

# Emissions from specified generators

Version 1

## Guidance on dispersion modelling for oxides of nitrogen assessment from specified generators

### Scope

This guidance is for applicants applying for an environmental permit to operate Tranche A and Tranche B specified generators as defined in the regulations Statutory Instrument 2017 N. 0000<sup>1</sup>, and where bespoke detailed air quality modelling and assessment is required.

Contact the Environment Agency or Natural Resources Wales if you are unsure if this guidance applies to you.

A specified generator is any combustion plant used for the purpose of generating electricity; or any group of such combustion plant located at the same site, operated by the same operator, and having the same purpose, between 1 and 50MWth, and less than 1 to 50 MWth if used to meet a capacity agreement or an agreement to provide balancing services. Generators in sites permitted under Chapter II and III of the IED<sup>2</sup>, emergency back-up generators operated for the purpose of testing for no more than 50 hours per year, and those providing a safety role at nuclear sites are exempt from these controls.

The modelling and assessment will ensure that the conditions the Environment Agency or Natural Resources Wales set will prevent harm to sensitive receptors from emissions to air.

The applicant needs to:

- describe the site setting;
  - the location of sensitive receptors and public exposure
  - the presence of buildings or terrain
  - the background concentration of pollutants
- characterise the emissions to air;
- fully describe the generating plant and operating envelope;
- use modelling to predict impacts and potential breaches of environmental standards for air at sensitive receptors;
- and where there are potential breaches or significant impacts, demonstrate an acceptable number of operational hours per year to safeguard air quality.

This guidance is intended for use with:

- Tranche A generators that have NO<sub>x</sub> emissions greater than 500 mg/Nm<sup>3</sup> (at 273.15 K, 101.3 kPa, 0% moisture and 15% oxygen), with aggregated rated thermal inputs of greater than 5 MWth and operating more than 50 hours per year.
- Tranche B generators with NO<sub>x</sub> emissions less than 190 mg/Nm<sup>3</sup>, with aggregated thermal inputs greater than 1 MWth and operating more than 50 hours per year where there is a higher risk of NO<sub>x</sub> impacts. For example, where the plant is located in or near an Air Quality Management Area (AQMA) declared for NO<sub>2</sub>, or operates for more than 500 hours per year. These include former Tranche A generators with transitional arrangements of:

<sup>1</sup> STATUTORY INSTRUMENTS 2017 No. 0000, ENVIRONMENTAL PROTECTION, ENGLAND AND WALES, The Environmental Permitting (England and Wales) (Amendment) Regulations 2017

<sup>2</sup> Directive 2010/75/EU of the European Parliament and of the council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Recast)

NO<sub>x</sub> emissions less than 500 mg/Nm<sup>3</sup> with aggregated rated thermal inputs greater than 5 MWth; and aggregated rated thermal inputs less than 5 MWth.

Detailed dispersion modelling is not required for Tranche B generators that fulfil the Standard Rules Permit conditions, or screen out of detailed air quality modelling assessment by way of a low risk simple bespoke application.

## Dispersion modelling assessment guideline

### Existing guidance

Environment Agency air emission risk assessment<sup>3</sup> and air dispersion modelling report<sup>4</sup> guidance needs to be used in conjunction with this document. Detailed below are specific matters for specified generators that need to be considered when conducting dispersion modelling and assessment of NO<sub>x</sub> emissions.

### Site setting description

The applicant needs to describe the site location and expected operational life. The number and thermal capacity of each generator unit on site needs to be stated.

You need to clearly state where there are one or more of the following within 1km of the site:

- The boundary of a neighbouring Local Authority;
- Any AQMAs declared for NO<sub>2</sub>;
- Any other specified generator arrays operating more than 50 hours per year. This is so that long term and short term cumulative impacts of specified generators can be considered by the Local Authority.

### Environmental standards for air

Dispersion modelling assessment needs to be conducted against the long term and short term NO<sub>2</sub> environmental standards for air limit values of:

- 40 µg/m<sup>3</sup> annual mean;
- 200 µg/m<sup>3</sup> hourly mean, not to be exceeded more than 18 times per calendar year.

The applicant needs to make assessment against these standards at sensitive receptors. Sensitive receptors are located where there is relevant public exposure. Relevant public exposure are locations where members of the public have access, are regularly present and can be exposed for a significant portion of the averaging time of the standard. The standards do not apply where health and safety at work provisions exist and where members of the public do not have access.

