air and Sound

Monthly Report

STONEY TRAIL AGGREGATE RESOURCE

BURNCO

LAFARGE



Volker Stevin
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 **Heidelberg
Materials**

The logo icon for Heidelberg Materials is a green stylized 'H' shape with a white leaf-like element inside.

January 2025

Glossary

- L_{eq}** - Equivalent Continuous Sound Pressure Level. The total sound energy logged over the course of a measurement. (Uses logarithmic averaging).
- L_{eq24}** - Measured over the entire 24-period (00:00 – 23:59)
- L_{eqDay}** - Measured over the daytime period (07:00 – 22:00)
- L_{eqNight}** - 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_{2.5}** - 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. January 2025 – STAR PIT – Sound Monitoring Results¹

Day	Leq24	L _{eq} Min	L _{eq} Max	LeqDay	LeqNight
Wednesday 01-Jan-25	35.3	28.3	38.3	36.2	33.4
Thursday 02-Jan-25	40.6	34.9	45.4	41.8	37.5
Friday 03-Jan-25	58.6	39.5	64.6	60.1	54.1
Saturday 04-Jan-25	51.1	37.0	58.6	44.6	54.7
Sunday 05-Jan-25	43.4	35.3	46.8	44.8	39.1
Monday 06-Jan-25	45.2	37.5	48.2	46.9	42.8
Tuesday 07-Jan-25	No Data				
Wednesday 08-Jan-25	53.1	52.6	53.6	53.1	
Thursday 09-Jan-25	48.7	32.6	54.3	51.3	41.2
Friday 10-Jan-25	58.3	57.1	59.2	58.3	
Saturday 11-Jan-25	No Data				
Sunday 12-Jan-25	45.5	38.5	49.0	45.5	
Monday 13-Jan-25	37.6	32.0	40.0		37.6
Tuesday 14-Jan-25	36.9	36.9	36.9		36.9
Wednesday 15-Jan-25	54.5	48.1	56.8	55.3	48.1
Thursday 16-Jan-25	51.3	35.7	53.4	53.0	35.7
Friday 17-Jan-25	52.7	38.9	55.7	52.7	
Saturday 18-Jan-25	47.7	41.6	51.1	46.4	49.5
Sunday 19-Jan-25	39.8	34.9	43.0	40.6	35.5
Monday 20-Jan-25	35.8	34.6	36.8		35.8
Tuesday 21-Jan-25	No Data				
Wednesday 22-Jan-25	49.0	40.1	53.6	49.9	40.1
Thursday 23-Jan-25	48.3	48.3	48.3	48.3	
Friday 24-Jan-25	38.3	38.3	38.3		38.3
Saturday 25-Jan-25	34.7	33.9	35.3		34.7
Sunday 26-Jan-25	No Data				
Monday 27-Jan-25	51.1	50.8	51.6	51.1	
Tuesday 28-Jan-25	56.6	49.0	58.4	56.0	58.4
Wednesday 29-Jan-25	42.9	42.9	42.9		42.9
Thursday 30-Jan-25	59.5	56.6	61.1	59.5	
Friday 31-Jan-25	52.4	43.9	56.8	52.9	49.2
Monthly Average	47.0	40.7	49.6	49.9	42.3
Monthly Maximum	59.5	57.1	64.6	60.1	58.4
Monthly Minimum	34.7	28.3	35.3	36.2	33.4

¹ 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.

