



HS2



Our approach to Air Quality

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HS2 Strategy

To raise the bar on vehicle emission standards and leave a legacy for future projects.



Our approach to air quality

HS2 emission standards have been set for all construction vehicles (HGV and LDV) and Non-Road Mobile Machinery.



Vehicle Emission Standards

Vehicle class and minimum vehicle emission standard	London low emission zone	Clean air zone's	Rest of route
HGV's -Euro VI	Target – 100% from start of works	Target – 100% from start of works	Target – 100% from start of works
	Requirement - 100% from start of works	Requirement – 100% from implementation	Requirement – as far as reasonably practical, 100% from 2020
LDV's -Euro VI Diesel -Euro IV Petrol	Target – 100% from start of works	Target – 100% from start of works	Target – 80% from start of works
	Requirement – 100% from 2020	Requirement – 100% from implementation	Requirement – 100% from 2020

Exemptions

Specialism

Being a specialist vehicle (not readily available as Euro VI compliant).

Unforeseen circumstances

E.g. breakdowns or mechanical failure requiring a replacement vehicle, not readily available as Euro VI compliant.

Triviality

if it is expected that a particular vehicle is planned to make no more than 12 visits in any 12-month rolling period.



NRMM Engine Emission Stage Requirements

Area	London SPG Stage Requirements		HS2 Requirements	
	From 2015	From 2020	From 2017	From 2020
Central Activity Zone (includes Euston)	IIIB	IV	IV _(1,2)	V
Rest of Greater London	IIIA	IIIB	IIB ₍₂₎	IV _(1,2)
Rest of country	Not applicable	Not applicable	IIB ₍₂₎	IV _(1,2)

Notes

1. IIIB for $37 \leq P < 56\text{kW}$, as there is no corresponding Stage IV at EU level
2. IIIA for constant speed engines of any power, as there is no corresponding Stage IIB or IV at EU level

NRMM Exemptions

Block

Not currently manufactured at the EU stage stated or there is insufficient quantity of compliant equipment in the UK supply chain and retrofit is unviable.

Visibility

Not currently manufactured to meet the EU stage, or insufficient quantity of compliant equipment in the UK supply chain for the task, but it meets the next best available EU stage and retrofit is unviable.

Short-term

The NRMM plant is on site for a period of no greater than 30 days to account for a range of potential circumstances where equipment is urgently required or for a very short period.

HS2 Approach to Air Quality



Use of vehicles

Transport managers have set a series of traffic management requirements to ensure contractors manage the 'use' of vehicles.

Construction Dust

All construction sites are required to comply with Institute of Air Quality Management best practise guidance.

Alarms will sound if guidelines are breached, requiring immediate on-site action.



Recognising success

In October 2018, HS2 won the **National Air Quality Award** for the Air Quality Initiative of the Year.





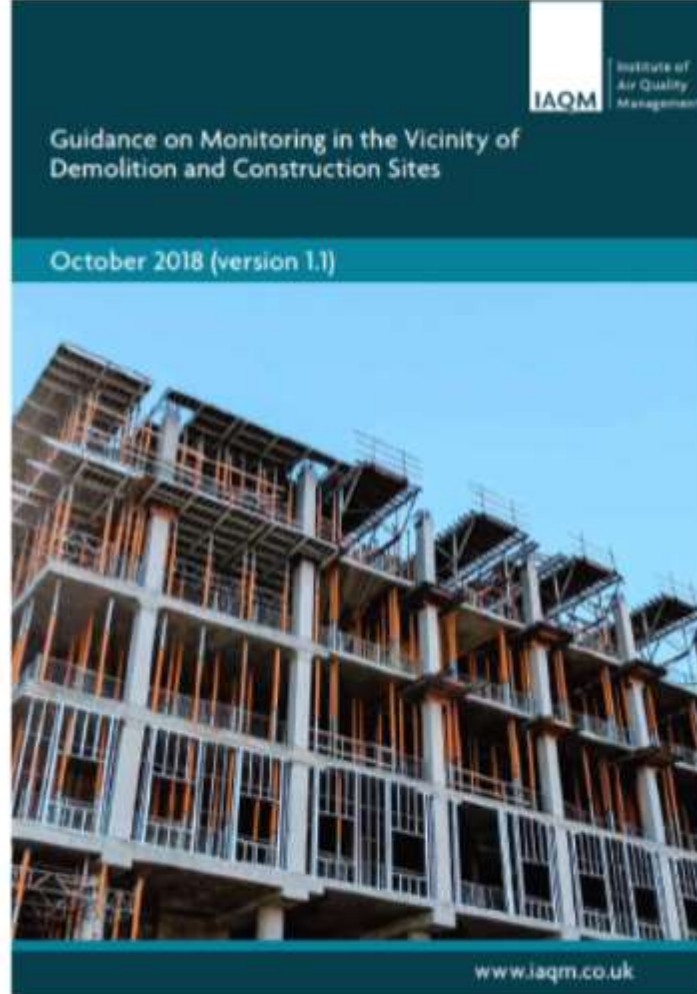
Re-assessment of the $250 \mu\text{g m}^{-3}$ action value

Work Package 1

Testing PM_{10} trigger values at construction sites



August 2016
Anita Fort and Gary Fuller
Environmental Research Group
Kings College London



Air quality innovation

We have changed industry best practice after collaborating with Kings College London.