Examples of relevant public exposure include, but may not be limited to:

- Annual mean – residential properties, schools, hospitals and care homes;
- Hourly mean – residential properties, schools, hospitals, care homes, hotels, gardens, busy shopping streets, bus stations and railway stations that are not

---

<sup>3</sup> Environment Agency and Department for Environment, Food & Rural Affairs – Guidance, Air emissions risk assessment for your environmental permit <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>

<sup>4</sup> Environment Agency and Department for Environment, Food & Rural Affairs – Guidance, Environmental permitting: air dispersion modelling reports <https://www.gov.uk/guidance/environmental-permitting-air-dispersion-modelling-reports>

fully enclosed, and car parks where the public are reasonably expected to spend an hour or more.

There is no absolute hourly limit environmental standard for the acute exposure to NO<sub>2</sub>, however there can be health effects over a certain threshold. To understand the potential health effects and the measure of risk to members of the public the maximum hourly (100<sup>th</sup> percentile) NO<sub>2</sub> Predicted Environmental Concentration (PEC) needs to also be included in the assessment.

Assessment of NO<sub>x</sub> impacts on special protection areas (SPAs), special areas of conservation (SACs), Ramsar sites and sites of special scientific interest (SSSIs) is also required. Distance criteria to these designations are provided in Environment Agency air emission risk assessment<sup>3</sup> guidance. Critical levels, nutrient nitrogen critical loads and acid deposition critical loads need to be assessed.

## Emissions

NO<sub>x</sub> emissions are of greatest concern from gas oil fuelled generators, such as those fired on diesel. Where generators are run on liquid fuels or gases other than gas oil or natural gas as defined by the MCPD<sup>5</sup> emissions of sulphur dioxide (SO<sub>2</sub>) and particulates must also be considered.

The applicant needs to measure emissions concentrations and use these to derive emission rates for dispersion modelling. Measurements of NO<sub>x</sub> need to meet the requirements of BS EN 14792<sup>6</sup>.

The sample line shall be made of a suitable corrosion resistant material (for example stainless steel, borosilicate glass, ceramic; PTFE is only suitable for flue gas temperature lower than 200 °C). At temperatures greater than 250 °C, stainless steel and certain other materials can alter the ratio of NO<sub>2</sub> to NO<sub>x</sub>. In this case, ceramic, glass, quartz or titanium needs to be used. The use of any materials made from copper or copper based alloys are not permitted.

Emission concentrations need to be quoted at reference conditions of 273.15 K, 101.3 kPa, 0% moisture and 15% oxygen. Actual exhaust temperature, oxygen and moisture content, exhaust volumetric flow rates, and measured or assumed primary NO<sub>2</sub> to NO<sub>x</sub> ratios must be stated in the modelling assessment report.

Tranche B generators that must comply with an emission limit value (190 mg/Nm<sup>3</sup>) within a given time period of 10 or 20 minutes should account for potentially higher emissions during this period in their modelling.

## Buildings and terrain

The applicant needs to model the effect of buildings and terrain in the dispersion modelling where appropriate. Buildings can include engine unit bodies or other structures that can influence dispersion.

Building downwash effects needs to be considered when:

- the stack height is less than 2.5 times the height of a building, and;
- the distance of a building from the stack is less than 5L, where L is the lesser of the building height and the maximum projected width.

---

<sup>5</sup> Directive (EU) 2015/2193 of the European Parliament and of the Council of 25 November 2015 on the limitations of emissions of certain pollutants into the from medium combustion plants

<sup>6</sup> BS EN 14792:2017 Stationary source emissions. Determination of mass concentration of nitrogen oxides. Standard reference method. Chemiluminescence, 31 January 2017 (British Standards Institution)

Terrain effects need to be considered when slope gradients are greater than 1:10 (10%) in the modelling domain.

## Background concentration

The applicant needs to use demonstrably representative ambient background concentration data to calculate the Predicted Environmental Concentrations (PECs) at individual receptor locations. Environment Agency air emissions risk assessment<sup>3</sup> and air dispersion modelling report<sup>4</sup> guidance needs to be followed.

Where receptors are close to other sources (for example busy roads or major industry) it is likely that low resolution grid average background values are inappropriate. The relevant Local Authority needs to be consulted for advice on representative background concentrations at these receptor locations or areas. This is of particular importance in or near AQMAs. For existing sites double counting in the background needs to be avoided. A list of the Defra continuous monitors that measure O<sub>3</sub>, NO and NO<sub>2</sub> along with the environment descriptor type and locations are provided in Appendix A and B of this guidance for England and Wales respectively.