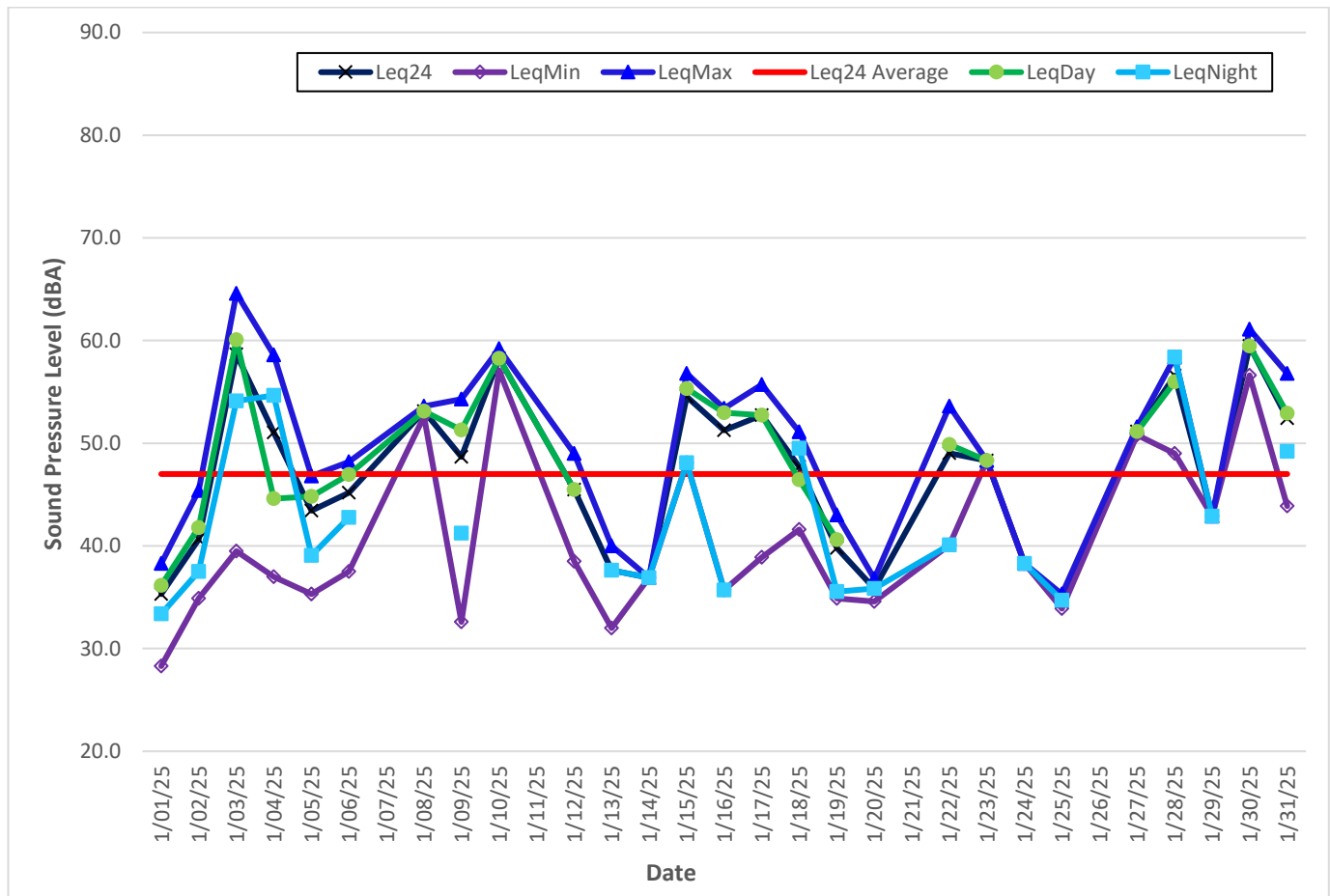


Figure 1. STAR PIT – January 2025 – Daily Sound Monitoring Results²

² 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).

