Study of Ambient Air Quality at Heywood
10 May 2024 – 31 December 2025

Summary

This summary provides the preliminary, interim results from the study of ambient air quality in the vicinity of Our Lady and St. Pauls RC Primary School, Heywood. The Environment Agency's Ambient Air Monitoring Team (in National Permitting Service) carried out the study on behalf of the Greater Manchester, Merseyside and Cheshire Area. This summary considers data collected between 10 May 2024 and 31 December 2025 (601 days), with monitoring continuing after this date.

The pollutants being monitored were hydrogen sulphide (H_2S), methane (CH_4), sulphur dioxide (SO_2) and particulate matter, including Total Suspended Particulate (TSP), PM_{10} and $PM_{2.5}$.

The absolute values of the collected data have associated uncertainties in the monitoring process, but this is minimised by QA/QC measures. This should be considered when assessing the results of these comparisons.

The UK Air Quality Standard Regulations 2010 (AQSR) provide air quality limit values for $PM_{10,}$ $PM_{2.5}$ NO_X and SO_2 to improve air quality by reducing the impact on human health and ecosystems. The Air Quality Strategy 2023 (AQS) provides an additional short-term objective for SO_2 which has been considered. As a requirement of the Environment Act 2021, an environmental target has been set in England for the regulation of fine particulate matter (2023) to be met by 2040. Defra's Environmental Improvement Plans, EIP23 and EIP25 have set out interim target values to ensure early action.

The data has been split by year for comparison. The data for 2024 only covers 10 May 2024 – 31 December 2024 (236 days).

There is no health standard for methane in ambient air. The average methane concentration over the monitoring period was 1.4 mg/m^3, which is slightly above the Northern Hemisphere background concentration[3] of ~1.3 mg/m^3.

In the absence of AQSR or AQS objectives, the hydrogen sulphide (H_2S) data was compared with the World Health Organisation (WHO) guidelines for both human health and odour annoyance (Table 1.1).

Table 1.1 Impact summary of H_2S compliance with the WHO guidelines for Europe 2000[(1)].

Pollutant	Averaging Time	Guidance Limit	Percentage of Time Exceeding the Guidance Limit	
			2024	2025
H_2S	24-hr (midnight-midnight)	150 µg/m^3	0	0
	30-min	7 µg/m^3	0	0

Comparing the collected data with the World Health Organisation (WHO) guidelines showed that H_2S was within health limits, with a maximum 24-hour average H_2S concentration of 2.4 µg/m^3 over the monitoring period. Comparison of the H_2S data with the WHO guideline for odour annoyance of 7 µg/m^3 (as 30-minute average concentrations) indicated that the air quality at the monitoring site did not exceed this guideline during the monitoring period.

Tables 1.2 - 1.4 summarise the extent of likely compliance/exceedance for each of the species with respect to the relevant limit values at the MMF monitoring site.

A projected compliance ratio ≤1 indicates compliance, whilst a value >1 indicates non-compliance.

Table 1.2 Impact summary for short-term air quality limit values.

Pollutant	Averaging Time	AQS	AQSR	Limit value	Year	Maximum Concentration	Permitted Exceedance (A)	Measured Exceedance	Extrapolated Exceedance* (B)	Projected Compliance Ratio (B/A)
PM_{10}	24-hr (midnight-midnight)		2010	50µg/m^3	2024	40.5µg/m^3	35/year	0	0	0.00
					2025	46.3µg/m^3		0	0	0.00
SO_2	15-min	2000		266µg/m^3	2024	548µg/m^3	35/year	11	-	-
					2025	14.4µg/m^3		0	0	0.00
	1-hr		2010	350µg/m^3	2024	496µg/m^3	24/year	2	-	-
					2025	12.2µg/m^3		0	0	0.00
	24-hr (midnight midnight)			125µg/m^3	2024	85.8µg/m^3	3/year	0	-	-
					2025	4.2µg/m^3		0	0	0.00

* Extrapolated from effective monitoring period, unless full averaging period is available.

Table 1.2 shows there were several measured values above the 15-minute and 1-hour limit values for SO_2. We can attribute the SO_2 source to a volcanic plume that transited the UK between 31 May and 1 June 2024 following an eruption on the Reykjanes Peninsula in Iceland. This was a rare event of short duration and is not representative of typical annual SO_2 values in the area. Therefore, the SO_2 data has not been extrapolated, and the projected compliance ratio has not been calculated for the data in 2024.

