

Ambient Air and Sound
Monthly Report

STONEY TRAIL AGGREGATE RESOURCE



September 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. September 2025 – STAR PIT – Sound Monitoring Results¹

Day	Leq24	L _{eq} Min	L _{eq} Max	LeqDay	LeqNight
Monday 01-Sep-25	50.4	36.7	58.8	41.9	54.9
Tuesday 02-Sep-25	52.8	37.0	57.4	53.2	50.9
Wednesday 03-Sep-25	56.3	44.7	59.6	57.7	46.8
Thursday 04-Sep-25	54.8	48.4	57.2	54.3	56.7
Friday 05-Sep-25	58.7	52.0	60.3	52.0	59.5
Saturday 06-Sep-25	52.8	44.5	58.5	49.9	55.7
Sunday 07-Sep-25	53.7	36.8	59.8	53.9	53.0
Monday 08-Sep-25	55.6	44.3	59.3	55.5	55.7
Tuesday 09-Sep-25	56.1	50.7	59.4	55.1	57.4
Wednesday 10-Sep-25	54.7	44.5	58.3	53.5	56.5
Thursday 11-Sep-25	57.7	53.7	60.3	56.9	58.7
Friday 12-Sep-25	57.6	48.4	59.8	57.8	57.3
Saturday 13-Sep-25	55.7	46.8	59.1	54.9	56.7
Sunday 14-Sep-25	57.2	53.5	58.6	57.2	57.2
Monday 15-Sep-25	59.2	53.3	60.8	58.6	60.4
Tuesday 16-Sep-25	57.7	50.8	60.2	55.1	58.9
Wednesday 17-Sep-25	52.6	52.5	52.6	52.6	
Thursday 18-Sep-25	58.4	55.6	60.2	58.9	57.2
Friday 19-Sep-25	56.1	51.2	59.7	56.4	55.6
Saturday 20-Sep-25	53.0	45.1	57.4	51.6	56.5
Sunday 21-Sep-25	53.2	45.4	57.6	53.1	53.4
Monday 22-Sep-25	55.1	50.0	58.9	53.6	56.5
Tuesday 23-Sep-25	54.8	51.1	56.6	54.7	55.3
Wednesday 24-Sep-25	58.6	56.4	60.0	58.8	58.4
Thursday 25-Sep-25	57.2	53.1	58.5	56.9	58.4
Friday 26-Sep-25	53.3	47.7	57.8	52.4	54.4
Saturday 27-Sep-25	52.8	46.6	55.8	51.9	53.8
Sunday 28-Sep-25	53.0	47.2	58.1	48.1	55.2
Monday 29-Sep-25	High Winds				
Tuesday 30-Sep-25	56.1	40.0	60.6	57.2	52.2
Wednesday 01-Oct-25	55.2	46.3	58.2	54.7	56.3
Monthly Average	55.3	47.8	58.6	54.3	55.8
Monthly Maximum	59.2	56.4	60.8	58.9	60.4
Monthly Minimum	50.4	36.7	52.6	41.9	46.8

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, blank spaces indicate time periods/days in which there is no valid data due to wind/rain.

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.