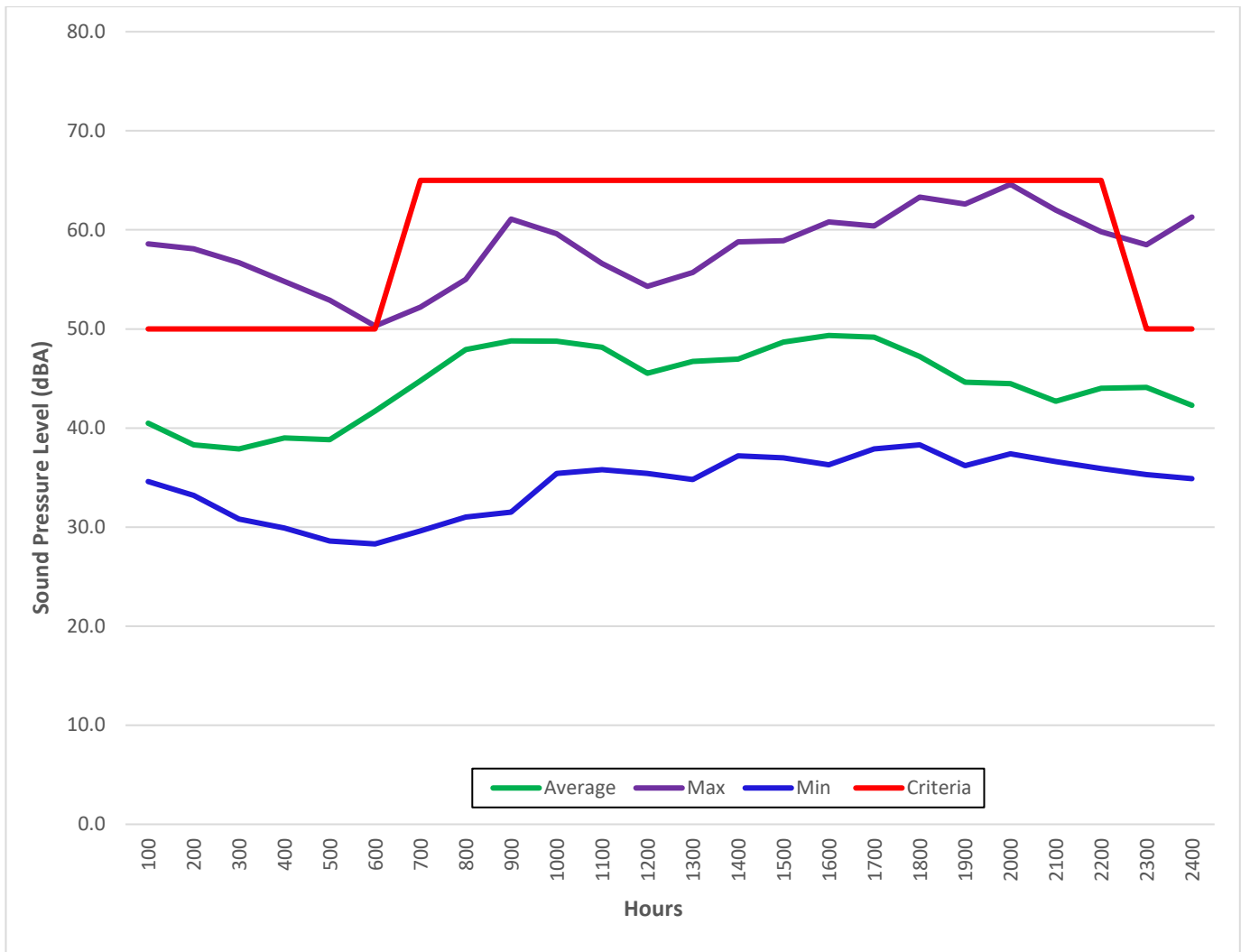


Figure 2. STAR PIT – January 2025 – Hourly Sound Monitoring Summary

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 January 1 to January 31, 2025, there were 10 exceedances. All exceedances occurred during the nighttime.