## NO<sub>x</sub> to NO<sub>2</sub> conversion

Atmospheric NO<sub>x</sub> to NO<sub>2</sub> conversion is a result of nitric oxide (NO) being converted to NO<sub>2</sub> in the presence of ozone (O<sub>3</sub>).

For primary NO<sub>2</sub> to NO<sub>x</sub> ratios of 10% or less, worst case NO<sub>x</sub> to NO<sub>2</sub> conversion ratios of 35% for short term assessment and 70% for long term assessment can be used as a conservative approach in the modelling study.

However, for high NO<sub>x</sub> emission generators case specific ratios may be calculated. Calculation of case specific NO<sub>x</sub> to NO<sub>2</sub> conversion ratios require an appropriate atmospheric chemical reaction method or model. The method or model must use valid input data, including: measured or assumed primary NO<sub>2</sub> to NO<sub>x</sub> ratios; representative background O<sub>3</sub>, NO and NO<sub>2</sub>; and sunlight. A list of the Defra continuous monitors that measure O<sub>3</sub>, NO and NO<sub>2</sub> along with the environment descriptor type and locations are provided in Appendix A and B of this guidance for England and Wales respectively.

## Operating envelope and operational hours

The applicant needs to fully describe the operating envelope. The operating envelope refers to the way the applicant will operate the generators on site. It needs to cover all periods of potential operations. This includes hourly, daily, weekly or seasonal operations, the typical and maximum periods of continuous operation, and the number and capacities of generators utilised at these times.

Modelling needs to account for operations that are planned to take place at any time of the year. Where operations are scheduled to or will only take place (for example due to the balancing market contract requirements) at certain times of the year, times of the day and/or days of the week, these can be modelled using temporally varying emissions using an hourly emissions file.

Note, where the operations are proposed to only take place at certain times of the year, days of the week or times of the day, the site permit will be conditioned as such. The operating envelope needs to therefore be defined as flexibly as is likely to be needed for operations. Any testing regime needs to also be detailed and accounted for in the operating envelope.

The operational hours are the number of hours operated per year within the described operating envelope and needs to account for the 'typical' and 'maximum' number of hours per year. For example, if the applicant is to be regulated under Article 6.3 for existing plants and Article 6.8 for new plants of the MCPD<sup>5</sup> with less than 500 operating hours per year as a rolling average over a five year period, the maximum number of operational hours offered by those rolling average flexibility derogations need to be accounted for.

The operational hours for annual assessment is the total number of operational hours per year. The operational hours for short term assessment and statistical analysis is any hour or portion of an hour that the plant operates.

## Short term statistical analysis

The applicant needs to conduct statistical analysis if short term predictions indicate that 19 or more hours exceed the standard at a specific receptor over the modelled operating envelope.

There are a number of statistical methods that can be used to conduct such an analysis, for example, the hypergeometric probability distribution or Monte Carlo simulations. Fundamental parameters for the statistical analysis method is the number of hours where the PEC exceeds the standard, the number of operational hours per year and the defined operating envelope.

Where the chosen statistical method assumes operational hours are independent and random (for example the hypergeometric distribution), but the operating envelope defines continuous operations of more than an hour, then the calculated probability should be multiplied by a 2.5 factor<sup>7</sup> (see Example).

The chosen statistical analysis method needs to be justified and the probability and likelihood of exceedance calculated and discussed.

- Probabilities of 1% or less indicate exceedances are highly unlikely.
- A probability of less than 5% indicates exceedances are unlikely, provided the generator plant operational lifetime is no more than 20 years.
- Probabilities greater than or equal to 5% indicates there is potential for the exceedances and may not be considered acceptable on a case-by-case basis.

## Results and impact assessment

The applicant needs to assess the Process Contributions (PCs) and against the relevant standard and any potential exceedances taking modelling uncertainties into account. Air dispersion modelling report guidance<sup>4</sup> needs to be followed and relevant contour plots and results tables included in the assessment.

Annual mean assessment – Annual mean PCs can be calculated by scaling down long term predictions by the total number of operational hours over the total number of hours in the operating envelope. For example, for 400 operational hours per year with a full year (8760 hours) operating envelope, long term PCs can be scaled down by a factor of 400/8760. PECs can then be calculated by adding representative annual mean background concentrations.