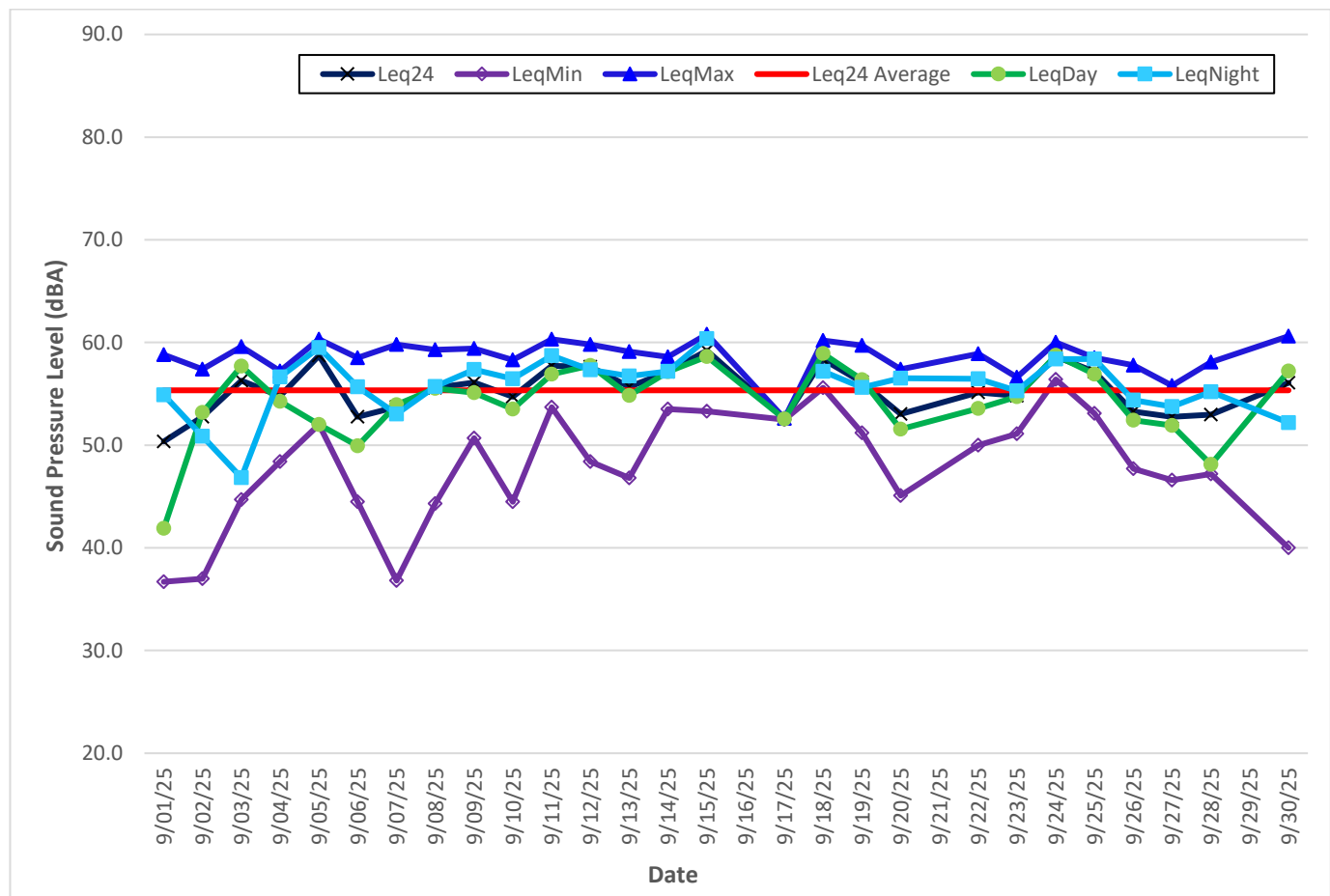


Figure 1. STAR PIT – September 2025 – Daily Sound Monitoring Results

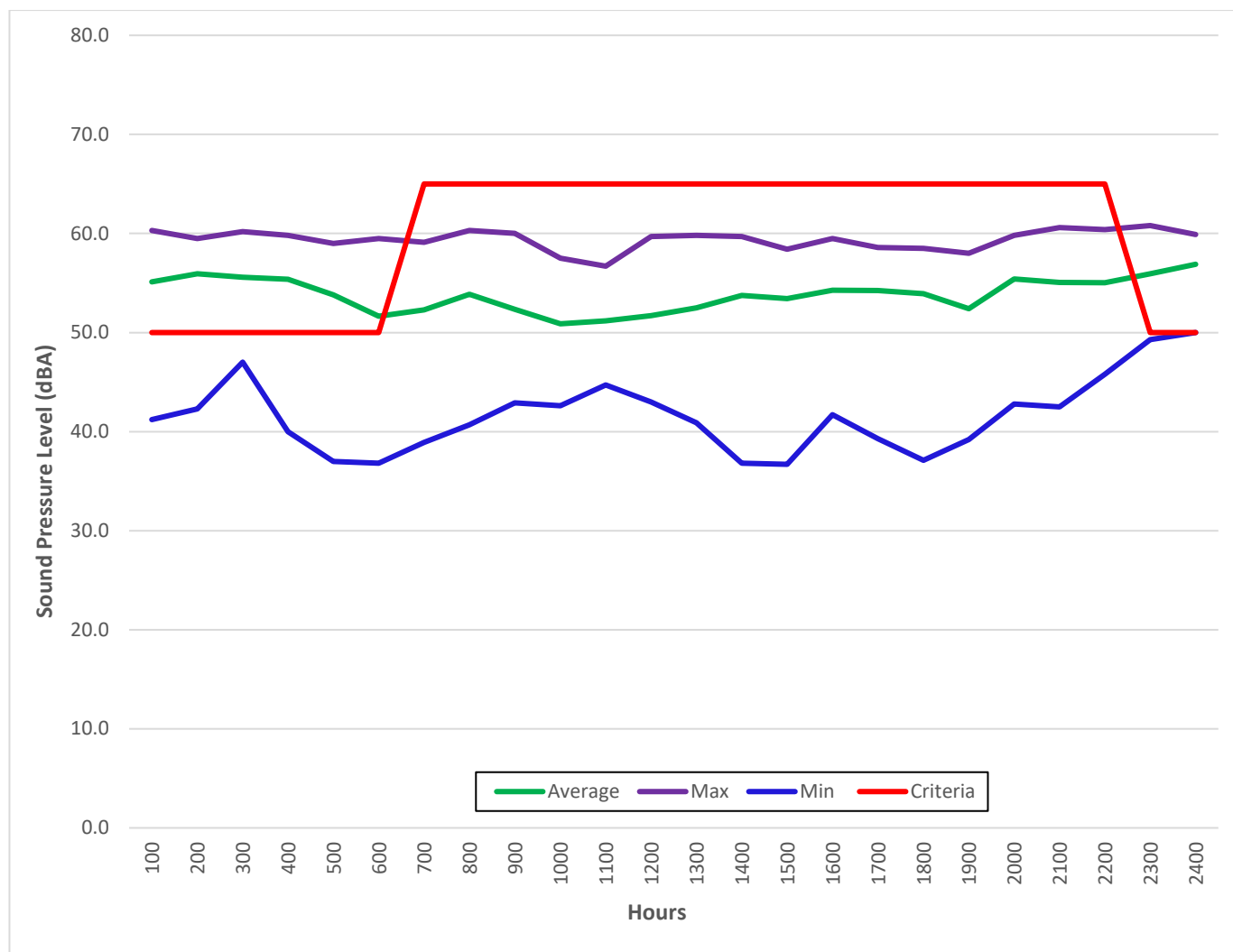


Figure 2. STAR PIT – September 2025 – Hourly Sound Monitoring Summary

2.0 SOUND LEVEL EXCEEDANCES

As per the development permit, the permissible sound level for this site is 50 dBA $L_{eq-1\text{Hour}}$ for the nighttime and 65 dBA $L_{eq-1\text{Hour}}$ for the daytime hours. As shown in Table 2, from September 1 to September 30, 2025, there were 94 exceedances. All exceedances occurred during the nighttime.

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

Date	$L_{eq-1\text{-hour}}$ (dBA)	Wind Speed (Km/hr)	Temperature (°C)	Wind Direction	Hourly Rainfall (mm)	Day/Night
Sep-01-2025 00:00	57.4	2.4	18.8	North	0.00	Night
Sep-01-2025 01:00	58.2	3.5	18.5	North	0.00	Night
Sep-01-2025 02:00	58.8	7.0	17.9	North	0.00	Night
Sep-01-2025 03:00	52.1	8.7	17.9	North	0.00	Night
Sep-04-2025 22:00	56.5	8.6	10.4	West	0.00	Night
Sep-04-2025 23:00	56.8	4.7	11.0	West	0.00	Night
Sep-05-2025 00:00	60.3	2.4	9.6	North	0.00	Night
Sep-05-2025 01:00	59.5	5.5	9.0	South	0.00	Night
Sep-05-2025 02:00	59.1	9.5	9.2	South	0.00	Night
Sep-05-2025 03:00	59.0	10.2	9.1	North	0.00	Night
Sep-06-2025 02:00	58.5	9.5	11.7	South	0.00	Night
Sep-06-2025 03:00	57.8	10.0	10.9	South	0.00	Night
Sep-06-2025 04:00	55.5	9.0	10.8	South-West	0.00	Night
Sep-07-2025 22:00	57.5	8.0	17.2	West	0.00	Night
Sep-08-2025 00:00	51.0	10.0	14.4	South-West	0.00	Night
Sep-08-2025 02:00	54.1	10.9	14.5	West	0.00	Night
Sep-08-2025 22:00	59.1	8.1	18.2	South	0.00	Night
