



Department
for Environment
Food & Rural Affairs

www.gov.uk/defra

Report on measures for 2013 exceedance of the Target Value for B[a]P in East Midlands non- agglomeration zone (UK0032)

November 2015



Llywodraeth Cymru
Welsh Government

© Crown copyright 2015

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence 1.3. To view this licence, visit www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ or email PSI@nationalarchives.gsi.gov.uk

This publication is available at www.gov.uk/government/publications

Any enquiries regarding this publication should be sent to us at:

Air Quality
Department for Environment, Food and Rural Affairs
Area 2C
Nobel House
Smith Square
London
SW1P 3JR
Email: air.quality@defra.gsi.gov.uk

With technical input from Ricardo Energy & Environment

Contents

1. Introduction	4
1.1 Context	4
1.2 Status of zone.....	4
2 Exceedance situation East Midlands [B[a]P_UK0032_2013_1] related to domestic emissions.....	6
2.1 Description of exceedance.....	6
2.2 Source apportionment.....	8
2.3 Measures	10

1. Introduction

1.1 Context

Under the EU Directive 2004/107/EC¹, the target value for B[a]P is an annual mean concentration of 1 nanogram (one billionth of a gram (10^{-9})) per cubic metre (m^{-3}) of ambient air or lower. The Directive requires that all reasonable measures that do not entail disproportionate cost should be put in place taken to ensure this target is not exceeded. This is the report on measures required for exceedances of the target value for B[a]P within the East Midlands zone (UK0032) identified within the 2013 UK air quality assessment.

1.2 Status of zone

Exceedances within this zone were identified on the basis of model results on a 1 km x 1 km grid resolution providing supplementary information. This exceedance was reported via e-Reporting dataflow G² on attainment and Air Pollution in the UK³.

Table 1 summarises the spatial extent and associated resident population for the exceedances identified in this zone, as reported via e-Reporting.

Table 1. Area exceeding B[a]P target value in 2013 and associated population for East Midlands zone UK0032

Zone code	Zone Name	Area exceeding TV (km^2)	Population exceeding TV
UK0032	East Midlands	2	3376

Figure 1a shows the locations of the exceedances in the context of the zone as a whole. Figure 1b shows the part of the zone including the exceedances in more detail.

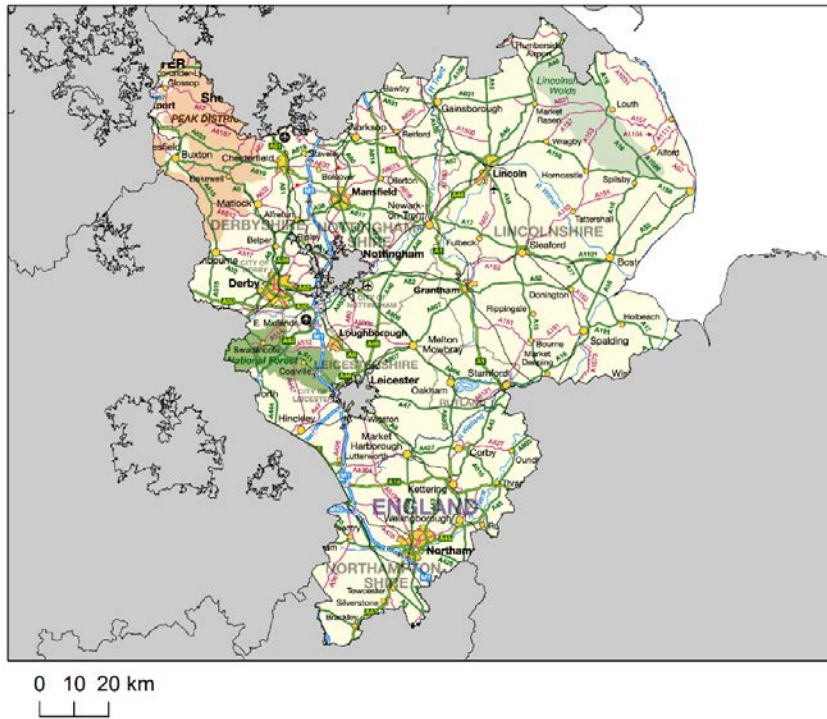
¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:023:0003:0016:EN:PDF>