Hourly mean assessment – Where short term statistical analysis indicates potential for the hourly mean standard to be exceeded by the PEC, that is, probabilities

---

<sup>7</sup> The safety factor of 2.5 was derived from Monte Carlo simulations with scenarios of up to 500 operational hours per year and up to 4 hours continuous operation by Air Quality Modelling and Risk Assessment Team, Natural Resources Wales.

greater than 5%, then further proposals to reduce the risk of the exceedance are required, such as, restrictions on the operating hours.

## Example

An applicant requires an environmental permit to operate an aggregated diesel generator set of 40 MWth and makes an application to operate any time of the year for up to a maximum of 400 hours per year. Operations are expected to last up to 4 hours when required. The operating envelope is therefore considered to be all 8760 hours in the year, and there are 400 operational hours within the operating envelope. Dispersion modelling over the full year indicates that the PEC exceeds the hourly mean limit value of 200  $\mu\text{g}/\text{m}^3$  for 300 hours at a sensitive receptor over the worst modelled meteorological year.

Giving:

- 400 operational hours (this is the sample size denoted by “ $N$ ”)
- An operating envelope of 8760 hours (the population size denoted by “ $M$ ”)
- 300 exceedance hours (or the number of failures in the population denoted by “ $e$ ”)
- 8460 non-exceedance hours (the number of successes in the population denoted by “ $K$ ”, where  $K = M - e = 8760 - 300 = 8460$ )

The probability of randomly selecting 19 or more exceedance hours (failures) in 400 sample trials, is the same as selecting at most “ $N$ ” minus 19 non-exceedance hours (successes) in 400 sample trials ( $N - 19 = 400 - 19 = 381$ ). The probability of an exceedance can therefore be calculated using the cumulative hypergeometric distribution.

$$\sum_{i=0}^{N-19} \frac{\binom{K}{i} \binom{M-K}{N-i}}{\binom{M}{N}}$$

Based on these data the cumulative hypergeometric distribution is 9.3%. As the continuous operations can be up to 4 hours, this probability is multiplied by 2.5, giving a probability of exceedance of 23.25%, indicating there is potential for an exceedance of the hourly standard.

The cumulative hypergeometric distribution calculates the probability to be less than 1.8% when there are 330 operational hours. Again multiplying this by the 2.5 factor gives a probability of 4.6%, indicating short term exceedances are unlikely. It is therefore proposed to permit the generator and restrict the operational hours to 330 hours per year.

## UNCLASSIFIED

## Appendix A

List of Defra network continuous monitoring sites measuring O<sub>3</sub>, NO and NO<sub>2</sub> in England extracted from <https://uk-air.defra.gov.uk/> on 22/09/17.