Working with universities



UNIVERSITY OF
BIRMINGHAM

Natural Environment Research Council has awarded £5M funding to University of Birmingham for an air quality 4 year research study (West Midlands Air Quality Improvement Programme) that HS2 are key stakeholders.

**The
Alan Turing
Institute**

HS2 sharing air quality data their Greater London Authority funded air quality research project to bring together various sources of air quality data across London.

**Imperial College
London**

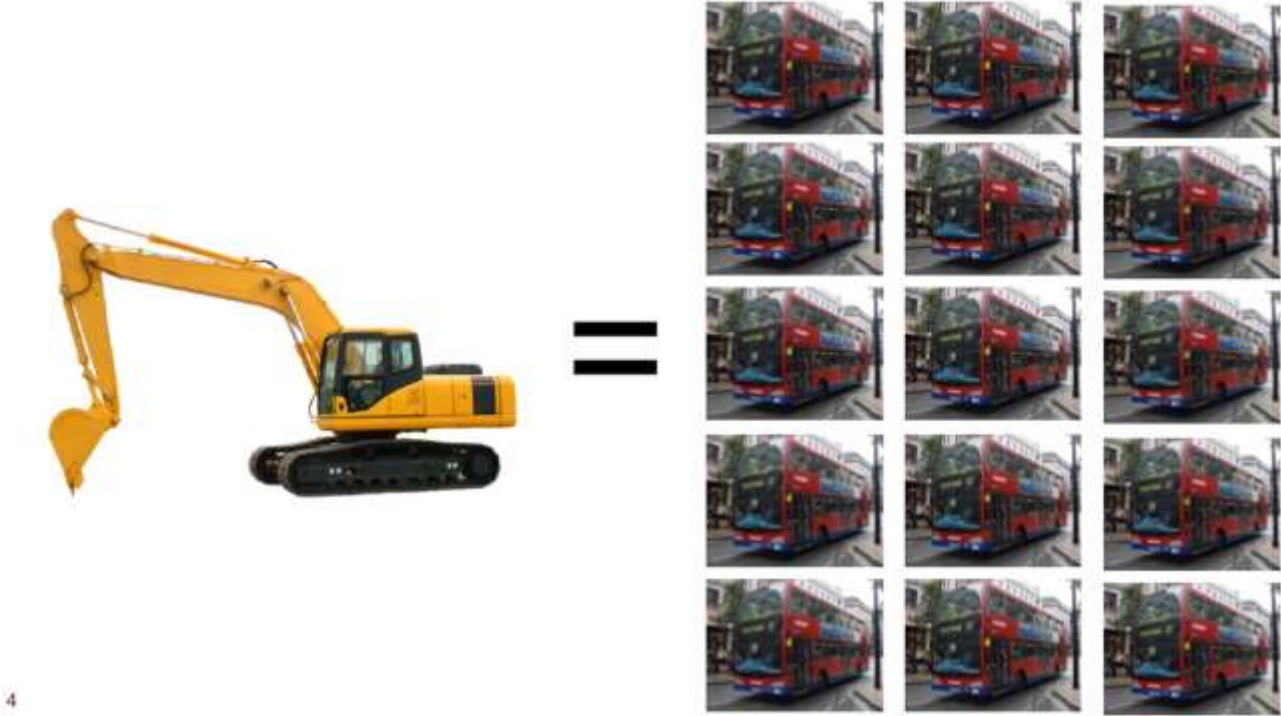
HS2 working as stakeholder to develop detailed major infrastructure health impact (including noise & air quality) study proposal.



HS2 Innovation Panel Approved Project

Non-Road Mobile Machinery emissions reduction

We are partnering with Kings College London and others to reduce construction plant emissions.



Dust suppression examples



Long reach mulcher



Motofog



Dust suppression examples



Wheelwash



St. James Gardens trials



Hydrogen tower lights



Hybrid Excavator & Electric Wheelbarrow



St. James Gardens trials



Hybrid 20T Excavator in action



What's next?

Continue to fulfil our Code of Construction Practice commitments.

React to policy and regulation changes.

Work with partners to become industry leaders.



Old Oak Common



Washwood Heath