Table 2. STAR PIT – January 2025 – Sound Level Exceedances

Date	L_{eq} -1-hour (dBA)	Wind Speed (Km/hr)	Temperature (°C)	Wind Direction	Hourly Rainfall (mm)	Day/Night
Jan-03-2025 22:00	58.5	1.4	-15.3	West	0.00	Night
Jan-03-2025 23:00	61.3	1.4	-15.1	West	0.00	Night
Jan-04-2025 00:00	58.6	1.4	-15.1	West	0.00	Night
Jan-04-2025 01:00	58.1	1.4	-15.2	West	0.00	Night
Jan-04-2025 02:00	56.7	1.4	-15.2	West	0.00	Night
Jan-04-2025 03:00	54.8	1.4	-15.3	West	0.00	Night
Jan-04-2025 04:00	52.9	1.4	-15.6	West	0.00	Night
Jan-04-2025 05:00	50.3	1.4	-15.6	West	0.00	Night
Jan-28-2025 22:00	58.4	8.2	0.7	North	0.00	Night
Jan-31-2025 23:00	50.5	5.8	-10.6	South-West	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 – January 2025 – Particulate Results

Date	TSP Daily Average	PM2.5 Daily Average	CRAZ NW PM2.5	PM2.5 Hourly Max
Sunday 01-Dec-24	1.8	1.8	17.2	3.0
Monday 02-Dec-24	4.4	4.1	16.6	6.7
Tuesday 03-Dec-24	5.5	5.4	8.3	8.1
Wednesday 04-Dec-24	2.6	2.5	4.6	3.4
Thursday 05-Dec-24	3.9	3.7	2.3	5.3
Friday 06-Dec-24	1.3	1.1	3.7	3.0
Saturday 07-Dec-24	High Winds			
Sunday 08-Dec-24	2.6	0.6	4.6	0.7
Monday 09-Dec-24	1.7	0.7	2.5	1.3
Tuesday 10-Dec-24	1.2	0.6	7.6	0.8
Wednesday 11-Dec-24	High Winds			
Thursday 12-Dec-24	0.8	0.4	19.7	0.7
Friday 13-Dec-24	0.9	0.4	12.8	0.6
Saturday 14-Dec-24	1.4	0.8	6.1	0.8
Sunday 15-Dec-24	6.3	1.0	14.5	1.6
Monday 16-Dec-24	0.4	0.2	8.1	0.3
Tuesday 17-Dec-24	1.4	0.7	3.5	1.2
Wednesday 18-Dec-24	1.3	1.0	1.2	1.5
Thursday 19-Dec-24	3.2	3.0	3.7	3.3
Friday 20-Dec-24	3.2	3.0	1.2	3.3
Saturday 21-Dec-24	High Winds			
Sunday 22-Dec-24	6.9	1.8	6.5	5.5
Monday 23-Dec-24	0.5	0.2	5.4	0.2
Tuesday 24-Dec-24	0.3	0.1	1.4	0.1
Wednesday 25-Dec-24	1.4	0.9	2.6	1.5
Thursday 26-Dec-24	High Winds			
Friday 27-Dec-24	4.5	1.8	4.5	2.1
Saturday 28-Dec-24	16.6	4.1	7.7	4.7
Sunday 29-Dec-24	2.3	0.9	8.4	0.9
Monday 30-Dec-24	39.0	4.8	8.9	7.0
Tuesday 31-Dec-24	3.1	2.9	2.3	5.9
Monthly Average	4.4	1.8	6.9	2.7