² <http://cdr.eionet.europa.eu/gb/eu/aqd>

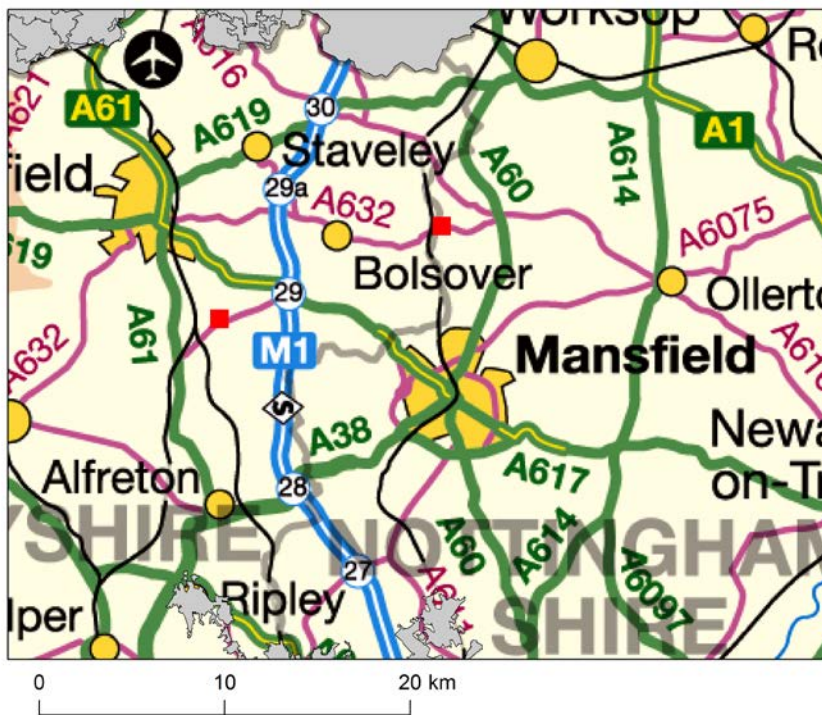
³ <http://uk-air.defra.gov.uk/library/annualreport/index>

Figure 1. Location of exceedance of the B[a]P target value in 2013 within the East Midlands zone UK0032. Exceeding grid squares are marked red.

a) The whole zone



b) The exceedance locations at higher spatial resolution



An initial source apportionment was carried out and this analysis identified one exceedance situation within this zone

- East Midlands [B[a]P_UK0032_2013_1] related to domestic emissions (area of exceedance 2 km²)

This report includes a description of the exceedance situation, including maps, information on source apportionment and a list of measures already taken or to be taken. Information on measures is reported within e-Reporting dataflow K⁴.

2 Exceedance situation East Midlands [B[a]P_UK0032_2013_1] related to domestic emissions

2.1 Description of exceedance

This exceedance situation has an area of 2 km² and has a resident population of 3,376 and consists of two individual grid squares:

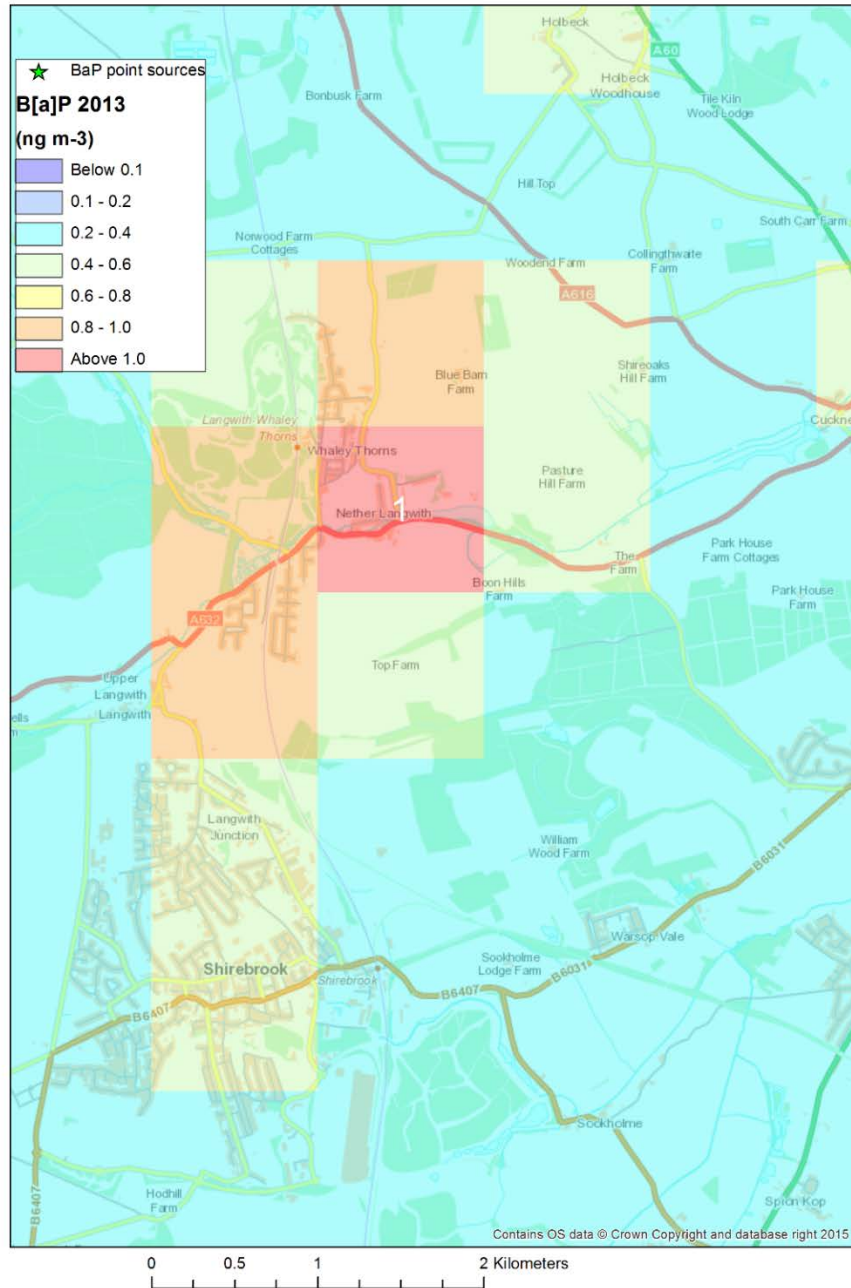
- 1 km² in Nether Langwith, near Mansfield on the border between Nottinghamshire and Derbyshire (numbered exceeding grid square 1 below, 453500, 370500) with a resident population of 1,070
- 1 km² in North Wingfield, near Chesterfield in Derbyshire (numbered exceeding grid square 2 below, 441500, 365500) with a resident population of 2,306

Figures 3a and 3b show the locations of the exceedance situation in detail. The exceeding grid squares within this exceedance situation are numbered and the numbers correspond to those in subsequent tables.