Sep-08-2025 23:00	58.1	9.2	18.0	South	0.00	Night
Sep-09-2025 00:00	56.1	9.6	16.3	South-West	0.00	Night
Sep-09-2025 01:00	55.7	9.9	15.3	South-West	0.00	Night
Sep-09-2025 02:00	56.2	7.5	15.4	South-West	0.00	Night
Sep-09-2025 03:00	58.8	10.0	13.9	West	0.00	Night
Sep-09-2025 04:00	58.5	8.7	13.6	West	0.00	Night
Sep-09-2025 05:00	54.8	9.0	13.2	West	0.00	Night
Sep-09-2025 22:00	57.3	6.7	17.6	North-West	0.00	Night
Sep-09-2025 23:00	59.4	1.8	16.8	West	0.00	Night
Sep-10-2025 00:00	58.3	7.2	16.0	South-West	0.00	Night
Sep-10-2025 22:00	53.2	9.5	13.8	West	0.00	Night
Sep-11-2025 01:00	56.1	9.7	14.2	West	0.00	Night
Sep-11-2025 02:00	60.2	8.7	15.0	West	0.00	Night
Sep-11-2025 03:00	59.3	7.5	16.2	West	0.00	Night
Sep-11-2025 04:00	59.0	9.0	15.6	West	0.00	Night
Sep-11-2025 05:00	59.5	9.8	13.1	West	0.00	Night
Sep-12-2025 03:00	57.3	9.5	14.4	South-West	0.00	Night
Sep-12-2025 04:00	58.0	4.9	16.3	South-West	0.00	Night
Sep-12-2025 05:00	58.2	2.9	16.0	South-West	0.00	Night
Sep-12-2025 22:00	55.3	8.6	18.0	West	0.00	Night
Sep-12-2025 23:00	58.7	5.6	16.1	North-West	0.00	Night
Sep-13-2025 00:00	59.1	6.1	15.8	North	0.00	Night
Sep-13-2025 01:00	59.1	7.9	14.9	South	0.00	Night
Sep-13-2025 02:00	54.2	6.7	13.7	South-West	0.00	Night
Sep-13-2025 04:00	54.3	10.6	14.7	West	0.00	Night
Sep-13-2025 22:00	55.8	9.7	16.2	North	0.00	Night
Sep-13-2025 23:00	56.1	6.8	16.6	West	0.00	Night
Sep-14-2025 00:00	57.4	6.9	15.9	South-West	0.00	Night
Sep-14-2025 01:00	57.6	9.5	15.8	South-West	0.00	Night
Sep-14-2025 02:00	57.7	9.2	15.7	South-West	0.00	Night
Sep-14-2025 03:00	56.9	5.9	15.1	South-West	0.00	Night
Sep-14-2025 04:00	56.7	4.6	13.7	West	0.00	Night