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

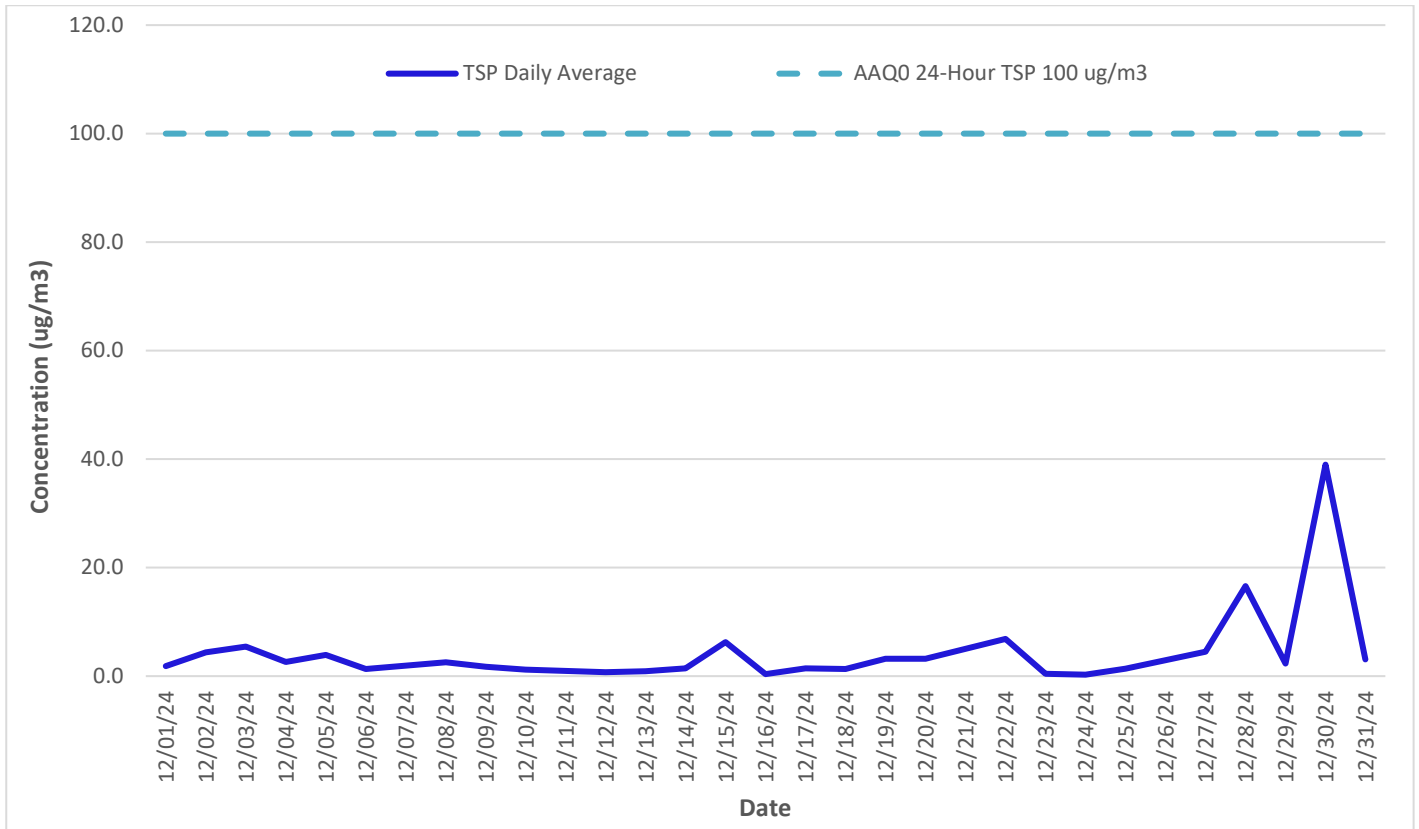


Figure 3. STAR PIT – January 2025 – TSP Daily Particulate Monitoring Results

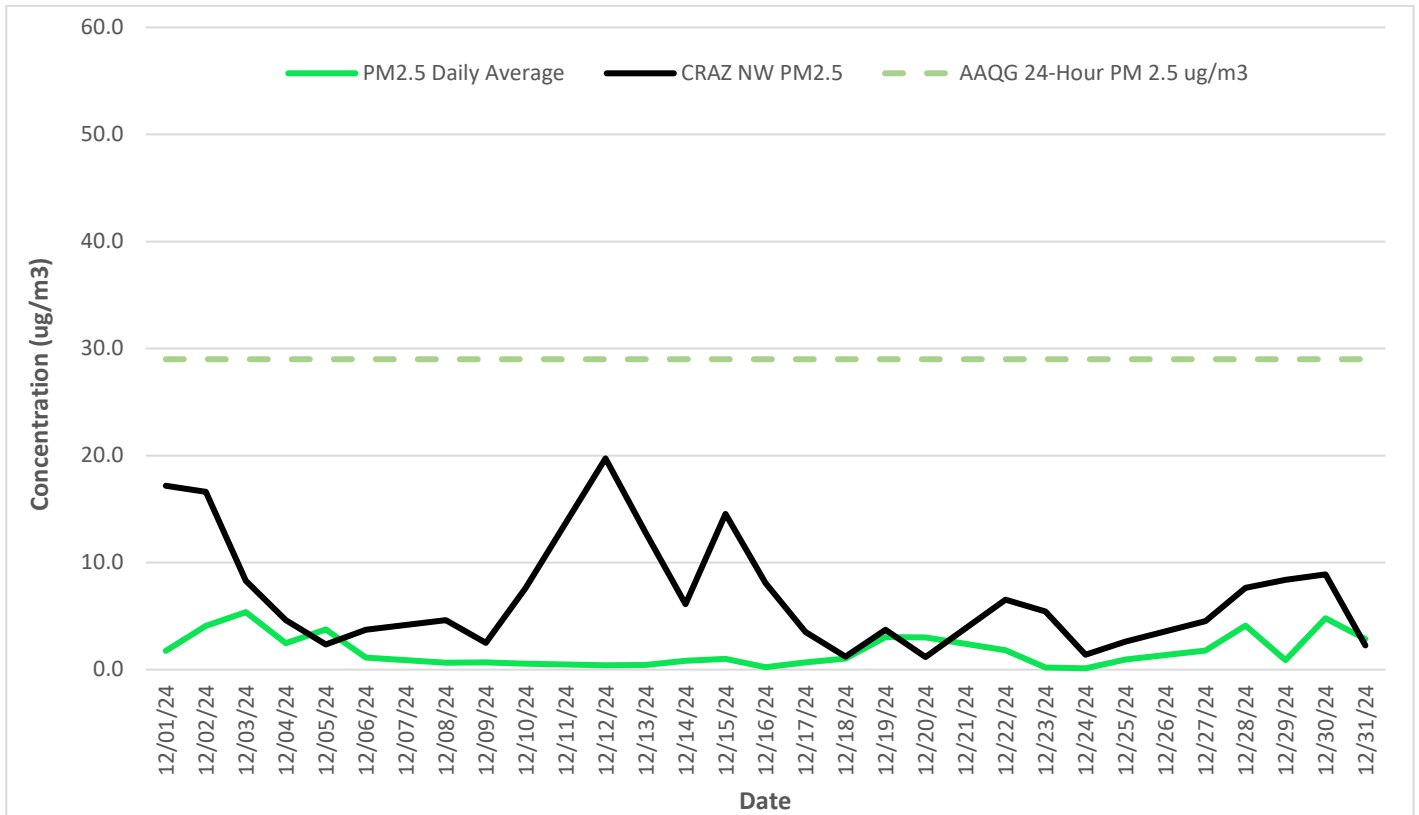


Figure 4. STAR PIT – January 2025 – PM 2.5 Daily Particulate Monitoring Results

4.0 METEOROLOGICAL DATA

4.1 TRAILER

As indicated in Table 4 & Figure 5, the primary wind direction for January 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 – January 2025 – Wind Data Results

Count of Direction	Column Labels								Grand Total
Row Labels	East	North	Northeast	Northwest	South	Southeast	Southwest	West	Grand Total
0-4	0.07%	0.38%	0.06%	0.26%	0.00%	0.00%	0.04%	1.32%	2.13%
4-8	0.09%	0.46%	0.05%	0.59%	0.28%	0.08%	0.93%	0.42%	2.91%
8-12	0.19%	0.42%	0.09%	2.19%	0.46%	0.37%	2.30%	3.29%	9.31%
12-16	0.28%	0.15%	0.13%	5.63%	2.58%	2.23%	7.43%	8.14%	26.56%
16-20	0.34%	0.87%	0.00%	4.74%	0.68%	2.28%	6.98%	9.39%	25.28%
20-24	0.00%	0.21%	0.00%	3.05%	0.41%	0.81%	6.26%	8.17%	18.91%
>24	0.00%	0.77%	0.00%	5.68%	0.00%	0.00%	3.91%	4.53%	14.88%
Grand Total	0.97%	3.25%	0.33%	22.16%	4.42%	5.77%	27.85%	35.25%	100.00%