UK-AIR ID	Site Name	Zone	Latitude	Longitude	Altitude (m)	Environment Type	Further information
UKA00353	Barnsley Gawber	Yorkshire & Humberside	53.56292	-1.510436	100	Background Urban	<a href="#">View site networks and parameters</a>
UKA00626	Birmingham A4540 Roadside	West Midlands Urban Area	52.47609	-1.875024	109	Traffic Urban	<a href="#">View site networks and parameters</a>
UKA00559	Birmingham Acocks Green	West Midlands Urban Area	52.437165	-1.829999	134	Background Urban	<a href="#">View site networks and parameters</a>
UKA00488	Blackpool Marton	Blackpool Urban Area	53.80489	-3.007175	16	Background Urban	<a href="#">View site networks and parameters</a>
UKA00429	Bournemouth	Bournemouth Urban Area	50.73957	-1.826744	30	Background Urban	<a href="#">View site networks and parameters</a>
UKA00483	Brighton Preston Park	Brighton/Worthing/Littlehampton	50.840836	-0.147572	10	Background Urban	<a href="#">View site networks and parameters</a>
UKA00494	Bristol St Paul's	Bristol Urban Area	51.462839	-2.584482	15	Background Urban	<a href="#">View site networks and parameters</a>
UKA00424	Canterbury	South East	51.27399	1.098061	35	Background Urban	<a href="#">View site networks and parameters</a>
UKA00537	Charlton Mackrell	South West	51.05625	-2.68345	54	Background Rural	<a href="#">View site networks and parameters</a>
UKA00614	Chilbolton Observatory	South East	51.149617	-1.438228	78	Background Rural	<a href="#">View site networks and parameters</a>
UKA00592	Coventry Allesley	Coventry/Bedworth	52.411563	-1.560228	98	Background Urban	<a href="#">View site networks and parameters</a>
UKA00263	Exeter Roadside	South West	50.725083	-3.532465	43	Traffic Urban	<a href="#">View site networks and parameters</a>
UKA00170	Glazebury	North West & Merseyside	53.46008	-2.472056	21	Background Rural	<a href="#">View site networks and parameters</a>
UKA00169	High Muffles	Yorkshire & Humberside	54.334944	-0.80855	267	Background Rural	<a href="#">View site networks and parameters</a>
UKA00450	Hull Freetown	Kingston upon Hull	53.74878	-0.341222	4	Background Urban	<a href="#">View site networks and parameters</a>
UKA00171	Ladybower	East Midlands	53.40337	-1.752006	420	Background Rural	<a href="#">View site networks and parameters</a>
UKA00265	Leamington Spa	West Midlands	52.28881	-1.533119	175	Background Urban	<a href="#">View site networks and parameters</a>
UKA00222	Leeds Centre	West Yorkshire Urban Area	53.80378	-1.546472	78	Background Urban	<a href="#">View site networks and parameters</a>
UKA00573	Leicester University	Leicester Urban Area	52.619823	-1.127311	83	Background Urban	<a href="#">View site networks and parameters</a>
UKA00489	Leominster	West Midlands	52.22174	-2.736665	75	Background Suburban	<a href="#">View site networks and parameters</a>
UKA00247	Liverpool Speke	Liverpool Urban Area	53.34633	-2.844333	26	Industrial Urban	<a href="#">View site networks and parameters</a>
UKA00211	London Bloomsbury	Greater London Urban Area	51.52229	-0.125889	20	Background Urban	<a href="#">View site networks and parameters</a>
UKA00230	London Eltham	Greater London Urban Area	51.45258	0.070766	60	Background Suburban	<a href="#">View site networks and parameters</a>
UKA00568	London Haringey Priory Park South	Greater London Urban Area	51.584128	-0.125254	37	Background Urban	<a href="#">View site networks and parameters</a>
UKA00472	London Harlington	Greater London Urban Area	51.48879	-0.441614	35	Industrial Urban	<a href="#">View site networks and parameters</a>