Table 2. STAR PIT – September 2025 – Sound Level Exceedances (CONT.)

Date	L _{eq1-hour} (dBA)	Wind Speed (Km/hr)	Temperature (°C)	Wind Direction	Hourly Rainfall (mm)	Day/Night
Sep-14-2025 05:00	56.6	9.2	13.5	West	0.00	Night
Sep-15-2025 22:00	60.8	6.1	14.3	North-West	0.00	Night
Sep-15-2025 23:00	59.9	6.5	15.0	North-West	0.00	Night
Sep-16-2025 00:00	59.7	3.8	15.1	West	0.00	Night
Sep-16-2025 01:00	59.0	5.4	14.3	North-West	0.00	Night
Sep-16-2025 02:00	60.2	8.5	13.8	West	0.00	Night
Sep-16-2025 03:00	59.8	8.0	13.0	West	0.00	Night
Sep-16-2025 04:00	58.4	8.6	12.4	South-West	0.00	Night
Sep-16-2025 05:00	57.2	3.9	12.6	South-West	0.00	Night
Sep-18-2025 02:00	58.0	8.2	12.7	South	0.00	Night
Sep-18-2025 03:00	57.5	7.6	11.5	South	0.00	Night
Sep-18-2025 04:00	56.6	6.9	10.9	South	0.00	Night
Sep-18-2025 22:00	56.4	9.5	13.1	North-West	0.00	Night
Sep-19-2025 03:00	56.4	6.5	10.3	West	0.00	Night
Sep-19-2025 04:00	51.2	8.8	10.5	West	0.00	Night
Sep-19-2025 05:00	54.9	9.0	10.6	West	0.00	Night
Sep-20-2025 03:00	56.2	10.5	14.3	South-West	0.00	Night
Sep-20-2025 04:00	57.4	10.1	14.4	South-West	0.00	Night
Sep-20-2025 05:00	55.8	7.6	12.8	South-West	0.00	Night
Sep-21-2025 04:00	55.1	9.5	16.4	South-West	0.00	Night
Sep-21-2025 05:00	53.4	9.6	16.1	South-West	0.00	Night
Sep-22-2025 02:00	53.9	8.5	8.5	West	0.00	Night
Sep-22-2025 03:00	56.7	6.9	8.0	South-West	0.00	Night
Sep-22-2025 04:00	58.9	5.1	8.3	West	0.00	Night
Sep-22-2025 05:00	58.0	7.6	8.6	West	0.00	Night
Sep-23-2025 23:00	55.3	10.5	19.1	South-West	0.00	Night
Sep-24-2025 02:00	57.4	8.8	17.8	South-West	0.00	Night
Sep-24-2025 03:00	56.4	8.6	18.5	West	0.00	Night
Sep-24-2025 22:00	60.0	3.4	10.3	North	0.00	Night
Sep-24-2025 23:00	58.9	8.3	8.9	North	0.00	Night
Sep-25-2025 00:00	58.4	10.7	8.1	North	0.00	Night
Sep-26-2025 04:00	57.8	10.8	6.0	North-West	0.00	Night
Sep-26-2025 05:00	50.6	10.7	5.9	West	0.00	Night
Sep-26-2025 22:00	51.2	6.2	11.5	South-West	0.00	Night
Sep-26-2025 23:00	53.9	10.0	11.1	South	0.00	Night
Sep-27-2025 00:00	55.3	10.7	10.1	South	0.00	Night
Sep-27-2025 02:00	50.8	7.2	12.6	West	0.00	Night
Sep-27-2025 03:00	52.0	9.6	12.3	South	0.00	Night
Sep-27-2025 04:00	55.8	8.2	12.5	South	0.00	Night
Sep-27-2025 05:00	55.7	8.7	12.5	South	0.00	Night
Sep-27-2025 22:00	53.8	9.2	16.3	South-West	0.00	Night
Sep-28-2025 04:00	58.1	10.3	4.0	North-West	0.00	Night
Sep-28-2025 05:00	54.6	6.0	3.7	West	0.00	Night
Sep-30-2025 22:00	56.3	5.8	9.3	North-West	0.00	Night
Sep-30-2025 23:00	57.4	6.2	8.7	North-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 exceedances at various times throughout the month however, these exceedances can be attributed to smoke from wildfires. This was reflected for all parameters and stations.