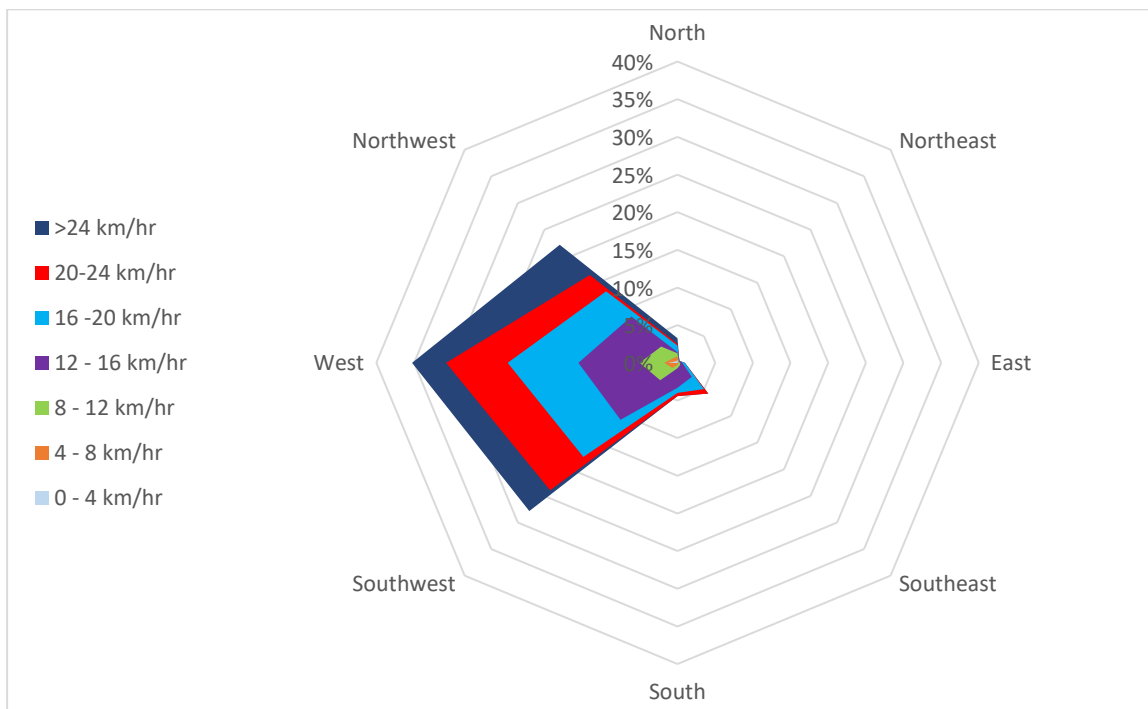


Figure 5. STAR PIT Trailer – January 2025 - Wind Rose

Table 5. STAR PIT Trailer – January 2025 – Wind Data Results

Parameter	Monthly Average	1-Hour	
		Maximum	Minimum
Temperature (°C)	-4.0	10.1	-21.0
Precipitation (mm)	0.0	0.2	0.0
Total Monthly Precipitation (mm)		1.1	

4.2 OFFICE

As indicated in Table 6 & Figure 6, the primary wind direction for January 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 – January 2025 – Wind Data Results