Table 1.3 Impact summary for long-term air quality limit values.

Pollutant	Averaging Time	AQSR	UK Environment Act*	EIP23**	EIP25***	Limit value (A) (µg/m^3)	Year	Measurement (µg/m^3)	Projected Compliance Ratio (B/A)
PM_{10}	Year	2010	-	-	-	40	2024	11.2	0.28
							2025	12.2	0.31
$PM_{2.5}$		2010	-	-	-	20	2024	6.9	0.35
							2025	7.5	0.38
		-	-	2023	-	12	2024	6.9	0.58
							2025	7.5	0.63
		-	2023	-	2025	10	2024	6.9	0.69
							2025	7.5	0.75

***** **Environmental Targets (Fine Particulate Matter) (England) Regulations 2023, as required by UK Environment Act 2021. To be met by 2040.**

****** **Environmental Improvement Plan 2023. To be met by 2028.**

******* **Environmental Improvement Plan 2025. To be met by 2030.**

Table 1.4 Impact summary for other relevant$^{\Delta}$ limit values.

Pollutant	Averaging Time	AQSR	Limit value (A) (µg/m^3) ◇	Year	Measurement* (B) (µg/m^3)	Projected Compliance Ratio (B/A)
SO_2	Year	2010	20	2024	1.9	0.10
				2025	1.5	0.08
SO_2	Winter (1 Oct – 31 Mar)	2010	20	24-25	1.7	0.09

Δ Air Quality Standards Regulations 2010 critical levels for the protection of vegetation and ecosystems.
◊The areas where the critical levels apply are based on the monitoring criteria for the vegetation and ecosystems limit values set under Directive 2008/50/EC

1. More than 20km from an agglomeration (i.e. an area with a population of more than 250,000);
2. More than 5km away from industrial sources regulated under Part A of the Environment Act 1990 (and/or Part A1 sites under PPC regulations);
3. More than 5km away from motorways
4. More than 5km away from built up areas of more than 5000 people

*Extrapolated from effective monitoring period, unless full averaging period is available.

Comparing the collected data with the relevant AQSR limit values and AQS objectives showed that the monitoring location was subject to concentrations of SO_2, PM_{10} and $PM_{2.5}$ that were likely to meet their respective limit values. Levels of $PM_{2.5}$ at the monitoring site were below the new Environmental Target for fine PM and the EIP interim targets.

The AQSR has an annual and winter standard for SO_2 for the protection of vegetation and ecosystems. This standard is only relevant if the location meets certain criteria◊. In this instance the monitoring location does not meet these criteria and therefore the standard does not apply. It is mentioned merely as a point of possible interest, that the levels measured were below the standard (see Table 1.4).

It is worth noting that the assumption has been made that the conditions during the monitoring period were representative of a typical year. These calculations do not consider

changes in weather conditions or changes to local sources that might occur outside of the monitoring period.

References

1. Air Quality in Scotland, 2024. © Crown copyright (2024) [online] Available at: https://www.scottishairquality.scot/news/elevated-so2-being-measured-across-scotland-due-icelandic-volcanic-eruption [Accessed 27 January 2026]

2. Department of the Environment (April 2023), The Air Quality Strategy: framework for local authority delivery, (HMSO).

3. Department for Environment, Food & Rural Affairs 2023, Environment Improvement Plan 2023, (HM Government).

4. Department for Environment, Food & Rural Affairs 2025, Environment Improvement Plan 2025.

5. European Commission, Directive 2008/50/EC on ambient air quality and cleaner air for Europe.

6. The Air Quality Standards Regulations 2010, The Air Quality Standards Regulations 2010

7. *The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023* *The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023*

8. Department for Business, Energy and Industrial Strategy. 2021. *Long-Term Atmospheric Measurement and Interpretation of Radiatively Active Trace Gases, Annual Report (Oct 2020 – Sept 2021)*. Retrieved from Long-Term Atmospheric Measurement and Interpretation of Radiatively Active Trace Gases: annual report 2021 (publishing.service.gov.uk) [Accessed 11 December 2023]

9. World Health Organisation (2000), *WHO Air Quality Guidelines for Europe*