Table 3. STAR PIT – September 2025 – Particulate Results

Date	TSP Daily Average	PM2.5 Daily Average	CRAZ NW PM2.5	PM2.5 Hourly Max
Friday 01-Aug-25	8.8	4.4	16.6	5.5
Saturday 02-Aug-25	59.1	53.6	102.4	68.5
Sunday 03-Aug-25	36.4	33.9	54.0	57.2
Monday 04-Aug-25	28.0	25.6	42.9	27.9
Tuesday 05-Aug-25	33.0	27.2	42.1	31.8
Wednesday 06-Aug-25	32.0	19.1	32.0	26.0
Thursday 07-Aug-25	23.6	18.6	33.2	21.1
Friday 08-Aug-25	23.4	20.1	32.3	21.8
Saturday 09-Aug-25	46.0	14.1	28.4	21.6
Sunday 10-Aug-25	23.5	15.2	27.7	21.7
Monday 11-Aug-25	10.1	7.4	15.9	12.1
Tuesday 12-Aug-25	14.7	9.8	20.1	17.3
Wednesday 13-Aug-25	12.1	7.6	14.6	9.3
Thursday 14-Aug-25	11.0	8.8	17.2	12.0
Friday 15-Aug-25	9.8	7.6	21.1	7.8
Saturday 16-Aug-25	11.4	8.7	21.4	10.6
Sunday 17-Aug-25	9.8	8.5	20.3	8.6
Monday 18-Aug-25	19.4	8.2	17.1	10.3
Tuesday 19-Aug-25	18.3	7.3	15.9	10.1
Wednesday 20-Aug-25	7.5	4.7	15.5	7.9
Thursday 21-Aug-25	11.4	9.7	27.7	11.4
Friday 22-Aug-25	1.5	0.5	3.9	1.1
Saturday 23-Aug-25	4.6	1.3	5.8	1.9
Sunday 24-Aug-25	16.6	5.1	6.3	15.2
Monday 25-Aug-25	33.3	9.0	14.4	15.8
Tuesday 26-Aug-25	2.3	1.0	5.4	1.4
Wednesday 27-Aug-25	2.2	0.9		2.3
Thursday 28-Aug-25	0.4	0.2	1.4	0.2
Friday 29-Aug-25	High Winds			
Saturday 30-Aug-25	16.6	12.3	19.4	18.6
Sunday 31-Aug-25	3.1	3.3	12.6	7.5
Monthly Average	17.7	11.8	23.7	16.1