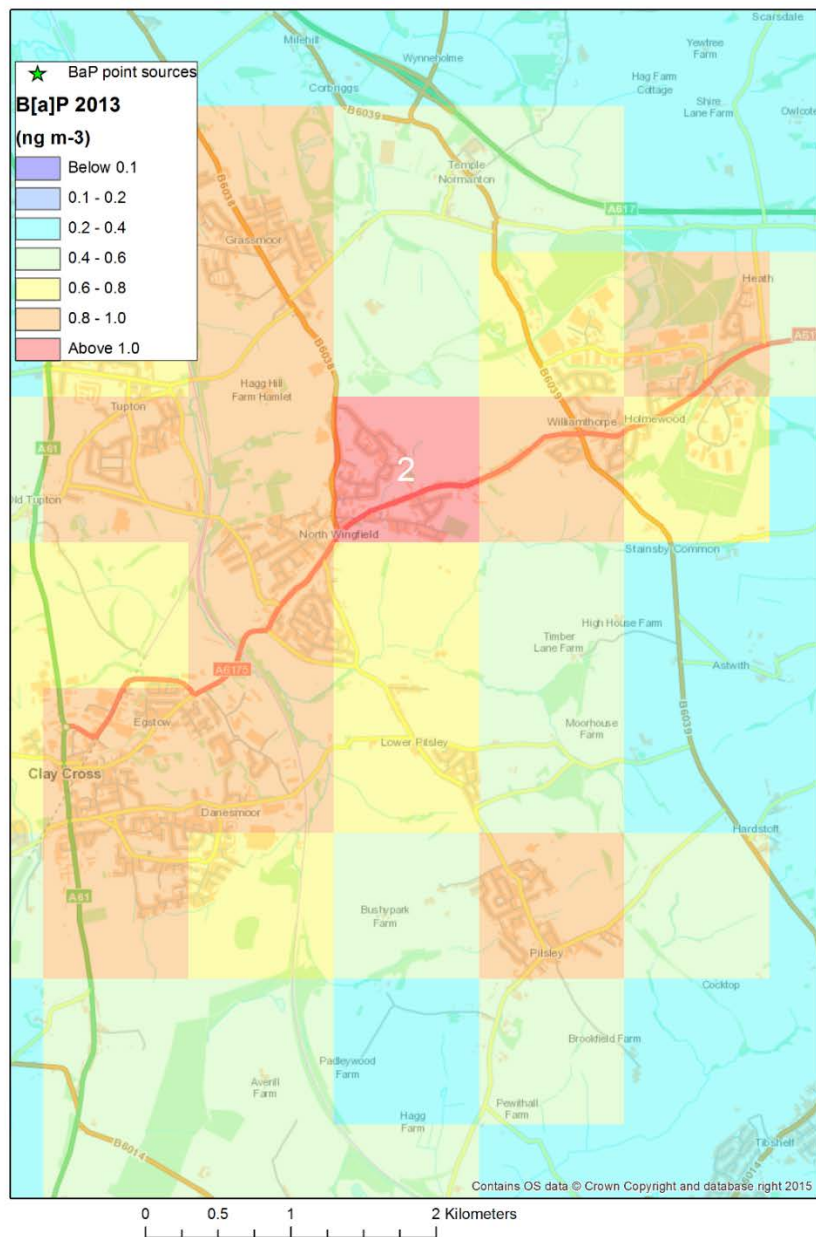
⁴ <http://cdr.eionet.europa.eu/gb/eu/aqd>

Figure 3. Exceedance situation East Midlands [B[a]P_UK0032_2013_1]. Exceeding grid squares are marked red.

a) Nether Langwith



b) North Wingfield



2.2 Source apportionment

Table 2 provides a breakdown of the main emission sources (source apportionment) that have contributed to the grid squares in this exceedance situation, highlighting the significant contribution from commercial and residential sources. The final column is the total from all emission sources. The values in this column have been rounded to 1 decimal place for consistency with the values used in the compliance assessment. The values in the other columns have not been rounded. The other shaded columns are the subtotals for the regional, urban background and local contributions. Detailed source apportionment analysis shows that domestic coal and domestic wood combustion are the main sources contributing, sources regulated by local authorities.