Count of Direction	Column Labels								Grand Total
Row Labels	East	North	Northeast	Northwest	South	Southeast	Southwest	West	Grand Total
0-4	0.10%	0.11%	0.17%	0.04%	0.02%	0.00%	0.00%	0.04%	0.49%
4-8	4.21%	0.53%	0.29%	0.28%	0.00%	0.06%	0.47%	0.46%	6.30%
8-12	0.36%	0.59%	0.07%	1.07%	0.44%	0.50%	0.54%	1.14%	4.72%
12-16	3.22%	0.83%	0.09%	2.34%	0.87%	0.62%	1.02%	2.28%	11.27%
16-20	0.00%	0.81%	0.00%	3.28%	1.47%	1.29%	1.64%	5.36%	13.84%
20-24	0.00%	1.10%	0.00%	4.47%	0.32%	0.00%	1.54%	6.06%	13.49%
>24	0.00%	4.62%	0.00%	7.96%	0.54%	0.00%	3.14%	33.64%	49.90%
Grand Total	7.89%	8.58%	0.62%	19.44%	3.66%	2.46%	8.34%	48.99%	100.00%

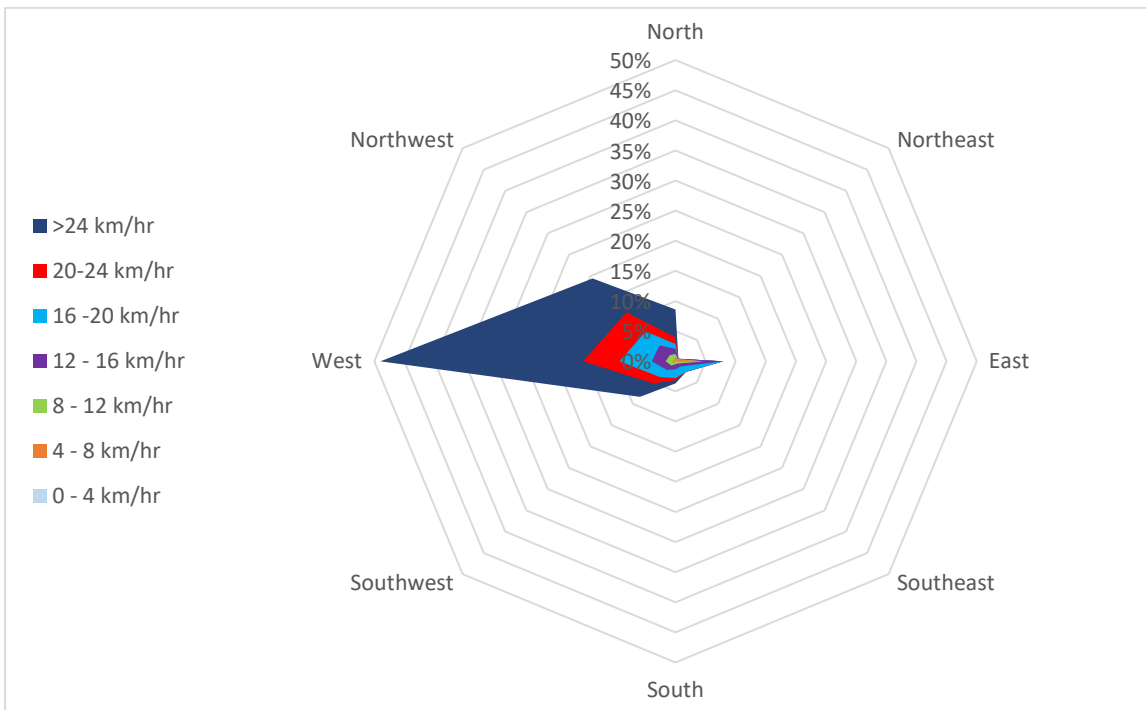


Figure 6. STAR PIT Office – January 2025 - Wind Rose

Table 7. STAR PIT Office – January 2025 – Wind Data Results

Parameter	Monthly Average	1-Hour	
		Maximum	Minimum
Temperature (°C)	-3.6	9.9	-20.4
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	July 4, 2024	10:50	Post	93.9 dBA	B&K 4231	2575493
Post-Measurement Calibration	STAR PIT	November 6, 2024	09:25	Pre	93.9 dBA	B&K 4231	2575493