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

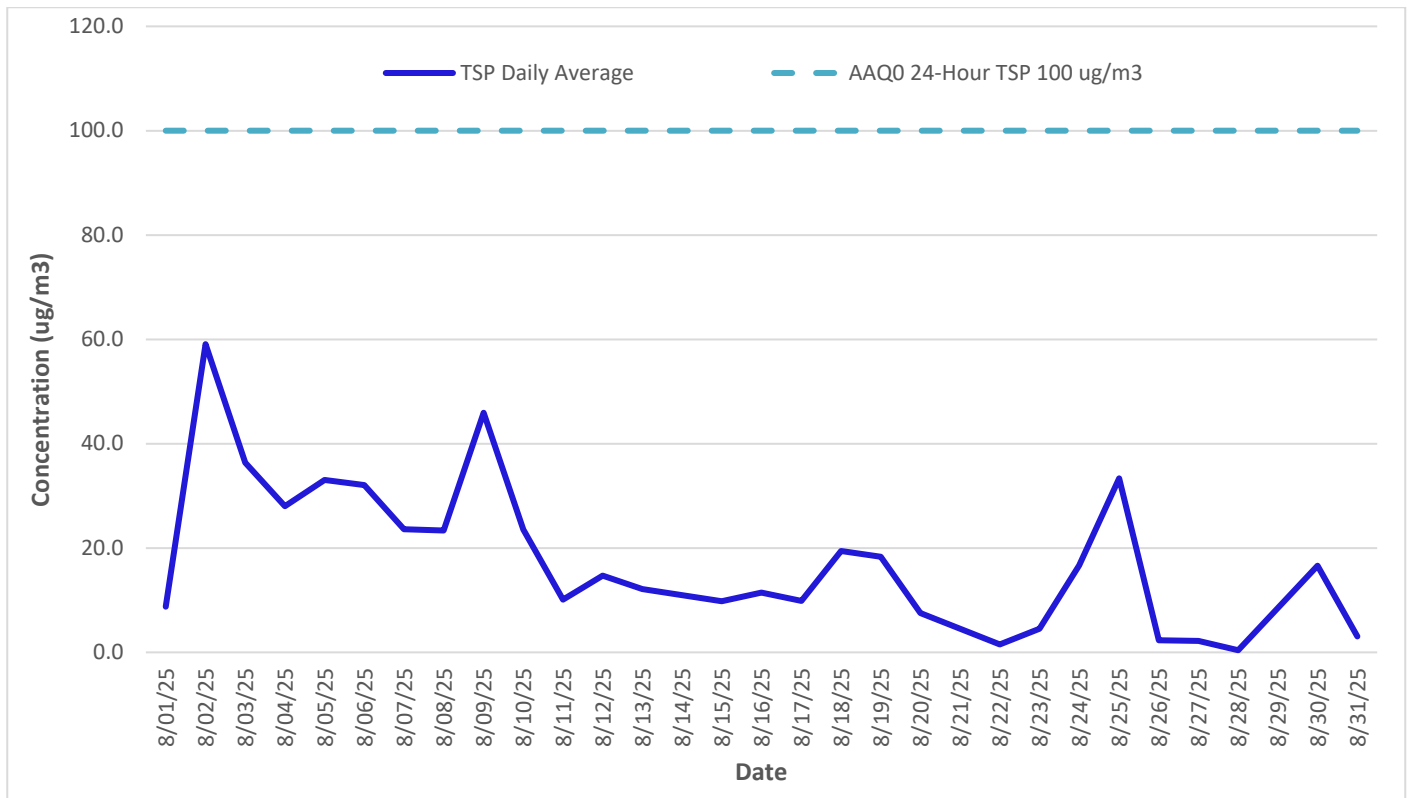


Figure 3. STAR PIT – September 2025 – TSP Daily Particulate Monitoring Results

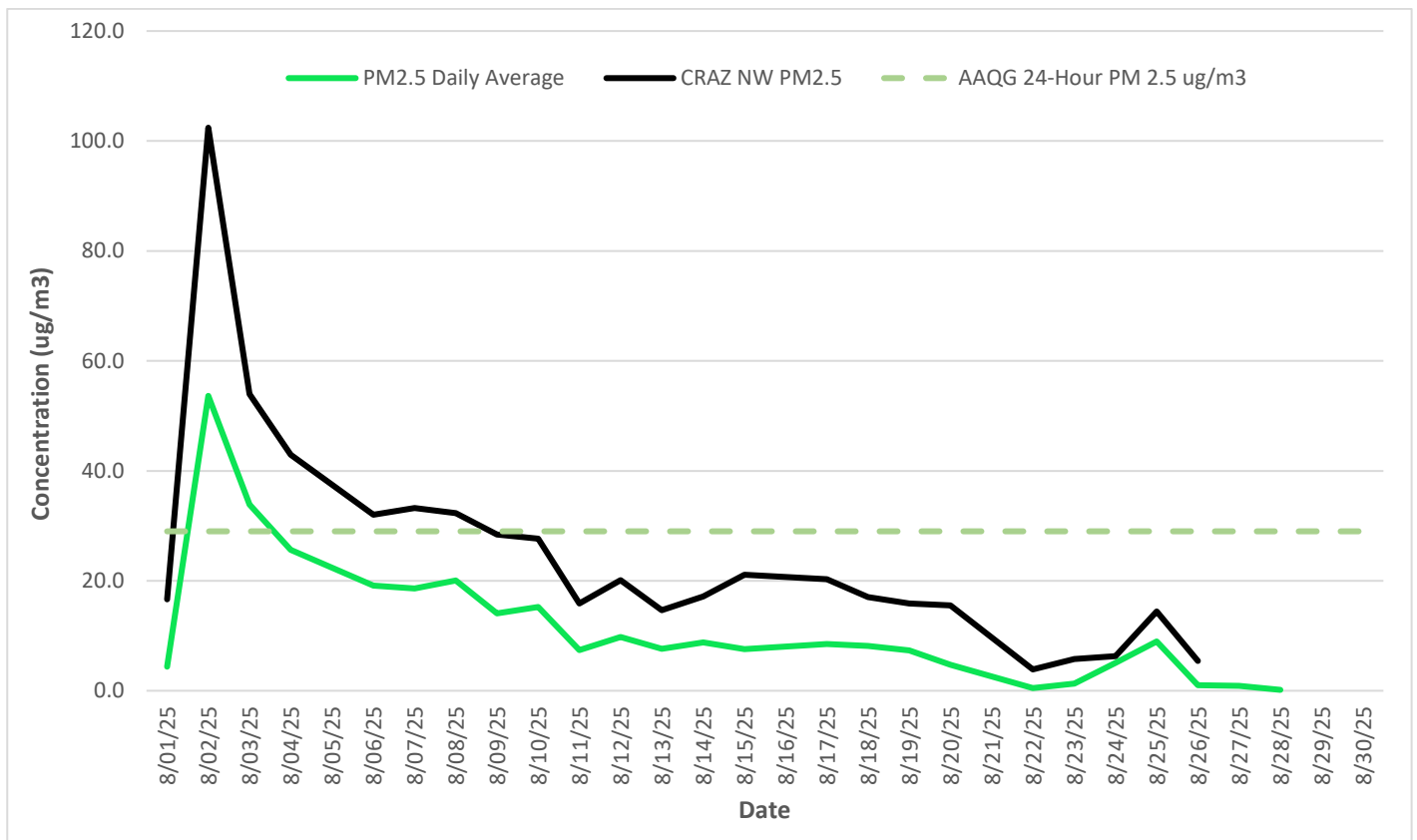


Figure 4. STAR PIT – September 2025 – PM 2.5 Daily Particulate Monitoring Results