UNCLASSIFIED

UKA00266	London Hillingdon	Greater London Urban Area	51.49633	-0.460861	34	Background Urban	<a href="#">View site networks and parameters</a>
UKA00315	London Marylebone Road	Greater London Urban Area	51.52253	-0.154611	35	Traffic Urban	<a href="#">View site networks and parameters</a>
UKA00253	London N. Kensington	Greater London Urban Area	51.52105	-0.213492	5	Background Urban	<a href="#">View site networks and parameters</a>
UKA00152	Lullington Heath	South East	50.7937	0.18125	125	Background Rural	<a href="#">View site networks and parameters</a>
UKA00248	Manchester Piccadilly	Greater Manchester Urban Area	53.48152	-2.237881	45	Background Urban	<a href="#">View site networks and parameters</a>
UKA00617	Manchester Sharston	Greater Manchester Urban Area	53.371306	-2.239218		Industrial Suburban	<a href="#">View site networks and parameters</a>
UKA00463	Market Harborough	East Midlands	52.554444	-0.772222	145	Background Rural	<a href="#">View site networks and parameters</a>
UKA00220	Middlesbrough	Teesside Urban Area	54.569297	-1.220874	10	Industrial Urban	<a href="#">View site networks and parameters</a>
UKA00213	Newcastle Centre	Tyneside	54.97825	-1.610528	45	Background Urban	<a href="#">View site networks and parameters</a>
UKA00632	Northampton Spring Park	East Midlands	52.272257	-0.916605		Background Urban	<a href="#">View site networks and parameters</a>
UKA00549	Norwich Lakenfields	Eastern	52.614193	1.301976	36	Background Urban	<a href="#">View site networks and parameters</a>
UKA00274	Nottingham Centre	Nottingham Urban Area	52.95473	-1.146447	41	Background Urban	<a href="#">View site networks and parameters</a>
UKA00360	Plymouth Centre	South West	50.37167	-4.142361	18	Background Urban	<a href="#">View site networks and parameters</a>
UKA00421	Portsmouth	Portsmouth Urban Area	50.82881	-1.068583	5	Background Urban	<a href="#">View site networks and parameters</a>
UKA00408	Preston	Preston Urban Area	53.76559	-2.680353	40	Background Urban	<a href="#">View site networks and parameters</a>
UKA00462	Reading New Town	Reading/Wokingham Urban Area	51.45309	-0.944067	58	Background Urban	<a href="#">View site networks and parameters</a>
UKA00251	Rochester Stoke	South East	51.45617	0.634889	14	Background Rural	<a href="#">View site networks and parameters</a>
UKA00575	Sheffield Devonshire Green	Sheffield Urban Area	53.378622	-1.478096	89	Background Urban	<a href="#">View site networks and parameters</a>
UKA00012	Sibton	Eastern	52.2944	1.463497	46	Background Rural	<a href="#">View site networks and parameters</a>
UKA00235	Southampton Centre	Southampton Urban Area	50.90814	-1.395778	7	Background Urban	<a href="#">View site networks and parameters</a>
UKA00409	Southend-on-Sea	Southend Urban Area	51.544206	0.678408	37	Background Urban	<a href="#">View site networks and parameters</a>
UKA00445	St Osyth	Eastern	51.77798	1.049031	8	Background Rural	<a href="#">View site networks and parameters</a>
UKA00337	Stoke-on-Trent Centre	The Potteries	53.02821	-2.175133	172	Background Urban	<a href="#">View site networks and parameters</a>
UKA00484	Sunderland Silksworth	North East	54.88361	-1.406878	110	Background Urban	<a href="#">View site networks and parameters</a>
UKA00272	Thurrock	Eastern	51.47707	0.317969	8	Background Urban	<a href="#">View site networks and parameters</a>
UKA00565	Walsall Woodlands	West Midlands Urban Area	52.605621	-2.030523	149	Background Urban	<a href="#">View site networks and parameters</a>
UKA00433	Weybourne	Eastern	52.95049	1.122017	16	Background Rural	<a href="#">View site networks and parameters</a>
UKA00362	Wicken Fen	Eastern	52.2985	0.290917	5	Background Rural	<a href="#">View site networks and parameters</a>
UKA00482	Wigan Centre	North West & Merseyside	53.54914	-2.638139	45	Background Urban	<a href="#">View site networks and parameters</a>
UKA00406	Wirral Tranmere	Birkenhead Urban Area	53.37287	-3.022722	38	Background Urban	<a href="#">View site networks and parameters</a>
UKA00168	Yarner Wood	South West	50.5976	-3.71651	119	Background Rural	<a href="#">View site networks and parameters</a>



## Appendix B

List of Defra Automatic Urban and Rural Monitoring Network (AURN) sites in Wales extracted from <https://uk-air.defra.gov.uk/networks/> on 03/08/2018

UK-AIR ID	Site Name	Zone	Latitude	Longitude	Altitude (m)	Environment Type	Further information
UKA00217	Cardiff Centre	Cardiff Urban Area	51.48178	-3.17625	12	Background Urban	<a href="#">View site networks and parameters</a>
UKA00653	Cardiff Newport Road	Cardiff Urban Area	51.49096	-3.152305		Traffic Urban	<a href="#">View site networks and parameters</a>
UKA00515	Chepstow A48	South Wales	51.638094	-2.678731	67	Traffic Urban	<a href="#">View site networks and parameters</a>
UKA00436	Cwmbran	South Wales	51.6538	-3.006953	71	Background Urban	<a href="#">View site networks and parameters</a>
UKA00596	Hafod-yr-ynys Roadside	South Wales	51.680579	-3.133508		Traffic Urban	<a href="#">View site networks and parameters</a>
UKA00323	Narberth	South Wales	51.781784	-4.691462	160	Background Rural	<a href="#">View site networks and parameters</a>
UKA00380	Newport	South Wales	51.601203	-2.977281	24	Background Urban	<a href="#">View site networks and parameters</a>
UKA00501	Port Talbot Margam	Swansea Urban Area	51.58395	-3.770822	5	Industrial Urban	<a href="#">View site networks and parameters</a>
UKA00497	Swansea Roadside	Swansea Urban Area	51.632696	-3.947374	61	Traffic Urban	<a href="#">View site networks and parameters</a>
UKA00137	Aston Hill	North Wales	52.50385	-3.034178	370	Background Rural	<a href="#">View site networks and parameters</a>
UKA00440	Wrexham	North Wales	53.04222	-3.002778	70	Traffic Urban	<a href="#">View site networks and parameters</a>