Table 2. Source apportionment for exceedance situation East Midlands [B[a]P_UK0032_2013_1]. Annual mean B[a]P concentration (ngm^{-3})

Grid square number	OS easting (m)	OS Northing (m)	Zone	Regional background: Total	Urban background increment: Total	Urban background increment: Traffic	Urban background increment: Industry including heat and power production	Urban background increment: commercial and residential	Urban background increment: Shipping	Urban background increment: Off road mobile machinery	Urban background increment: Other	Local increment: Total	Local increment: Industry including heat and power production	Total for all emission sources
1	453500	370500	32	n/a	1.064	0.003	0.010	0.987	0.000	0.001	0.063	0.004	0.004	1.1
2	441500	365500	32	n/a	1.112	0.005	0.010	1.031	0.000	0.002	0.063	0.000	0.000	1.1

2.3 Measures

North Wingfield

North Wingfield is part of North East Derbyshire District Council. It has a smoke control area (SCA) that covers the area identified in the compliance report Air Pollution in the UK 2013 as being in exceedance. As set out in the B[a]P overview report (section 3.1), SCAs are designated as such by local authorities under the Clean Air Act (1993) and within these areas it is an offence to burn unauthorised fuels unless using an appliance that has been legally exempted for use with these fuels within an SCA. These appliances have been tested to show that they emit none or very little smoke. Those found in breach of SCA requirements can face financial criminal penalties, the level of these fines can vary depending on the extent and length of the breach.

Details of this SCA are available on the Council's web site⁵. This SCA was not included in the emission inventory within the model that was used for the assessment of compliance in 2013. However, as part of the improvements indicated in the overview document (section 3.1, improvements to modelling), this smoke control area will form part of the assessment in future years. As such a measure is already in place that mitigates the emissions of B[a]P from domestic coal and wood burning in this area and compliance reporting in future years will be expected to show no exceedance in this area.

Nether Langwith

Nether Langwith in Nottinghamshire has a small modelled exceedance. Nether Langwith is within the boundaries of Bassetlaw District Council. It is not covered by a smoke control area and has traditionally been associated with domestic solid fuel burning due to its close working links in the past to the local deep coal mines, where a 'coal allowance' formed part of workers' earnings. The local demographic is now more diverse and while the burning of solid fuel is still a popular choice in the coal-towns and villages of North Nottinghamshire, the number of people who regularly receive free coal is significantly reduced. While solid fuel use has continued, in part due to the heating options available within existing housing stock, in discussions with the local authority and local coal merchants, evidence suggests that the popularity of ordinary house coal (which is more polluting) has significantly reduced as the cleanliness and convenience of smokeless solid fuel has taken over. The area is also connected to the gas grid.

Bassetlaw District Council is a member of the Nottinghamshire and Derbyshire Local Authority Energy Partnership, a non-statutory partnership of all 20 councils across Nottinghamshire and Derbyshire to achieve the requirements of the Home Energy and Conservation Act 1995. One of the aims of that partnership is to 'promote low carbon sources of heating and power'. The schemes and initiatives introduced as part of that partnership agreement covered the Nether Langwith area and many home owners have taken up the various home-improvements made available under the scheme. Further information is available on the Council's web site⁶.

⁵ <http://www.ne-derbyshire.gov.uk/environment-planning/environmental-health/pollution/smoke-control-areas/>

⁶ <https://www.bassetlaw.gov.uk/media/108219/hecareport.pdf>

Householders in Nether Langwith will also have been able to apply for support to make energy efficiency improvements to their homes through the Warmfront initiative that is available through energy companies and other Government schemes that have been available since 2013.

Census data from 2011 suggested that 36% of homes in Nether Langwith have solid fuel central heating. This figure was used within the emission inventory that was used in the model that identified an exceedance for B[a]P. The Local Authority Air Quality Officer has carried out investigations in the Nether Langwith area including speaking to residents and the local coal merchants. Following these discussions, the local authority is of the view that this figure is now lower – potentially below 30% - as home owners in the area have taken advantage of the heating/energy efficiency schemes available to them and the reduced reliance in the local area on the 'free coal' scheme.

The modelled exceedance also assumes that ordinary house coal is used in those homes that have solid fuel heating. As set out above, discussions with the local coal merchants indicate that the burning of coal is no longer the predominant fuel amongst those with solid fuel heating.

With the changes already made through household energy improvements and the reduced reliance on coal in the area, it is expected that in future years this area will have achieved compliance with the target value.