4.0 METEOROLOGICAL DATA

4.1 TRAILER

As indicated in Table 4 & Figure 5, the primary wind direction for September 2025 varied and was primarily from the southeast. Wind speeds were relatively high and consistently between 8 – 24 km/hr. The monthly values for the temperature and precipitation can be found in Table 5.

Table 4. STAR PIT Trailer – September 2025 – Wind Data Results

Count of Direction	Column Labels								Grand Total
Row Labels	East	North	Northeast	Northwest	South	Southeast	Southwest	West	
0-4	0.12%	0.07%	0.19%	0.11%	0.06%	0.11%	0.12%	0.11%	0.91%
4-8	0.29%	0.70%	0.47%	2.00%	1.47%	0.51%	2.18%	2.00%	9.62%
8-12	0.79%	1.98%	0.11%	3.37%	5.70%	3.89%	7.91%	7.12%	30.88%
12-16	1.35%	1.30%	0.00%	4.31%	3.97%	5.59%	3.79%	3.60%	23.91%
16-20	0.00%	0.00%	0.00%	5.30%	0.62%	4.79%	1.65%	1.40%	13.76%
20-24	0.00%	0.00%	0.00%	1.99%	0.98%	6.46%	0.75%	0.75%	10.93%
>24	0.00%	0.00%	0.00%	3.49%	0.00%	6.50%	0.00%	0.00%	9.99%
Grand Total	2.55%	4.06%	0.77%	20.57%	12.81%	27.86%	16.40%	14.98%	100.00%

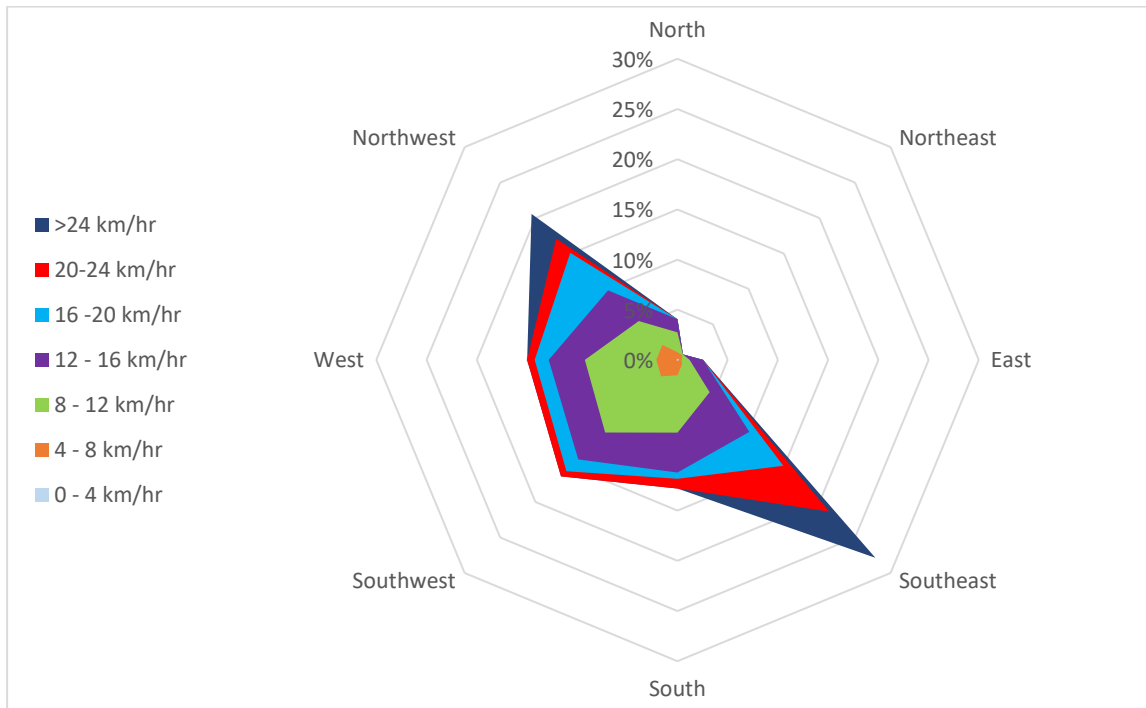


Figure 5. STAR PIT Trailer – September 2025 - Wind Rose

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

Parameter	Monthly Average	1-Hour	
		Maximum	Minimum
Temperature (°C)	15.7	26.1	3.7
Precipitation (mm)	0.0	2.0	0.0
Total Monthly Precipitation (mm)		4.0	

4.2 OFFICE

As indicated in Table 6 & Figure 6, the primary wind direction for September 2025 was from the north and south-southeast with windspeeds between 8 – 24 km/hr. The monthly values for the temperature and precipitation can be found in Table 7.

