

## **Scottish Government Guidance Note in relation to the measurement of ambient Particulate Matter and the application of measured concentrations for the revocation of Air Quality Management Areas – August 2021**

Part IV of the Environment Act requires local authorities in Scotland to conduct a review of the quality of air within their respective areas against the standards and objectives specified in the Air Quality (Scotland) Regulations 2000 (as amended). At present, 11 local authorities across Scotland have declared an AQMA for Particulate Matter (PM<sub>10</sub>)<sup>1</sup> and some authorities may be considering the potential for revocation where reported measured concentrations are consistently below the annual mean objective.

Due to the well documented detrimental impact of PM on human health, the Scottish Government has adopted more stringent air quality objectives for Particulate Matter than other parts of the United Kingdom, with the annual mean objectives for PM<sub>10</sub> (18 µg m<sup>-3</sup>) and PM<sub>2.5</sub> (10 µg m<sup>-3</sup>). These objectives aligning closely with the WHO Guideline Values<sup>2</sup> which aim to achieve the lowest concentrations of PM possible.

The accurate measurement of ambient PM represents a significant challenge, particularly under conditions where concentrations can generally be considered to be low (e.g. close to the WHO Guideline Values). Numerous technologies and methodologies have been developed to quantify concentrations of PM in near-real time to provide insight of prevailing concentrations to policy makers, health and environmental specialists and the general public. Whilst relatively new MCERT approved instruments, such as those included in the Scottish Air Quality Monitoring Network, have generally brought improvements in measurement capability, achieving accurate and reproducible measurements of the low concentrations remains a significant challenge. As such, ambient concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> reported by different MCERT accredited instruments in the same environments can vary by several micrograms (as an annual mean). Such differences represent a particular problem when considering compliance with air quality standards, especially in situations where a change in instrumentation results in a step-change reduction in reported concentrations.

In the past few years, such a situation has been observed at numerous monitoring sites included within the Scottish Air Quality Database and Website (<http://www.scottishairquality.scot/>) resulting in uncertainty regarding the appropriateness of revoking some AQMAs. In order to prevent the potential inappropriate revocation of PM<sub>10</sub> AQMAs, the Scottish Government commissioned research to collocate a number of PM instruments commonly deployed by Scottish Local Authorities in comparison with the EU reference method. The aim of this study is to provide the Scottish Government and Scottish local authorities with clear guidance on the appropriateness of revoking PM<sub>10</sub> (and any future PM<sub>2.5</sub>) AQMAs on the basis of measurement data.

This research is ongoing and preliminary findings from the first stage of the study can be found here: [Pilot Research Study to Investigate Particulate Matter Monitoring Techniques in Scotland](#). The second stage of research is anticipated to conclude in Autumn 2022 at which point it is anticipated that formal guidance will be issued by the Scottish Government to all Scottish local authorities. Until the research study is complete and formal guidance published, the Scottish Government will consider proposed PM<sub>10</sub> AQMA revocations on a case-by-case basis and request that any authority considering revocation(s) consult with the Scottish Government at the earliest opportunity.

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<sup>1</sup> PM<sub>10</sub> - Particulate matter with an aerodynamic diameter of less than 10 micrometres (µm).

<sup>2</sup> [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)