Table 6. STAR PIT Office – September 2025 – Wind Data Results

Count of Direction	Column Labels								Grand Total
Row Labels	East	North	Northeast	Northwest	South	Southeast	Southwest	West	
0-4	0.07%	0.07%	0.04%	0.28%	0.14%	0.08%	0.18%	0.76%	1.63%
4-8	0.78%	0.79%	0.42%	0.83%	1.09%	0.46%	2.80%	2.53%	9.70%
8-12	0.22%	2.82%	0.55%	2.46%	3.65%	3.20%	3.84%	2.47%	19.21%
12-16	0.00%	2.12%	0.14%	2.70%	6.76%	1.39%	3.49%	3.02%	19.62%
16-20	0.00%	3.28%	0.00%	2.65%	5.39%	1.19%	1.16%	2.90%	16.58%
20-24	0.00%	2.55%	0.00%	1.63%	6.31%	0.22%	0.92%	1.64%	13.27%
>24	0.00%	7.14%	0.00%	1.37%	4.97%	0.00%	0.27%	6.25%	20.00%
Grand Total	1.08%	18.77%	1.15%	11.93%	28.30%	6.54%	12.66%	19.57%	100.00%

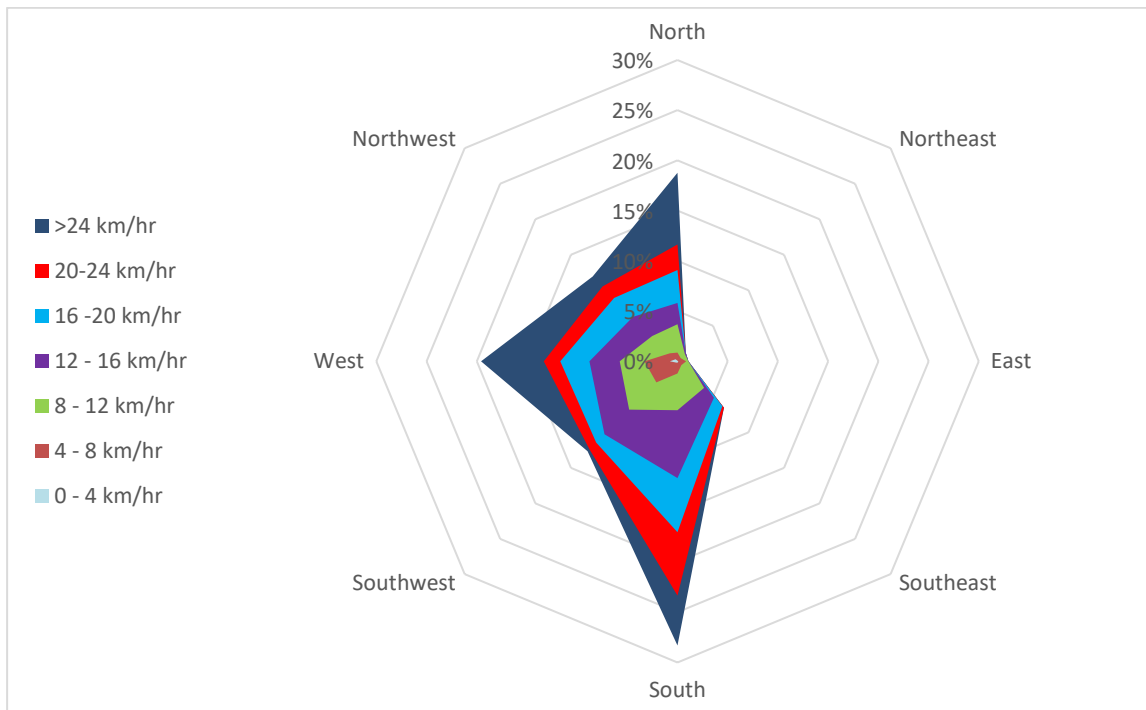


Figure 6. STAR PIT Office – September 2025 - Wind Rose

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

Parameter	Monthly Average	1-Hour	
		Maximum	Minimum
Temperature (°C)	15.9	26.1	4.0
Precipitation (mm)	0.0	1.0	0.0
Total Monthly Precipitation (mm)		2.4	

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	June 11, 2025	08:20	Post	93.9 dBA	B&K 4231	2575493
Post-Measurement Calibration	STAR PIT	September 9, 2025	13:40	Pre	93.8 dBA	B&K 4231	2575493